THE CORRELATION BETWEEN MULTIPLE INTELLIGENCE AND EXPLICIT VOCABULARY LEARNING

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Abstract: Each person has abilities or intelligences in the process of learning English. These are 9 types of intelligence formulated by Gardner. The research will investigate whether intelligence components have relationship with explicit vocabulary learning. This study aims at investigating whether there is a correlation between Multiple intelligence components and explicit vocabulary learning and which one of them is the better predictor for explicit vocabulary learning. The researcher uses descriptive quantitative method especially the multiple regression analysis. The population of the study is 69 eight grade students at MTs Salafiyah Merakurak Tuban. Two instruments adopted from Kenzie Multiple Intelligence Survey (MIS) (1999) in Gardner theory and vocabulary quiz. The result shows that R Square is 0.282. It is known that the value of R Square equals to 0.282 which implies that variables predictors has simultaneous contribution on dependent variable equals to 28,2 %. The researcher concludes existential intelligence and interpersonal Intelligence contributed more to explicit vocabulary learning.

Keywords: *correlation, multiple intelligence, explicit vocabulary learning*

INTRODUCTION

Multiple intelligence theory was applied in educational literacy. Multiple intelligences components support the process of learning English Foreign Language. There are 9 types of intelligence formulated by Gardner with the following types; linguistic intelligence, body kinesthetic intelligence, spatial intelligence, musical intelligence, logical mathematics intelligence, interpersonal intelligence, intrapersonal intelligence, naturalistic intelligence and existential intelligence by Gardner (1983).

This multiple intelligence theory is useful for the field of education. This is very important to this study because it may predict students 'ability to identify learning styles, talents possessed, strategies used to teach, redesign of the curriculum, and determination of students' assessment of their learning achievements by Armstrong et al. (2014). Multiple intelligence theories help a teacher in classifying or analyzing student intelligence. Gardner (1983) defines that linguistic intelligence is the ability to use language as a facility to understand the order and meaning of words. In this study, Multiple Intelligence can be a predictor of vocabulary knowledge. Thus, the researchers examined more deeply the correlations between Multiple Intelligence and Explicit Vocabulary Learning.

Rashidi & Gambari (2010) mentioned two ways or techniques for learning vocabulary which are explicit and implicit learning. Ellis (1994) mentioned explicit vocabulary learning is more about "out of context" from word lists, but it can also occur "in context". For example, seeing words in a dictionary and interpreting reading texts or repeating new words in the text after reading and rewriting the meaning of the text. Thus, the technique of synonymy, memorization, and guessing helps to explain the explicit vocabulary learning.

In this study, the researchers focus on the relationships of multiple Intelligence and explicit vocabulary learning and Multiple Intelligence components as the better predictor to explicit vocabulary learning. The main research question is broken down into three sub-questions:

a. Is there any correlation between multiple intelligence components and explicit vocabulary learning?

b. If yes, which one of them is the better predictor for explicit vocabulary learning?

METHOD

Design of this study is the correlation research specifically to multiple regression statistical analysis. Multiple regression analysis aims to determine whether or not the influence of two or more independent variables (predictors variable) on the dependent variable. In the concept there is a t test, F test and terminated coefficient. T test aims to determine whether or not there is a partial influence (alone given the independent variable (predictors variable) there is a dependent variable. F test aims to determine whether or not there is a simultaneous effect (together) given by the independent variable on the dependent variable.

The population of the study is 69 students from grade eight at MTs Salafiyah Merakurak. From 69 students, there are 34 students from 8A's class and 35 students from 8B's class. However, the researcher only had all the eighth grade students consisting 35 male and 34 females. The researchers did not take seventh and ninth grade because the seventh grade was still in the early stages of learning English and the ninth-grade focus on UNBK (computer-based national exams).

There are two stages to take some research data which is to adopt the form of several sources of Multiple Intelligence Survey (MIS) from Kenzie (1999) in Gardner theory and Vocabulary Quiz used by researcher.

Multiple Intelligence questionnaires

In order to identify the intelligence, the researcher used multiple intelligent survey/questionnaire from Gardner (2003). The researcher used MIS (Multiple Intelligence Survey) because the researcher gets more information easily about the intelligence of every student. Out of the nine intelligences, the highest values of three intelligences from ninety questions were formulated to determine intelligence in each personality. The true sign is that students feel more confident about the statements that have the test (they are more suited to the statements on the MI survey according to their personality).

The questionnaire was newly modified by the researcher with 90 items. The questions use dichotomous questions. However, the types of scale are ranging from "yes" (1 point) "no" (0 point). The greater the total point, the more prominent or stronger a particular intelligence than other intelligence. The researcher also multiplied 10 points to create a graph so that the three largest can be seen in each intelligence. The first 10 questions of the questioners are related to Naturalist strength. The second part 11-20 question of the questioners is Musical strength. The third part 21-30 question of the questioners is Logical strength. The fourth part 31-40 question of the questioners is Existential strength. The fifth part 41-50 question of the questioners is Interpersonal strength. The sixth part 51-60 question of the questioners is Kinesthetic strength. The seventh part 61-70 question of the questioners is Verbal strength. The eight-part 71-80 question of the questioners is Intrapersonal strength. The ninth part 81-90 question of the questioners is Visual strength.

Score Item in Scale

No.	Alternative Answer	Score Item
1.	Yes	1
2.	No	0

In order to facilitate the participants' understanding of the questioner items, this instrument is conducted in the participants' class. The questionnaire about Multiple Intelligence was displayed in appendix 1. The blueprint of questioner can be seen in the table.

Blueprint of Multiple Intelligence

No.	Variable	Item in Questioner
1	Naturalistic	Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8,Q9,Q10
2	Musical	Q11,Q12,Q13,Q14,Q15,Q16,Q17,Q18,Q19,Q20
3	Logical	Q21,Q22,Q23,Q24,Q25,Q26,Q27,Q28,Q29,Q30
4	Existential	Q31,Q32,Q33,Q34,Q35,Q36,Q37,Q38,Q39,Q40
5	Interpersonal	Q41,Q42,Q43,Q44,Q45,Q46,Q47,Q48,Q49,Q50
6	Kinesthetic	Q51,Q52,Q53,Q54,Q55,Q56,Q57,Q58,Q59,Q60
7	Verbal	Q61,Q62,Q63,Q64,Q65,Q66,Q67,Q68,Q69,Q70
8	Intrapersonal	Q71,Q72,Q73,Q74,Q75,Q76,Q77,Q78,Q79,Q80
9	Visual	Q81,Q82,Q83,Q84,Q85,Q86,Q87,Q88,Q89,Q90

Explicit Vocabulary Test

In the form of this vocabulary test, researchers want to measure students' ability to quizzes with questions having multiple choices. The test uses multiple choices so that students easily assess the meaning of the word. In addition, in multiple choices students can find out new vocabulary words, know the structure in the sentences, synonyms, and antonym. In the end they also memorized a lot of vocabulary.

The researcher gives scores for “correct answer” (1 point) and “incorrect answer” (0 point). And the researchers get numerical data. The result of the vocabulary test value that is the correct answer multiplied by one hundred and divided by the number of all answers to produce the vocabulary test value.

The researcher used group of the questions. The question number one until number twenty-two is about close in meaning, number twenty-three until forty is about antonym and number forty-one until fifty is about understanding the sentences.

Criteria of Vocabulary Quiz

Range	Range
90%-100%	Very Good
75%-89%	Good
60%-75%	Fair
<60%	Poor

Adopted from Coombe in Jacobs, Zingraf, Wormuth, Hartfiel, & Hughey (1981, p. 30).

The test or quiz of explicit vocabulary learning was displayed in appendix 3. The blueprint of questioner can be seen in the table.

Blueprint of Vocabulary Quiz

No.	Variable	Item in Questioner
1	Closest in meaning/synonym	Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8,Q9,Q10,Q11,Q12,Q13,Q14,Q15,Q16, Q17,Q18,Q19,Q20,Q21,Q22

No.	Variable	Item in Questioner
2	Closest in meaning/synonym	Q23,Q24,Q25,Q26,Q27,Q28,Q29,Q30,Q31,Q32,Q33,Q34,Q35,Q36, Q37,Q38,Q39,Q40
3	Understanding sentences	Q41,Q42,Q43,Q44,Q45,Q46,Q47,Q48,Q49,Q50

This study used two data analyses, statistically and non-statistically. The researcher used statistic data non - static data to interpret the numeric data into meaningful word. The following were some processes in data analysis. First, the researcher checks the number of all the numbers in the answers to each of the multiple intelligence questions in each respondent. Second, give coding in each answer by creating a table so as to produce a graph to see which one of the respondents possesses the stronger. Before making a graph, researchers grouped multiple intelligence questionnaires from 0 to 1 (take the answer "yes"). Finally, the researcher tabulated an entire data.

After the data is ready, researchers use the excel form to facilitate entering data into the SPSS analysis. Describe the numerical data in general in each variable where x these variables are Linguistic Intelligence (variable predictor 1), Logical mathematics (variable predictor 2), Visual (variable predictor 3), Musical (variable predictor 4), Kinesthetic (variable predictor 5), Interpersonal (variable predictor 6), Intrapersonal (variable predictor 7), Natural (variable predictor 8), Existential (variable predictor 9), and Explicit Vocabulary Learning (dependent variable). To show the results in each item, the researchers clarified each variable sub-section. Researchers used excel to record data. In the sub-variable of the data there is a good response and wrong response.

The last data showed the correlation in each independent variable and dependent variable. The results will prove which variables are positive or have other effects. This research technique uses multiple regressions to determine the relationship between variables. Describe analysis uses ANOVA tests (F tests) and correlation coefficient tests (t test). Researchers can make assumptions about how Multiple Intelligence (X1 to X9 variables) can correlate with explicit vocabulary.

The Hypotheses in this study were:

H1: there is significant correlation between multiple intelligence and explicit vocabulary.

Ho: there is no significant correlation between Multiple Intelligence and Explicit Vocabulary.

Based on the data analyzes, hypothesis is accepted if their F count > F table or level significant is under 0.005. It means H1 are accepted if their F count > F table, and if their F count < F table means H1 is rejected and Ho is accepted.

FINDINGS AND DISCUSSION

The Relationship of Multiple Intelligence and Explicit Vocabulary Learning

Descriptive statistics from this study can be obtained through SPSS. The results of SPSS can be seen in the table 1.1.

Table 1.1 Descriptive Statistics of 9 Variables and Dependent Variable

Descriptive Statistics

	Mean	Std. Deviation	N
Explicit Vocabulary Learning	85.1304	7.29608	69
Naturalistic	6.5217	1.53017	69

	Mean	Std. Deviation	N
Musical	5.4348	1.80260	69
Logical	6.1304	1.58033	69
Existential	7.0870	1.79656	69
Interpersonal	6.8986	1.46674	69
Kinesthetic	7.2464	1.53782	69
Verbal	5.4058	1.65671	69
Intrapersonal	7.1159	1.60455	69
Visual	5.8986	1.89539	69

From the table, it can be seen that the result of the SPSS about R Square is 0.282. However, based on the output above, it is known that the value of R Square is equal to 0.282; this implies that the effect of predictors' variable simultaneously on dependent variable is equal to 28.2 %.

Table 1.2 R Square of Simultaneously

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.531[a]	.282	.173	6.63561

a. Predictors: (Constant), Visual, Interpersonal, Kinesthetic, Intrapersonal, Existential, Naturalistic, Musical, Logical, Verbal

Based on the output above, it is known that the significance values for the effects of predictors variable simultaneously on dependent variable are equal to 0.014< 0.05 and the value of F count 2.579 > F table 2.04, so it can be concluded that it is accepted which means there are influences of predictors variable simultaneously on dependent variable.

Table 1.3 ANOVA F Count

ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1021.979	9	113.553	2.579	.014[b]
	Residual	2597.848	59	44.031		
	Total	3619.826	68			

a. Dependent Variable: Explicit Vocabulary Learning

b. Predictors: (Constant), Visual, Interpersonal, Kinesthetic, Intrapersonal, Existential, Naturalistic, Musical, Logical, Verbal

Result of the Multiple Intelligence Questioners and Explicit Vocabulary Quiz

Data regarding students' multiple intelligence score was divided into nine components. Existential intelligence in one of predictor variables have equal to 0.001 < 0.05 and the value of t count 3.356 > t table 2.001, it means that null hypothesis (H0) was rejected and alternative hypothesis (Ha) was accepted. It means there is a significant simultaneous correlation analysis

The variables in interpersonal intelligence are equal to 0.049 <0.05 and the value of t count 2.014 >t table 2.001, it means that null hypothesis (H0) was rejected and alternative hypothesis (Ha) was accepted. However, other studies have shown verbal intelligence contributed more to the Explicit Vocabulary Learning but in the study result is the t count -1.541 < t table 2.001, it means that null hypothesis (H0) was accepted and alternative hypothesis (Ha) was rejected.

Naturalistic Intelligence is equal to 0.885> 0.05 and the value of t count -0.146<t table 2.001, so that it can be concluded that H0 is accepted which means there is little significant predictors variable 1 on dependent variable. Musical Intelligence is equal to 0.031 < 0.05 and the value of t count -2.213<t table 2.001, so that it can be concluded that H0 is rejected which means there is significant of variable 2 on dependent variable but negative. Logical Intelligence equal to 0.982 > 0.05 and the value of t count 0.022 <t table 2.001, so that it can be concluded that H0 is accepted which means there is not significant of variable 3 on dependent variable. Kinesthetic Intelligence is equal to 0.319 > 0.05 and the value of t count -1.005 <t table 2.001, so that it can be concluded that H0 is accepted which means there is not significant of variable 6 on dependent variable. Intrapersonal Intelligence is equal to 0.478 > 0.05 and the value of t count 0.715 <t table 2.001, so that it can be concluded that H0 is accepted which means there is not significant of variable 8 on dependent variable. Visual Intelligence is equal to 0.265> 0.05 and the value of t count 1.125< t table 2.001, so that it can be concluded that H0 is accepted which means there is not significant of variable 9 on dependent variable.

Table 1.4 Coefficients Correlation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	74.313	6.094		12.195	.000
	Naturalistic	-.095	.655	-.020	-.146	.885
	Musical	-1.250	.565	-.309	-2.213	.031
	Logical	.015	.668	.003	.022	.982
	Existential	1.729	.515	.426	3.356	.001
	Interpersonal	1.313	.652	.264	2.014	.049
	Kinesthetic	-.601	.598	-.127	-1.005	.319
	Verbal	-1.000	.649	-.227	-1.541	.129
	Intrapersonal	.416	.582	.091	.715	.478
	Visual	.616	.548	.160	1.125	.265

a. Dependent Variable: Explicit Vocabulary Learning

Table 1.5 Minimum, Maximum and Mean in Multiple Intelligence

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	73.9395	93.6162	85.1304	3.87674	69
Residual	-17.29869	11.71906	.00000	6.18091	69

Std. Predicted Value	-2.887	2.189	.000	1.000	69
Std. Residual	-2.607	1.766	.000	.931	69

a. Dependent Variable: Explicit Vocabulary Learning

In the existing diagram result the hypothesis is accepted only two variables namely existential intelligence and interpersonal intelligence. There are other variables that are significant but negative that is musical intelligence.

Descriptive Statistics Normality Test of Multiple Intelligence and Explicit Vocabulary Learning

The data described the relationship between nine predictor's variables with dependent variable. It is illustrated that the normality test occurs in reference to Shapiro-Wilk. In Shapiro-Wilk explained that from the student respondents' data in the statistics of multiple intelligence was 0.177 of 69 students.

Figure 1.1 Explicit Vocabulary Learning

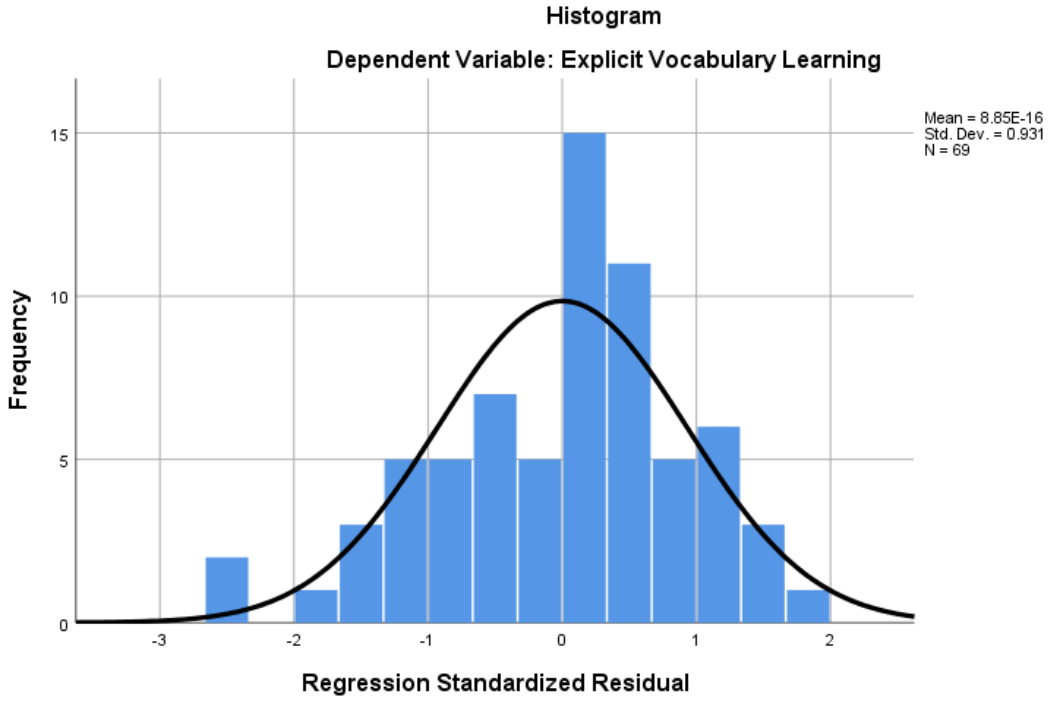


Table 1.6 Normality Test of despondence's Multiple Intelligence and Explicit Vocabulary Learning

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		69
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	6.18090940
Most Extreme Differences	Absolute	.097
	Positive	.043
	Negative	-.097
Test Statistic		.097
Asymp. Sig. (2-tailed)		.177[c]

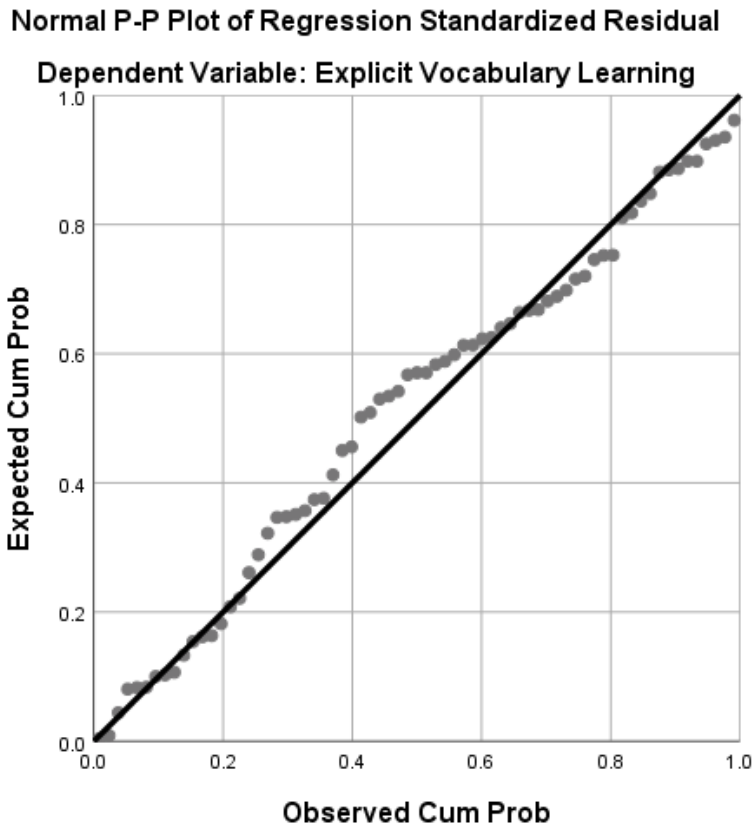
a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Based on the following SPSS output table, it is known that Asiymp significance value. sig (2-tailed) of 0.177 is greater than 0.05. According to the basis of the decision making for the Kolmogrov-Smirnov normality test above, it can be concluded that the data is normally distributed. Thus, the assumptions or requirements for normality in the regression model have been fulfilled.

Figure 1.2 P-Plot of Respondents' Multiple Intelligence



Discussion

This part discusses the relationship among predictors variable and dependent variable and which one is the better predictors to dependent variable. The results show that out of nine variables, three variable show significant correlations with explicit Vocabulary such as existential intelligence, interpersonal intelligence and the significant in negative area is musical intelligence.

The better predictor is existential intelligence and interpersonal intelligence. The musical intelligent for explicit vocabulary shows a negative result. The other intelligences for explicit vocabulary are natural intelligence, logical intelligence, verbal intelligence, kinesthetic intelligence, intrapersonal intelligence, visual intelligence. These are not significant and null hypothesis (H0) was accepted and alternative hypothesis (Ha) was rejected.

This existential ability can develop or increase understanding in vocabulary and the preparation of vocabulary in making sentences. The researchers conclude that if students in the Madrasah (Islamic school) are more likely to use existential intelligence to obtain in learning explicit vocabulary.

Existential intelligence can be very likely to be related to an explicit learning vocabulary because there are many students from Madrasah students who like religion and think deeply. Thus, it can be concluded that each such school or Madrasah tends to have the ability to existential intelligence.

The other second better prediction is interpersonal intelligence which in Indonesian curriculum has several evidences in the learning process using interpersonal intelligence. Interpersonal intelligence is used by teachers when students receive material that they can then collaborate with colleagues for discussion. There is interaction with each other in the learning. It is no stranger that further predictions are indeed interpersonal intelligence which already exists in the curriculum or learning process in Indonesia, especially K-13. According to (Finvoc; 2003) In relation to this, interpersonal intelligence and reading activities are closely related to individual learning styles. The teacher has a way of understanding and treating students in his class so the teacher is demanded to significantly influence the mindset, achievements and characteristics of his students. Then the teacher can help students use a combination of intelligence in themselves with the aim of learning their abilities well. Teacher and society trust are needed by them in learning. The third result predictor is musical intelligence. Another research from Zarei & Afshar (2014) musical, verbal, visual, kinesthetic and natural intelligence made significant contribution to predicting vocabulary knowledge.

The results show that existential and interpersonal intelligence have better prediction to relationship with explicit vocabulary but the other statement by Zarei & Afshar (2014) that is verbal intelligence correlated to vocabulary knowledge. Supported to Gardner defines verbal/linguistic intelligent better prediction because the ability use language as a means to understand the order and the meaning of words.

CONCLUSIONS

The researcher concludes existential intelligence and interpersonal Intelligence contributed more to explicit vocabulary learning. Another study mentioned social interaction contributed to development language for students. However, the result in these studies, the verbal intelligence does not contribute to explicit vocabulary because the skill can't be practiced in other places but only in the class and the students open the dictionary if they are study on English Language.

REFERENCES

Abbas, A. (2014). *Multiple Intelligence Predictors of Reading Comprehension and Vocabulary Knowladge*, 4(1), 23-38.

Ahour, T. & Abdi, M. (2015). The Relationship between EFL Learners' Multiple Intelligences and Vocabulary Learning Strategies Use with a Focus on Gender. *Theory and Practice in Language Studies 5*(4) pp. 800-809.

Choo, L et al, (2012). Language Learning Approaches: A Review of Research on Explicit and Implicit Learning in Vocabulary Acquisition. *Procedia - Social and Behavioral Sciences*. 55, 852 – 860.

Coombe, C. (2013). *Assessing Vocabulary in the Language Classroom*. TESOL Foreign/Second Language Education from. The Ohio State University.

Deanna L. Nisbet & Evie R. Tindall (2015*).* A Framework for Explicit Vocabulary Instruction with English Language Learners. *Kappa Delta Pi Record*, *51*(2) 75-80.

Derakhshan, M. & Faribi,M. (2015). Multiple Intelligences: Language Learning and Teaching. *International Journal of English Linguistics 5*(4)

Farahani, A. & Kalkhoran, L. (2014). The Relationship between Incidental Vocabulary Learning and Multiple Intelligences of Iranian EFL Learners. *Theory and Practice in Language Studies*, 4(1) pp. 58-64.

Field, A. P. (2009). *Discovering Statistics Using SPSS: and sex and drugs and rock 'n' roll*. (3 edition) London: Sage.

Hajebi, M., Taheri, S. & Noshadi, M. (2018). The Relationship between Interpersonal Intelligence, Reading Activity and Vocabulary Learning among Iranian EFL Learners. *International Journal of English Language & Translation Studies*. *6(*1).48-56.

Latief. A, (2017). *Research Methods on Language Learning An Introduction*. Universitas Negeri Malang, 63.

Luo, M & Huang, M. (2018). *ESL teachers' multiple intelligences and teaching strategies: Is there a linkage?, TESOL Journal*.

Modirkhamens, S & Azhiri, M. (2012). The Effect of Multiple Intelligences-based Reading Tasks on EFL Learners Reading Comprehension*. Theory and Practice in Language Studies*, *2*(5) pp. 1013-1021.

Nezhad. A, Moghali, M and Soori, A. (2015). Explicit and Implicit Learning in Vocabulary Acquisition, *Asian Journal of Education and e-Learning* (ISSN: 2321 – 2454) Volume 03 – Issue 01.

Omolola A. Adedokun & Wilella D. (2012). Burgess Analysis of Paired Dichotomous Data: A Gentle Introduction to the McNemar Test in SPSS, *Journal of Multi Disciplinary Evaluation*, *8*(17)

Patricia L. Busk , (2014). *Correlational Studies*. Wiley StatsRef: Statistics Reference Online.

Simon, M. and Goes, J. (2011). *Correlational Research.* Dissertation and Scholarly Research: Recipes for Success. Seattle, WA: Dissertation Success LLC.

Zarei, A & Afshar, N. (2014). Multiple Intelligences As Predictors Of Reading Comprehension And Vocabulary Knowledge, *Indonesian Journal of Applied Linguistics*, *4*(1) pp.23-38.