International Journal of Engineering & Technology, 7 (2.13) (2018) 447-450

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research Paper

Factors Affecting Writing Skill Using Computer Assisted Test (CAT) in Junior High School Students

Raheni Suhita*, Herman J. Waluyo, Budhi Setiawan

Universitas Sebelas Maret, Surakarta, Indonesia
**Corresponding author E-mail: raheni_suhita@yahoo.com*

Abstract

This study aimed to determine the factors affecting writing skill quality and the level of their contribution to help language teachers to formulate more effective strategies using CAT to enhance writing skill. The correlating factors discussed in this research were students' reading comprehension skill, vocabulary mastery, and attitude toward language. The study applied quantitative approach with simple and multiple correlation and regression techniques. The samples of the study were 100 students taken using stratified random sampling technique from a population of 2000 junior high school students in Surakarta City. The data were collected using multiple choice test for students' reading comprehension skills and vocabulary mastery, writing assignments, and questionnaires for their attitudes toward the Indonesian language. The findings showed that there are positive correlations between the independent variables, either individually or simultaneously, with writing skill. The individual contribution levels is 44.75% of reading comprehension skill, 27.70% of vocabulary mastery, and 28.5% of attitude toward language. As for the simultaneous correlation of the three determining factors make up to 45.16%. contribution level to writing skill quality. Thus it can be concluded that reading comprehension has the most contribution to writing skill compared to vocabulary mastery and attitude toward language. The identified levels of contribution can be taken into consideration in formulating teaching strategies and materials to enhance writing skill quality.

Keywords: *affecting factor, writing skill, junior high school, education*

1. Introduction

Writing is one of the basic language skills that is considered the most difficult to master by students. Johnstone, Saddhono, and Rohmadi argued that writing is generally regarded as one of the most difficult language skills compared to other skills for students [1],[2]. Writing skills require a structured way of presenting ideas in an organized and well-planned manner [3],[4].

Despite being difficult, writing skill is a skill that must be mastered by students. Writing skill is an essential element for students' academic success [5]. Students need to have good writing skill because it is one of the basic requirements for better academic performance. Writing is a basic language skill that cannot be ignored in language learning process because it has an essential role to achieve good learning outcome [6],[7]. According to Benjamin & Clum, writing aachievement is regarded as a good indicator of language learning process [8]. Writing is a universal activity which is also a part of language tests for students wherever they study [9]. Enhancing students' writing skill is a high priority in educational activities. Thus, based on the above description, improving the writing skill of junior high school students is an urgent matter to be pursued.

Unfortunately, there are still many complaints regarding students' writing skill to date. The students' writing skill is still lacking. A complaint on students' writing skills was also raised by Carney who found that 95% of language teachers think that writing is an important skill but only 19% of them assign writing as tasks because of its time-consuming assessment process. Students also consider that writing is a good but exhausting and underappreciated activity [10]. Al-Roomy in his research found that writing has become a problem for students and that this condition affects their educational outcomes [11]. Students recognize the importance of having writing skill, but everytime they are given a writing assignment, they often find it difficult.

There are several factors that are suspected to cause difficulties for students in writing and their low writing skill quality, among which are the internal factors of the students. The research results of Sarwiji and Despandhe found that there are students who still make many mistakes in the use of Indonesian language for their writing purposes [12],[13]. The aspects of error found in their research include spelling, diction, sentence structure, paragraph organization, and idea development. Considering the above description, one of the factors suspected as the cause of the low quality of students writing skill is closely related to the students' reading comprehension skill. Thus, reading comprehension skill may have an essential role in improving students' writing skills. There is a significant correlation between students' reading comprehension skill and their writing skills [14],[15],[16].

Another factor that contributes to writing skills is vocabulary mastery. Olinghouse found a significant correlation between vocabulary mastery and writing skills [17]. An illustration that an understanding on the choice of words has a significant contribution to improving students' writing skills [18],[19]. The acquisition of vocabulary plays an essential role in the formulation of a complete oral and written text [20],[21].

Copyright © 2018 Authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

2. Methodology

This study was conducted in a public Junior High School in Surakarta City. The research applied survey method through correlation study. The survey method was chosen based on the consideration regarding the research objectives of obtaining information related to symptom status at the time frame of the study [22]. In this study, there are four variables studied which are: (1) writing skill as the dependent variable (Y); (2) reading comprehension skill as independent variable (X_1); vocabulary mastery (X_2), and attitudes toward Indonesian language (X_3).

The population of this research was the students of a public Junior High School in Surakarta City. The samples used in this research were 100 students of a Public Junior High school in Surakarta. The number of samples was based on Arikunto stated that if the subject of research is more than 100 samples, 10-15% or 20-25% samples can be taken or depending on the researchers' ability in terms of time, energy, and funds [23]. The sampling technique used was multi-stage categorial random sampling [24]. This technique reduces population to sub-population and then randomly determines the sample from the sub-population [25]. The data on students' writing skills were collected by essay test technique in the form of writing task with criteria including theme, length of essay, and completion time. The theme that should be developed by the students was taken from the applicable curriculum applicable during the period of the research.

Referring to the research problems, there are four hypotheses to be tested in this study. The testing of the first, second, and third hypotheses was conducted by using simple regression and correlation analysis techniques or often referred to as Product Moment correlation; while to test the fourth hypothesis, multiple regression and correlation analysis techniques were used. The Calculation of the simple correlation coefficient between X_1 and Y; X_2 and Y; and X_3 and Y were conducted using Product Moment correlation statistic formula, whereas to calculate the coefficient of double correlation between X_1, X_2 with Y, the following statistical formula was used.

$$R^2 = \frac{JK\,(Reg)}{\Sigma y^2}$$ Then it was rooted or $\sqrt{R^2}$

3. Results and Discussion

The writing skill data were the scores obtained through writing assignments. The results of data collection and processing from a hundred respondents (n = 100) showed empirically that the scores ranged from 19 as the lowest score to 30 as the highest score. From the distribution of these scores, the average score of 23.80 median 24.00; and mode of 20.00 were generated, while the standard deviation was 3,435 and the variance was 11,798. The data collection and processing results of the reading comprehension skill showed that the lowest score obtained was 18 and the highest score was 36. From the data distribution, the average score was 27.91; median 28.00; and mode 35.00; whereas standard deviation was obtained at 5.538 with variance of 30.669. The results of the vocabulary mastery data collection and processing showed that the score ranged from 18 as the lowest score and 35 as the highest score. From the data distribution, it was obtained the average score of 28.21; median 28.00; and mode 27.00, while the standard deviation was 4.395 with variance of 19.319. The result of attitudes toward Indonesian language data collection and processing from 100 respondents (n = 100) showed the lowest score of 154 and the highest score of 181. The average score was 167.5 and the median was 167.5 with mode of 160, while the standard deviation was 6.929 with the variance of 48.010.

Sudjana stated that the analytical requirements that must be met before the regression are: (1) the samples in the form of paired data X and Y which are taken randomly and determined based on the minimum of *n* sample size, (2) for each group of given X predictor , the Y responses are independent and normally distributed with the mean $\alpha + \beta$ X (3) for each known X group, the variance $\sigma^2_{y.x}$ is considered equal, and (4) the estimated error $(Y - \hat{Y})$ is normal with zero average and variance of $\sigma^2_{y.x}$ [26].

The result of simple regression analysis on data pair of X_1 as independent variable and Y as dependent variable resulted in regression equation of $\hat{Y} = 12{,}129 + 0{,}418X_1$. The result of significance and linearity testings of regression equation can be summarized as presented in table 1 below.

Table 1. List of Variance Analysis to Test the significance and Linearity Equation of Simple Regression

Source of Variance	Df	SS	MS	F_{count}	F_{table} α =0,05
Total	100	57812.00	-	-	-
Coefficient (a)	1	56.644	-	-	-
Regression (b/a)	1	522.672	522.672	79.393**	8.75
Residue	98	645.328	6.585	-	-
Linearity	16	286.114	17.882	1.920^{*ns}	2.105
Error	82	763.632	9.313	-	-

The table above shows that F_{count} of 79.393 is much larger than F_{table} at the real level α = 0.01 of 8.57. This suggests that the simple regression equation model is statistically significant. Meanwhile, F_{count} for regression linearity test of 1.920 which is smaller than F_{table} at a significant level α = 0.05 of 2.105 indicates that the relation between X_1 and Y is linear.

The level (degree) of the correlation strength was shown by r_{y1} of 0.551. The significance testing results of the correlation coefficient that has been obtained is presented in table 2 below.

Table 2. The analysis result of the Simple Correlation Coefficient Test of X_1 and Y

Df	r_{y1}	F_{count}	F_{table} α =0,05	α =0,01
98	0.669	8.910**	1.157	3.165

Based on the test results on the correlation coefficient, it can be concluded that the correlation coefficient between X_1 and Y is very significant.

When other independent variables were controlled either individually or simultaneously, the following results were obtained: partial correlation coefficient $r_{y1.2}$ of 0.760; partial correlation coefficient $r_{y1.3}$ of 0.204, and partial correlation coefficient $r_{y1.23}$ of 0.428. Significance testing results on the partial correlation coefficient with the control of vocabulary mastery variable (X_2), and attitudes toward Indonesian language (X_3) either individually or simultaneously are presented in table 3 below.

Table 3. The results of the Partial Correlation Coefficient Analysis Testing of X_1 and Y with Controllers of X_2, X_3 and X_2X_3

Partial Correlation Coefficient	T_{count}	T_{table} α =0,05
$r_{y1.2}$ = 0.760	7.426*	1.661
$r_{y1.3}$ = 0.204	1.998*	1.661
$r_{y1.23}$ = 0.428	4.191*	1.661

Referring to table 3 above, it can be concluded that after the vocabulary mastery variable (X_2), and attitudes towards Indonesian Language (X_3) were controlled either individually or simultaneously, it indicated the correlation between reading comprehension skill (X_1) and writing skills (Y) which remained positive and significant.

The calculation results showed simple regression equation to data pair between X_2 as independent variable and Y as dependent variable of which $\hat{Y} = 11.627 + 0{,}430\ X_2$. The result of significance test and linearity of regression equation can be summarized as presented in table 4 below.

Source of Variance	Df	SS	MS	F_{count}	F_{table} α =0,05	α =0,01
Total	100	57812.00	-	-	-	-
Coefficient (a)	1	56.634	-	-	-	-
Regression (b/a)	1	322.553	322.553	37.389**	8.75	7,19
Residue	98	845.447	8.627	-	-	-
Linearity	16	250.227	2.553	2.522 ^{ns}	2,00	2,66
Error	84	59 .220	6.074	-	-	-

The table above shows that F_{count} of 37.389 was much larger than F_{table} at the real level α = 0.01 of 7.19. This showed that the model of simple regression equations was statistically significant. Meanwhile, the F_{count} for the regression linearity test of 2.522 was smaller than F_{table} at the real level of α = 0.01 of 2.66, thus it can be concluded that the relation between X_2 and Y was linear.

The level (degree) of correlation strength was indicated by the correlation coefficient r_{y2} of 0,526. The significance test result on the obtained correlation coefficient is presented in table 5 below.

Table 5. Analysis Result of Significance Testing on Simple Correlation Coefficient X_2 and Y

Df	r_{y2}	F_{count}	F_{table} α =0,05	α =0,01
98	0.526	6.1255**	1,157	3.165

Based on the testing results on the correlation coefficient, it can be concluded that the correlation coefficient between X_2 and Y is very significant. With r_{y2} correlation coefficient of 0,526, determination coefficient of r_{y2}^2 equal to 0.277 or 27.70% was obtained. When other independent variables were controlled, either individually or simultaneously, the following results were obtained: partial correlation coefficient $r_{y2.1}$ of 0.176; partial correlation coefficient $r_{y2.3}$ of 0,308, and partial correlation coefficient $r_{y2,13}$ of 0.173. The significance testing results of partial correlation coefficient with control variable of reading comprehension skill (X_1), and attitude towards Indonesian Language (X_3) either individually or simultaneously are presented in Table 11 below.

Table 6. Analysis Results of Significance Testing on Partial Correlation Coefficient of X_1 and Y with the controls of X_1; X_3, and X_1X_3 simultaneously

Partial Correlation Coefficient	T_{count}	T_{table} α =0,05
$r_{y2\cdot1}$= 0.176	1.724*	1.661
$r_{y2.3}$ = 0.308	3.016*	1.661
$r_{y2.13}$ = 0,173	1.721*	1.661

According to table 5 above, it can be concluded that after the reading comprehension skill variable X_1 was controlled, either individually orsimultaneously, the correlation between vocabulary mastery (X_2) and writing skill (Y) remained significant.

From the calculation result, simple regression equation to the data pair between X_3 as the independent variable and Y as the dependent variable resulted in the following equation: $\hat{Y}$ = -20.15 + 0.625 X_3

The result of significance and linearity tests on the regression equation can be summarized as presented in Table 7 below.

Table 7. List of Variance Analysis to Test the significance and linearity of Simple Regression Equations $\hat{Y}$ = -20.519 + 0,265X_3

Source of Variance	Df	SS	MSS	F_{count}	F_{table} α =0,05	α =0,01
Total	100	57812.00	-	-	-	-
Coefficient (a)	1	56644	-	-	-	-
Regression (b/a)	1	333.354	333.354	39.141**	8.75	7,19
Residue	48	834.646	8.517	-	-	-
Linearity	23	258.437	11.236	1.463 ^{ns}	2.00	2,66
Error	25	576.208	7.683	-	-	-

F_{count} of 39,141 was much larger than F_{table} at the real level α = 0.01 of 7.19. This showed that the model of simple regression equation was very significant. F_{-test} for the regression linearity test was 1.463 smaller than F_{table} at the real level α = 0.05 of 2.00, so it can be concluded that the form of relationship between X_3 and Y was linear. The level (degree) of correlation strength was explained by the correlation coefficient value r_{y3} of 0,534. Testing result of significance on the obtained correlation coefficient is shown by table 7 below.

Table 8. Analysis Result of Signficance Testing on Simple Correlation Coefficient X_3 and Y

Df	r_{y3}	F_{count}	F_{table} α =0,05	α =0,01
48	0,534	6,252**	1,157	3.165

Based on the test results on the correlation coefficient, it can be concluded that the correlation coefficient between X_3 and Y was significant so that the null hypothesis was rejected. With r_{y3} correlation coefficient of 0,534, coefficient of determination r_{y3}^2 of 0.2852 or 28.52% was obtained. When other independent variables, namely the reading comprehension skill (X_1) and vocabulary mastery (X_2) were either individually or simultaneously controlled, partial correlation coefficient $r_{y3.1}$ was obtained at 0254; partial correlation coefficient $r_{y3.2}$ at 0.426 and partial correlation coefficient $r_{y3.12}$ at 0.216.

The significance testing results of partial correlation coefficient with the control of reading comprehension (X_1), and vocabulary mastery (X_2) either individually or simultaneously are presented in table 9 below.

Table 9. Analysis Results of Significance Testing on Partial Correlation Coefficient of X_1 and Y with the controls of X_1; X_3, and X_1X_2 simulatenously

Partial Correlation Coefficient	T_{count}	T_{table} α =0,05
$r_{y3\cdot1}$= 0,254	2.448**	1.661
$r_{y3.2}$ = 0,426	4.172*	1.661
$r_{y3.12}$ = 0,216	2.116*	1.661

Based on Table 8 above, it can be concluded that after the reading comprehension skill (X_1), and vocabulary mastery (X_2) were controled either individually or simultaneously, the correlation between attitudes toward Indonesian Language (X_3) and writing skills (Y) remained positive and significant.

The multiple regression analysis on the pairing of the four variables resulted in regression equation of $\hat{Y}$ = 12.030 + 0,382X_1 + 0,076X_2 - 0,006X_3. To determine the significance of the obtained regression equation, variance analysis technique was applied.

Table 10. List of Variance Analysis to test the Significance of Multiple Regression Equation $\hat{Y}$ = 12.030 + 0,382X_1 + 0,076X_2 - 0,006 X_3

Source of Variance	Df	SS	MSS	F_{count}	F_{table} α =0,05	α =0,01
Total	100	7812.00	-	-	-	-
Coefficient (b_0)	1	4613.200	-	-	-	-
Total	99	1168.000	-	-	-	-
Adjusted	3	527.225	175.742	26.329**	8.75	7.19
Regression	96	640.775	6.675	-	-	

The table above shows that the F_{count} of 26,329 is greater than F_{table} at the real level α = 0.05 of 8.75. This shows that multiple regression equation model $\hat{Y}$ = 12.030 + 0,382X_1 + 0,076X_2 - 0,006 X_3 was significant. The degree of correlation strength is indicated by the obtained multiple correlation coefficient of R_{y123} = 0.672. The results of significance test of the obtained multiple correlation coefficient is presented in Table 11 below

Tabel 11. Analysis Result of Significance test of Multiple Correlation Coefficient X_1, X_2, and X_3 altogether with Y

Correlation Coefficient (R_{y123})	F_{count}	F_{table} (3,46) α =0,05	α =0,01

0.672	26,403**	1,157	3.165

The table above shows that F_{count} of 26.403 is much larger than F_{table} at the real level $\alpha = 0.05$ of 1,157. This shows that the multiple correlation coefficients were significant. R_{y123} multiple correlation coefficient was 0.672 or 45.16%.

The results of hypothesis analysis and testing showed that the four working hypotheses proposed in this study were accepted. This finding implied that in general, there were positive correlations between the reading comprehension skill, vocabulary mastery, and attitudes towards Indonesian language with writing skills, either individually or simultaneously among the Junior High School students in Surakarta City. The discussion of the analysis and testing results of the hypotheses are described in detail as follows.

First, regarding the analysis results on the correlation between students' reading comprehension skill and their writing skills, there was a positive correlation between the two variables meaning that the better the students' reading comprehension, the better their writing skills will be. In the term of the correlation strength degree, the calculation result obtained was 0.669, and the determination coefficient was 0.4475, thus it can be concluded that about 44.75% variation of the students' writing skill scores can be explained by their reading comprehension skill. Or in other words, the reading comprehension skill contributes about 44.75% to the writing skill score.

Second, regarding the analysis results on the correlation between vocabulary mastery and writing skills, the accepted research hypothesis proved that there was a positive correlation between vocabulary mastery and writing skill, meaning that the better the students' vocabulary, the better their writing skills will be. With a correlation coefficient of 0.526, and the determination coefficient of 0.2770, it can be estimated that about 27.7 % variation of the students' writing skill score was determined by their vocabulary mastery. Or in other words, vocabulary mastery contributed about 27.70% to the variation of writing skill score.

Third, the degree of significant correlation value, reflected through the correlation coefficient of 0.534, can be interpreted that the two variables were positively correlated. The contribution of students' attitude to Indonesian language variable to the variation of writing skill score was about 28.5%. After controls were performed to the two other independent variables, the correlation coefficient decreased from 0.534 to 0.216. However, the 0.216 second-order partial correlation coefficient, after tested for significance using t test, was significant. Thus, the result of this test indicated that students' attitudes toward Indonesian language proved to be a determinant variable for the writing skill variable. This finding is supported by several previous research results, among others is the one conducted by Li who found that attitudes toward language have impacts on one's writing style [27].

The fourth discussion was regarding the correlation between the three independent variables altogether with the writing skills. The proposed research hypothesis implied that the position of the three independent variables as predictors of variance of writing skill score is positive.

4. Conclusion

The results of hypothesis testing indicate that the four alternative hypotheses proposed in this research are accepted and the null hypothesis is rejected. It can be interpreted that (1) there is a positive correlation between reading comprehension skill and writing skill through CAT learning media; (2) there is a positive correlation between vocabulary mastery and writing skill through CAT learning media; (3) there is a positive correlation between attitudes toward Indonesian Language and writing skill through CAT learning media; and (4) there is a positive correlation between students' reading comprehension skill, vocabulary mastery, and attitude toward Indonesian language altogether with writing skill through CAT learning media. Thus it can be concluded that reading comprehension has the most contribution to writing skill compared to vocabulary mastery and attitude toward language. The identified levels of contribution can be taken into consideration in formulating teaching strategies and materials to enhance writing skill quality.

References

[1] K. M. Johnstone, H. Ashbaugh, and T. D. Warfield, "Effects of repeated practice and contextual-writing experiences on college students' writing skills", *Journal of educational psychology*, vol. 94 no. 2, pp. 305, 2002.

[2] K. Saddhono and M. Rohmadi, "A sociolinguistics study on the use of the Javanese language in the learning process in primary schools in Surakarta, Central Java, Indonesia", *International Education Studies*, vol. 7 no. 6, pp. 25, 2014.

[3] S. Deshpande, "Writing Skills in English: Involment of Students in The Assesment and Correction or Their Own Errors", *International Journal of English Language Teaching*, vol. 3 no. 1, pp. 68-73, 2014.

[4] K. Saddhono, "Cultural and social change of foreign students in Indonesia: The influence of Javanese Culture in Teaching Indonesian to Speakers of Other Languages (TISOL)", *IOP Conference Series: Earth and Environmental Science*, vol. 126 no. 1, 2018.

[5] R. T. Kellogg, "Training writing skills: A cognitive developmental perspective", *Journal of writing research*, vol. 1 no.1, 2008.

[6] S. S. F. Bukhari, "Mind Mapping Techniques to Enhance EFL Writing Skill", *International Journal*, vol. 4 no.1, pp. 58-77, 2016.

[7] M. Javed, W. X. Juan, and S. Nazli, "A Study of Students' Assessment in Writing Skills of the English Language", *Online Submission*, vol. 6 no.2, pp. 129-144, 2013.

[8] R. Benjamin and M. Clum, "A New Field of Dreams: The Collegiate Learning Assessment Project", *Peer review*, vol. 5 no.4, pp. 26-29, 2003.

[9] Y. K. Wong, "Exploring the reading–writing relationship in young Chinese language learners' sentence writing", *Reading and Writing*, vol. 31 no. 4, pp. 945-964, 2018.

[10] M. Javed, W. X. Juan, and S. Nazli, "A Study of Students' Assessment in Writing Skills of the English Language", *Online Submission*, vol. 6 no.2, pp. 129-144, 2013.

[11] M. Al-Roomy, "Developing Students' EFL Writing Skills by Enhancing their Oral Interactions", *International Journal of Applied Linguistics and English Literature*, vol. 5 no. 5, pp. 24-31, 2016.

[12] Sarwiji.(2002). *Keterampilan Mahasiswa dalam Menulis Karya Ilmiah di Universitas Sebelas Maret dan Universitas Negeri Semarang Jawa Tengah.* Jakarta:Disertasi.

[13] S. Deshpande, "Writing Skills in English: Involment of Students in The Assesment and Correction or Their Own Errors", *International Journal of English Language Teaching*, vol. 3 no. 1, pp. 68-73, 2014.

[14] M. L. Palmer, "The relationship between reading fluency, writing fluency, and reading comprehension in suburban third-grade students", *Diss. Education*, 2010.

[15] C. P. Khor, H. M. Low, and L. W. Lee, "Relationship between oral reading fluency and reading comprehension among ESL students", *GEMA Online® Journal of Language Studies*, vol. 14 no. 3, 2014.

[16] S. Mokeddem, and S. Houcine, "Exploring the Relationship between Summary Writing Ability and Reading Comprehension: Toward an EFL Writing-to-Read Instruction", *Mediterranean Journal of Social Sciences*, vol. 7 no. 2, pp. 197, 2016.

[17] N. G. Olinghouse and J. Wilson, "The relationship between vocabulary and writing quality in three genres," *Reading and Writing*, vol. 26 no. 1, pp. 45-65, 2013.

[18] S. S. F. Bukhari, "Mind Mapping Techniques to Enhance EFL Writing Skill", *International Journal*, vol. 4 no.1, pp. 58-77, 2016.

[19] M. Alqahtani, "The importance of vocabulary in language learning and how to be taught," *International journal of teaching and education*, vol. 3 no. 3, pp. 21-34, 2015.

[20] D. Ary, L. C. Jacobs, and Asghar, *Introduction to Research in Education*, Canada: Cengage Learning Inc, 2010.

[21] K. Saddhono, E. N. Wardani, and C. Ulya, "Sociopragmatic approach on discourse structure of friday prayer's sermon in java and madura island", *Journal of Language and Literature*, vol. 6 no. 1, pp. 26-29, 2015.

[22] K. Saddhono, "Language of Coastal Communities in the Northern Coast of Central Java: Sociolinguistic Studies in Cultural Integration Maritime-Agrarian Perspective", *Advanced Science Letters*, vol. 23 no. 10, pp. 10054-10056, 2017.

[23] S. Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, Jakarta: Rineka Cipta, 1992.

[24] M. Nazir, *Metode Penelitian*, Jakarta: Ghalia Indonesia, 2011.

[25] Sugiarto, *Teknik Sampling*, Jakarta: Gramedia Pustaka Utama, 2003.

[26] Sudjana, *Metoda Statistik*, Bandung: Tarsito, 2005.

[27] X. Li, et al, "Students and teacher's attitudes and perceptions toward a Wiki-based collaborative process writing pedagogy in a primary five Chinese classroom", *CITE Research Symposium*, 2011.