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The Effect of Gender and Learning Styles on L2 Learners' Writing Accuracy at Higher Education

Sabarun
Institut Agama Islam Negeri Palangka Raya,Indonesia

Hamidah
Institut Agama Islam Negeri Palangka Raya,Indonesia

Marsiah
IAIN Palangka Raya,Indonesia

Abstract: *This paper attempted to measure the interaction effects of gender and learning styles toward writing performance. This study applied expost facto research design using questionnaire and test as instruments. The participants were 80 learners at IAIN Palangka Raya of 2019/ 2020 academic year consisting of 38 males and 42 females; 23 visual, 33 auditory, and 24 kinesthetic learners. A two way Anova test was implemented to analyze data. The reliability and validity of the instrument were counted. The analysis confirmed that gender (F= 5.248, p= 0.025), and learning styles (F= 8.722; p=0.000) contributed to give effect on writing performance. The study revealed that female was higher than male; and the visual learners got the highest score, followed by auditory and kinesthetic learners in their writing performance. On the contrary, between gender and learning styles (F=0.036, p= 0.956> 0.05 gave no interaction effect simultaneously on writing performance. It was suggested that lecturers provide the class appropriately to facilitate a variety of learning styles of learners. Further studies on learning styles with wider sample size in writing class was recommended.*

Keywords: *gender, learning styles, writing performance, higher education.*

Introduction

Despite the facts that there has been widely discussed about learners' learning style preferences, (Chen, S., & Zhang, J. (2008); Nuzhat, Salem, Quadri, & AlHamdan, 2011), there were still limited researches discussing the learning styles in the context of L2 Kalimantan learners at higher education. This study fills those gaps by considering gender. In fact, understanding learners' learning styles in L2 writing class is an important thing for L2 teachers. In EFL context, learning style deals with students' way to process information of a language. Moreover, Vester (2005) defines it as the way a learner perceives, organizes and recalls information. Many educators confirmed learning styles as one reason behind learner' unique (Nygaard, C., Højlt, T., & Hermansen, M., 2008). David Kolb was an expert of learning styles (1984). After that, Neil Fleming proposed VAK model (2001): visual, auditory, and kinesthetic learners. VAK is three types of learning style to exhibit learners preference by seeing, listening and touching. Moreover, Mackay (2011, p. 205) claims that VAK learning model learning style which students has a mixed and balanced blend of three sensory modalities through sighting, sounding and acting out to learn well in order to increase their ability. Itis concluded that VAK is a learning style combining three sensory modalities by seeing,hearing and moving. Walsh (2010, p.8) states that it consists of visual, auditory and

kinesthetic one. DePorter & Hernacki (1999, p.112) confirmed that the first important thing is to classify a learner's modalities: visual, auditory, or kinesthetic ones. Gholami (2013, p.70) believed that visual learners would like studying using visual ways, such as reading and viewing. The auditory prefer studying using discussion, conversation, and group work. Then, kinesthetic prefer studying using physical involvement. Moreover, Ghaedi & Jam (2014, p.1234) confirmed that the VAK model prefered to use of sight, hearing, and touch in learning process. In EFL classes, especially in L2 writing class, learners used various learning styles. Learners can prefer more than one of learning styles. In this case, teachers should use as many as possible of various teaching methods to provide learners with different learning styles (Cuaresma, 2008). Teachers should use appropriate teaching method so that it is more appropriate with learners' learning style.

Some experts considered learning styles is important in language class (Rourke & Lysynchuck, 2000; Cassidy & Eachus, 2000; Ounwattana & Moungchoo, 2009). The study conducted by Naimie, at.al. (2010) revealed that agreement between teaching method and learning styles can improve better on learners' outcome. Then, Gilakjani (2012) found that visual and auditory were more preferred by learners. Gender also plays an important thing in students' learning styles. Next, Dobson (2010) found the correlation among learning style, gender and course performance. In contrast, Bidabadi and Yamat (2010) found that gender did not give effect on writing performance. Next, Wehrwein, Lujan, and DiCarlo (2007) showed that gender gave significant effect on learning styles.

Different with those researches, the study would like to contribute to the existing research by focusing on the simultaneous effect of gender and learning types on the learners' writing performance at higher education. The research questions of the study: (a) Do EFL learners with different gender differ significantly in their writing performance? (b) Do EFL learners with different types of learning styles differ significantly in their writing performance? (c) Do EFL learners with different gender and learning styles differ significantly in their writing performance? The aim is to measure wether there is a simultaneously influence or not of gender and learning types on the learners' writing performance. The novelty is that gender and learning types as variables that assumed to influence the learners' writing performance.

Method

This part covered the research method, design, participants, procedures, and analysis of data. The study belonged to quantitative paradigm of non experimental research. This study applied an expost facto research design using questionnaire and test as research instruments (Ary, at.al. 2010, p.641). This study also called causal comparative study. Here, the different characteristics of the participants were already existed. The questionnaire was used to determine the learners' preference on their types of learning style and their gender. The VAK model of learning style as proposed by Fleming (2001) was used in this study. Meanwhile, the writing test was done to see writing performance. The subjects were 80 L2 learners consisting of 38 males and 42 females; 23 visual, 33 auditory, and 24 kinesthetic learners as described in Table 1.

Table 1. The distribution of the Participants

Types of Learning Styles	Gender		Total
	Male	Female	
Visual learners	8	15	23
Auditory learners	28	5	33
Kinesthetic learners	2	22	24
Sub total	38	42	80
Total	80		

Procedures

The beginning step of this research, the questionnaire of 30 items was distributed to the learners in order to classify the learning style preferences (visual, audio, and kinesthetic). Then, the subjects were assigned to make a composition on the selected topic. Before analysing the data, the assumption test for analysis of variance (ANOVA) was conducted, such as testing the normality using Kolmogorov Smirnof test (Sig.0.343 > p. 0.050, and testing homogeneity (Sig. 0.773> p.0.050 (Pallant, 2000, p. 2) The output revealed that the data were normally distributed and not violated the homogeneity.

The null hypotheses were: (a) L2 learners with different gender did not differ significantly in their writing performance; (b) L2 learners with different types of learning styles did not differ significantly in their writing performance? (c) L2 learners with different gender and learning styles did not differ significantly in their writing performance. Here, there were two categorical independent variables: gender (male- female), learners' learning styles (Visual, Auditory and Kinesthetic learners); and one dependent variable: learners' writing performance. To analyse the data, a two way Anova was employed. Finally, the interpretation of the result was made to see the interaction effect between gender and types of learning styles on the learners' writing performance.

Result

Data Presentation

The test was followed by 80 participants consisting of 38 males and 42 females; 23 visual, 33 auditory, and 24 kinesthetic learners.To respond the three research questions, the learners' composition were scored. The inter-rater reliability of the raters' scores was observed and it was found to be 0.785, showing that both raters gave the balanced scores about learners' composition. The learners' writing performance was described in Table 2.

Table 2. The learners' writing Accuracy

Gender (X1)	Learning Styles (X2)	Mean	Std. Deviation	N
Male	Visual	72.7500	11.79285	8
	Auditory	64.2500	8.68214	28
	Kinesthetic	55.0000	7.07107	2
	Total	65.5526	10.05847	38
Female	Visual	79.4000	9.75998	15
	Auditory	71.0000	11.40175	5
	Kinesthetic	63.8182	10.33550	22
	Total	70.2381	12.36204	42
Total	Visual	77.0870	10.74038	23
	Auditory	65.2727	9.26780	33
	Kinesthetic	63.0833	10.29105	24
	Total	68.0125	11.49958	80

The table indicated that the average scores of each group as follows. The mean score of male visual learners was 72.75; Auditory 64.25; Kinesthetic 55.00. The mean score of female visual learners was 79.40; Auditory 71.00; Kinesthetic 63.81. The average score of both male and female visual leaners was 77.09; Auditory 65.27; Kinesthetic 63.08. The average score of

male without involving learning styles was 65.55 and female was 70.23. The average score of all learners was 68.01. The learners' writing performance was described in Figure 1.

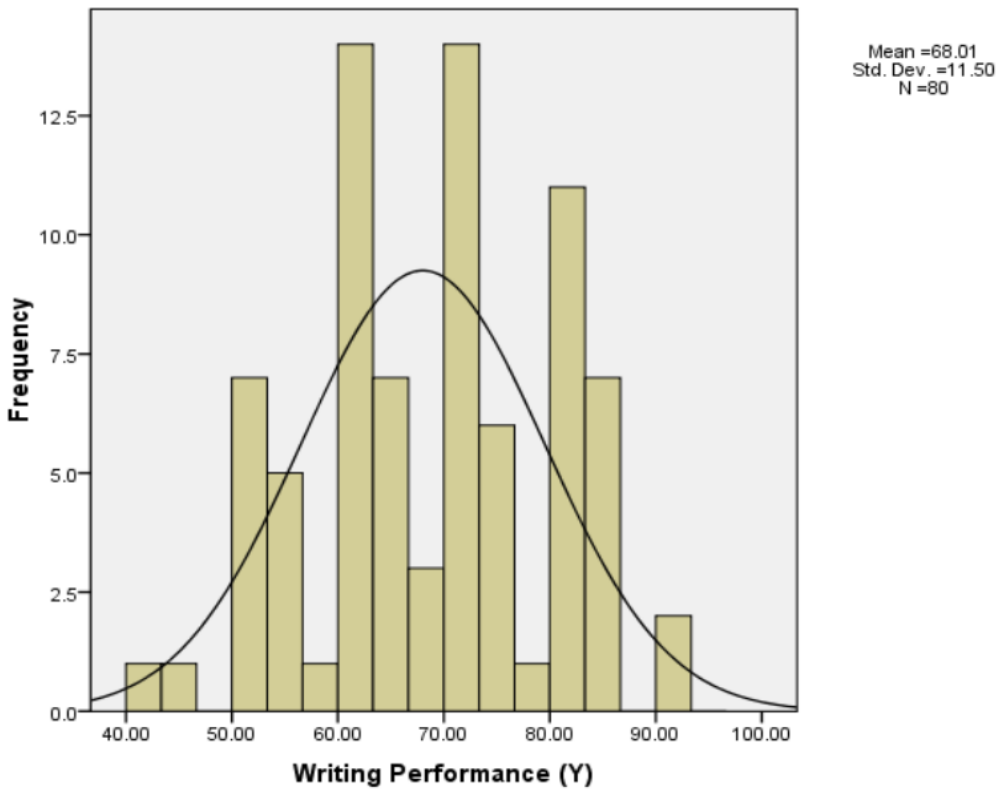

Figure 1. The learners' writing performance

Testing Hypothesis

To respond the three research questions, the the two-way ANOVA table described as illustrated in Table 3.

Table 3. Tests of Between- Subjects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3291.365[a]	5	658.273	6.808	.000
Intercept	169620.878	1	169620.878	1.754E3	.000
gender	507.432	1	507.432	5.248	.025
learningstyles	1686.765	2	843.383	8.722	.000
gender * learningstyles	6.947	2	3.474	.036	.965
Error	7155.623	74	96.698		
Total	380503.000	80			
Corrected Total	10446.988	79			

The output explained that the sig. value of the corrected model was 0.000 < 0.050 and F=6.808; it meant that it was valid to measure the interaction effect among the variables. Then, the sig of intercept was 0.000 and F=1.754E3 or less than 0.05. It meant that the intercept was significant. It meant the score, without influenced by other variables, gave contribution to learners' writing performance.The gender's sig.value was 0.025 or lower than 0.05; it confirmed that gender contributed to writing accuracy. The significance value of learning styles was 0.000< 0.05; meaning that learning styles contributed to writing accuracy. The sig value of gender and learning styles was 0.965 >0.05; meaning that gender and learning styles simultaneously did not contribute to writing accuracy. The further explanation was as follows:

EFL learners with different gender do not differ in their writing performance.

To response the RQ1: "Do EFL learners with different gender differ significantly in their writing performance?" the two-way ANOVA table explained the answer, as explained in Table 3 above. The output indicated that the F value of gender was 5.248 and sig. was 0.025 or lower than 0.05. It showed that there were a significant difference on writing performance caused by gender factor. In this case, female was higher than male in their writing performance. The average score of male was 64.00 and female was 71.41, as illustrated in Table 4.

Table 4. Gender (X1)

Dependent Variable:Writing Performance (Y)

Gender (X1)	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	64.000	2.664	58.691	69.309
Female	71.406	1.831	67.757	75.055

Then, based on Pairwise Comparison Table, it revealed the mean difference between male and female was 7.406 and the sig. value was 0.025. The difference mean occured between male and female on the learners' writing performance, as illustrated in Table 5.

Table 5. Pairwise Comparisons

(I) gender (X1)	(J) gender (X1)	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
Male	Female	-7.406*	3.233	.025	-13.848	-.964
Female	Male	7.406*	3.233	.025	.964	13.848

EFL learners with different learning styles do not differ in their writing performance.

The output from Table 3 also indicated that the F value of learning styles was 8.722 and the sig was 0.000, or smaller than 0.05. It meant that there were significant differences on writing performance caused by learning styles factor. It meant that visual, aditory, and kinesthetic learners differed significantly in their writing performance. The mean score of visual leaners was 76.08; Auditory 67.63; Kinesthetic 59.41. Here, the visual learners got the highest score, followed by auditory and kinesthetic learners, as explained in Table 6.

Table 6. Learning Styles (X2)

Dependent Variable:
Writing Performance (Y)

Learning Styles (X2)	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Visual	76.075	2.153	71.786	80.364
Auditory	67.625	2.387	62.869	72.381
Kinesthetic	59.409	3.631	52.174	66.645

EFL learners with different gender and learning styles do not differ in their writing performance

The output of Table 3 also indicated that the F value of gender and learning styles was 0.036 and the sig was 0.965> 0.05. This meant that differences did not occur on writing performance caused by gender and learning styles factors. It meant that both gender and learning styles did not give facilitative effect to their writing performance, as explained in Table 7.

Table 7. Gender (X1) * Learning Styles (X2)

Dependent Variable:Writing Performance (Y)

Gender (X1)	Learning Styles (X2)	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Visual	72.750	3.477	65.823	79.677
	Auditory	64.250	1.858	60.547	67.953
	Kinesthetic	55.000	6.953	41.145	68.855
Female	Visual	79.400	2.539	74.341	84.459
	Auditory	71.000	4.398	62.237	79.763
	Kinesthetic	63.818	2.097	59.641	67.996

This indicated that all independent variable did not give effect simultaneously toward learners' writing performance. Then, the value of R squared was 0.315. This indicated that the correlation was moderate. Next, the two way ANOVA was continued to pos hoc test. It was done to see the significant difference among the groups, as described in Table 8.

Table 8. Multiple Comparisons

Writing Performance (Y)

(I) learning styles (X2)	(J) learning styles (X2)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Visual	Auditory	11.8142*	2.67104	.000	5.4257	18.2027
	Kinesthetic	14.0036*	2.86937	.000	7.1408	20.8665
Auditory	Visual	-11.8142*	2.67104	.000	-18.2027	-5.4257
	Kinesthetic	2.1894	2.63805	.686	-4.1202	8.4990
Kinesthetic	Visual	-14.0036*	2.86937	.000	-20.8665	-7.1408
	Auditory	-2.1894	2.63805	.686	-8.4990	4.1202

The table showed the mean difference between Visual and Auditory was 11.8142* (Sig. 0.000) or lower than 0.05. This confirmed the difference occured among Visual and Auditory learners in their writing performance. Then, the mean difference between Visual and Kinesthetic was 14.0036* (Sig. 0.000) or lower than 0.05. This confirmed the difference occured between Visual and Kinesthetic learners in their writing performance. Next, the mean difference between Auditory and Kinesthetic was 2.1894 (Sig. 0. 686) >p=0.05. It was said that the difference did not occur between Visual and Kinesthetic learners. To see the further explanation on interaction effect among variables was illustrated in Figure 2.

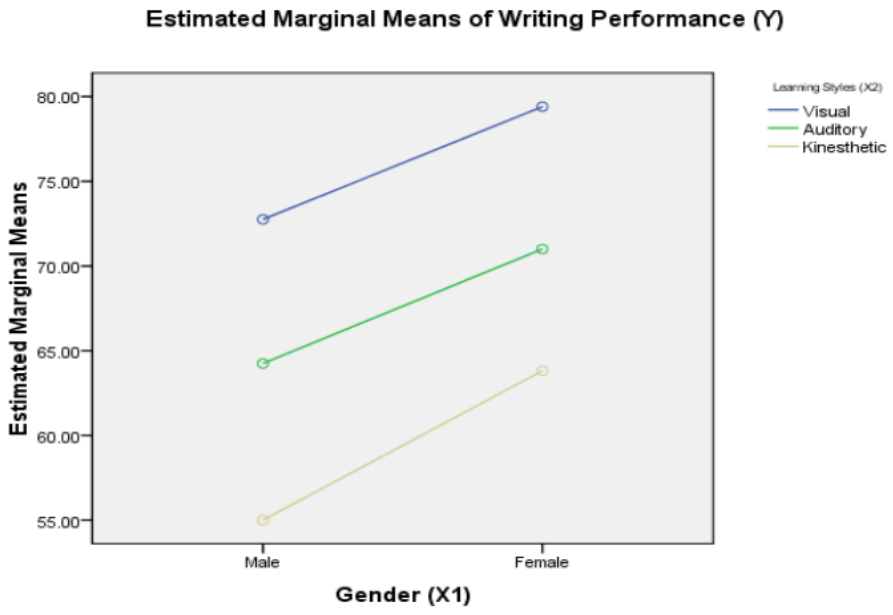

Figure 2. The interaction effect among variables

A. Discussion

The analysis concluded that gender (F= 5.248, p= 0.025) and learning styles (F= 8.722; p=0.000) gave effect on writing performance. In contrast, there was no interaction effect between gender and learning styles was (F=0.036, p= 0.956) on the learners' writing performance. It meant that both gender and learning styles did not give effect simultaneously on writing performance. This finding was supported with Ahmed (2012), Rambe and Zainuddin (2014), Rasool & Rawaf (2008). The finding was also in line with Gilakjani (2012), Dobson (2010), Solvie & Kloek, 2007; Chen, S., & Zhang, J. (2008); Pashler, McDaniel, Rohrer, & Bjork (2008); Franzoni & Assar, 2009; Kumar, Voralu, Pani, & Sethuraman, 2009; Nuzhat, Salem, Quadri, & AlHamdan, 2011).

The result confirmed that teachers should be aware of the learning style preferred by students. By doing so, teachers can choose appropriate teaching method in classroom setting. However, the learning style is just one important variable affecting the learning achievement. There were still many other variables affecting the successful learning. The research suggested that learners be aware of their learning style preferences. For pedagogical implications, lecturers should provide various teaching methods to facilitate different learning styles of students. The study has some limitations of this study. The participants of study were only 80 learners. Therefore, the finding could not be generalized to the targetted population in the university. It also only emphasized on gender and three types of learning style in L2 writing class. Therefore, the further studies are recommended to include some other variables such as, education background, learners' economic status, motivation, and multicultural background involved in the future study.

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About the Authors:

Sabarun (M.Pd) holds Master Degree in English Language Education from Universitas Negeri Malang (2006). He has been working as an English lecturer at IAIN Palangka Raya, Indonesia since 2008. He is now positioned as the head of quality assurance board at his

university. He published ten papers and presented in international events such as *Inacelt* (2015, 2016, 2019), *JEFL* (2016), *English Language Teaching journal* (2018), *Ellic* (2019), *Ijer* (2017, 2020), *Vision* (2020), *Sys Rev Pharm* (2020). His focus research is in TESOL, learning writing strategies, and learning styles.
No. Scopus ID 57216373264.

Hamidah (Dr. M.Ag) holds Doctoral Degree in Arabics Education from UIN Malang (2017). She has been working as a lecturer in IAIN Palangka Raya, Indonesia since 1999. She is now positioned as the vice dean of *Fakultas Tarbiyah dan Ilmu Keguruan* at her university. She interests in Arabics, language education studies, multicultural education, and linguistics.

Marsiah (Dr. M.Ag) holds Doctoral Degree in Arabics Education from UIN Malang (2019). She has been working as a lecturer in IAIN Palangka Raya, Indonesia since 2000. She is now positioned as the chairperson of Arabics education at her university. She interests in Arabics, Arabics literature, and linguistics.

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Corresponding author: sabarunwhs@gmail.com

Appendix 1

Levene's Test of Equality of Error Variances[a]

Dependent Variable:Writing Performance (Y)

F	df1	df2	Sig.
1.089	5	74	.374

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + gender + learningstyles + gender * learningstyles

Appendix 2.

Between-Subjects Factors

		Value Label	N
Gender (X1)	1	Male	38
	2	Female	42
Learning Styles (X2)	1	Visual	23
	2	Auditory	33
	3	Kinesthetic	24

Appendix 3 Test of Normality

5

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		80
Normal Parameters[a]	Mean	.0000000
	Std. Deviation	9.52281358
Most Extreme Differences	Absolute	.105
	Positive	.046
	Negative	-.105
Kolmogorov-Smirnov Z		.937
Asymp. Sig. (2-tailed)		.343

a. Test distribution is Normal.

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3

Appendix 4. Levene's Test of Equality of Error Variances[a]

Dependent Variable:Writing Performance (Y)

F	df1	df2	Sig.
.503	5	74	.773

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + gender + learningstyles + gender * learningstyles