Multiple Intelligences: Does It Offer a New Assistance in Encouraging Students' Reading Comprehension Skill?

Yuni Putri Utami
Universitas Bahaudin Mudhary Madura

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Abstract: Teaching strategies of multiple intelligences was believed to assist learners to obtain a better understanding of their potential intelligences and interests in enhancing their learning process. Thus, the primary objective of this research is to investigate the types of Multiple Intelligences affecting reading comprehension skills since it could be as a medium of reading comprehension strategies. A 50-item reading TOEFL test and a 90-item multiple intelligences questionnaire test were issued among 50 male and female students at Bahaudin Mudhary Madura University. This study was quantitative research by using questionnaire. The research data were analysed using a multiple regression analysis. Three instruments were occupied and it consisted of TOEFL-Longman PBT Test, a TOEFL reading subtest, and MI questionnaire. Mckenzies (1999) questionnaire was administered to assess the participants' intelligence profile. It consisted of 9 intelligences types proposed by Gardner (1999) and 10 statements of each criterion. The result indicated: 1) there were significant effects among MI types toward reading comprehension skills since the sig value was 0.017, 2) the musical, interpersonal, kinaesthetic, have significant influence toward reading comprehension and it was believed to be predictors of reading comprehension skills since the musical intelligences has the sig value 0.015, kinaesthetic intelligence has the sig value 0.011, and the least powerful predictors are interpersonal intelligences which has the sig value 0.044.

1 INTRODUCTION

Over the past few decades, research in the field of learning has led to the discovery of the theory of multiple intelligences (Herndon, 2018). In other words, this theory states that each person has different ways of learning and different intelligences they used in their daily lives. Some can learn very well in a linguistically-based environment e.g. reading and writing but others are better taught through mathematical-logic based learning. While others are benefit most from body-kinaesthetic intelligence.

Most educators have positively responded to Gardner's theory. It has been embraced by a range of educational theorists and significantly, applied by teachers and policymakers to the problems of schooling. In any classroom setting from preschool to college, students learn differently. Each student is gifted and challenged by his or her learning abilities and preferences (Sulaiman et al., 2010). A concept in the classroom setting may be a new skill, knowledge, or some combination of both. Practitioners such an educator teaches his or her students based on the background knowledge they have, build upon what was learned yesterday, last week, or even last year. Repeating a lesson on a concept improves learning as the teacher pulling from the theory of multiple intelligences can reinforce the learning with different types of activities.

According to Jackson, (2020) repeating exposure to learning concepts is important, however using the same teaching method to teach concepts causes students to lose focus. There are times when the worksheet is the best method to provide practice for learning a concept, but relying on worksheet every day for every lesson can cause some learners to tune out. Thus teaching to the multiple intelligences allows the teacher to keep the learning environment fresh by changing up the teaching method. In short, mixing up the teaching methods keeps students interested in the lesson. By using a variety of teaching strategies across the multiple intelligences, the teacher can assess or measure students learning. In regard to this, investigating the types of multiple

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intelligences as a medium of reading comprehension became the main focus in this research.

2 LITERATURE REVIEW

Theoretically, Multiple Intelligences (MI) was proposed by Gardner in the 1980 triggering a change of definitive idea of intelligence and the stance regarding to a very bounded notion of intelligence (Roohani et al., 2015). Some experts believed that intelligence is a monolithic innate agent that could be evaluate over IQ tests. However, Gardner (I983) defined intelligence as pluralistic construct that consisted of numerous competence. According to Gardner (1999), intelligence can be activated through bio-psychological potential for information processing in a cultural setting to maintain problems or create products which are useful in a culture. He defined distinctive kinds of intelligences and perceived intelligence as a composite of the diverse outside interdependent set: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalist.

MI theory has been adopted and widespread by many practitioners for the 1980s. Generally, MI can have numerous sequences for education (Armstrong, 2009; Hoerr, Boggeman, & Wallach, 2010), and specifically, language pedagogy, (Christison, 1996; Simpson, 2000; Tahriri & Yamini, 2010). It can consider to students' individual diversity, particular fascinate, and necessity, and it can engage the teachers facilitate students with the educational exercises created consisting to their preliminary criterion (Armstrong, 2009). Moreover, it can be accustomed to distinguish discovering aptitude of various language learners (Tahriri & Yamini, 2010) and generate differential consideration in language learning (Haley, 2004). The views of MI theory on learners' difference in intelligence profiles provide teachers' more precise authentication of student's analytical skills aimed to have exceed bearing their inabilities (Armstrong, 2009).

In contrast to conventional approaches to intelligence that were basically focusing on the whole notion of intelligence, Gardner (1983) confound a complete circumstance of those inactive theory of intelligence and declared that all learners are born with an utmost dispose of aptitude and capabilities through which some are inherently dynamic and some are delicate in each learner. Garnet (2005) simplify that such distinctiveness do not unavoidably attain individuals smarter than one another, but rather accept their being clever in difference ways. Gardner (1983) suggested that human brain is aimed to proceed multiple diverse forms of learning styles applied to as Logical-Mathematical, Musical-Rhythmic, Interpersonal, Intrapersonal, Verbal Linguistic, Bodily-Kinesthetic, and Naturalist. Afterward, he added the capability of Existential-Spiritual Intelligence that was not fully measured in his list. Through those exposition, Gardner (2006) asserts that intelligences be evaluated fiercely that are intelligent-fair and incredibly that investigate the intelligence immediately rather than over the lens of linguistic or logical-mathematical intelligences (Modirkhamene, 2012).

Many studies investigated MI theory and considered it as effective strategies to increase the student's performance. Dolati and Tahriri, (2017) on their paper 'EFL Teachers' Multiple Intelligences and Their Classroom Practice' explained that overall the participants lack of knowledge about MI theory and accordingly didn't attempt to administer it in their English classes. Besides, it was demonstrated that teachers with specific kinds of MI have the aptitude to use activities alike their foremost type of intelligence.

Likewise to main point of MI theory, educators need to approach topics over numerous key points and arrange time for students to immerse in self-reflection, assume self-paced work, deals with variety distinctive passages or connect their particular experience and feelings to the material being studied. They must frequently change methods from linguistic to musical, from spatial to bodily-kinaesthetic, constantly connected intelligences in innovative way. Educators pursuing to employ multiple intelligences theory in their classrooms need to figure out their students' strengths, weaknesses, and their linking of intelligences associate to deliver substantial learning experiences for them (Gardner, 2016).

Another study conducted by Ahvan and Pour, (2016) revealed an evidence in which every person possesses multiple intelligences has distinctive types of intelligence with difference levels of each. This study confirmed that almost students' intelligence was verbal linguistic, while the musical intelligence was an infrequently intelligence. Some factors triggered those result such as the chances, context attainable for the sustenance of intelligence, were quite feasible since verbal-linguistic intelligence might have evolved due to the context acquirable to it. Whereas, musical and other intelligences might have persist underdeveloped or kindly elaborated since fostering context was not accessible to them.

Agreeably to MI theory, each person retains nine intelligences and employs them to achieve distinguish kinds of tasks. Yet, intelligence improvement relied on personal, context, and other factors (Vongkrahchang & Chinwonno, 2016).

Some experts believed that MI strategies can assist learners to acquire their knowledge since this theory suggested nine types of learning style. Each learner is unique and has their learning style. In regard to this, it was expected this strategies also has significant effect toward reading comprehension. Reading is one of the four skills that plays important role in educated society (Roe & Smith, 2012: 1-2). It is a literacy skill that gives a fundamental contribution to cognitive development. The activity of reading needed a high concentration and focus. Students can learn to read more easily than they can acquire any other skills. It is a source of great pleasure for people all over the world. Through reading people can be informed and can increase their understanding of the globe. Reading is not only aimed at providing information and pleasure to the reader, but it also helps extend one's knowledge of the language. Non-native speakers of English can use reading materials as the primary source of input as they learn the language. They not only gain rapid and easy access to the historical and cultural conventions of English native speakers but to the real and live language as well (Reza et al., 2016).

Meanwhile, reading in a foreign language, in particular, is more challenging because the act of reading is complex and demanding on the brain. It is not just someone learning to read in another language; rather, L2 reading is a case of learning to read with languages (Grabe, 2009). Generally, individuals vary in the way they process information. For example, some students prefer studying in groups and like to discuss information with others whereas others learn better in an independent setting. However, it seems to be impossible for students, as adults, to always work in their preferred mode (Vongkrahchang & Chinwonno, 2016).

A number of EFL studies have demonstrated the relationship between vocabulary knowledge and reading comprehension performance (Hamzehlou et al., 2012). Further, it was stated that vocabulary knowledge is fundamental in reading comprehension because it functions as identical as background knowledge in reading comprehension. Vocabulary knowledge facilitates decoding, which is a significant part of reading.

3 RESEARCH METHODOLOGY

This research employed 50 students male and female of Bahaudin Mudhary Madura University as the research participant. The participants were all adult learners ranging in age from 18-25 years old. Three instruments were occupied and it consisted of TOEFL-Longman PBT Test, a TOEFL reading subtest, and MI questionnaire. TOEFL PBT test was administered to check the homogeneity of the participants. A multiple choice TOEFL test was administered to the participants to measure their reading comprehension ability. It consisted of 50 questions including 50 reading comprehension items. Mckenzies (1999) questionnaire was administered to assess the participants' intelligence profile. This questionnaire consisted of 9 intelligences types proposed by Gardner (1999) and it contains 10 statements of each criteria.

The data were analysed by investigated the mean and standard deviation of the TOEFL scored. The reading comprehension subs-test of a TOEFL test was used to evaluate reading comprehension skill of the participants. Lastly, the Mckenzie questionnaire was applied to identify the learners' intelligence profile. Each participant was required to complete the questionnaire by placing 0 or 1 next to each statement. Number 1 meant it corresponded to the learner while number 0 indicated that it did not correspond to them. Two separate multiple regression analyses were run to find out which multiple intelligence types are better predictors of reading comprehension skills.

4 FINDINGS AND DISCUSSIONS

The first question attempted to find out which types of multiple intelligences are predictors of reading comprehension. A multiple regression was used to get the data. Table 1 describes how much variance is disclosed by all the nine predictors entered into the regression equation.

The results give us a clear explanation about how much variance in reading comprehension. Based on the table, all intelligence types' collective account is 23% of the variance in reading comprehension. Meanwhile, Table 2 explained the results of the ANOVA. The ANOVA tests the null hypothesis that predictive power of the model is not significant.

Table 1. Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.611[a]	.373	.232	9.42981

a. Predictors: (Constant), visual, existential, interpersonal, natural, kinaesthetic, verbal, intrapersonal, logical, musical

Table 2. ANOVA of Reading Comprehension Test

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2115.146	9	235.016	2.643	.017[b]
Residual	3556.854	40	88.921		
Total	5672.000	49			

a. Dependent Variable: reading
b. Predictors: (Constant), visual, existential, interpersonal, natural, kinesthetic, verbal, intrapersonal, logical, musical

Based on the ANOVA result, the significant value (p) was 0.017. It was lower than the sig. level (0.05). Since it was less than the sig. level, it meant that there were significant effects among the MI types toward reading comprehension skills.

To find out how much of the variance in reading comprehension is accounted for by each of the nine predictors, the standardized coefficients and the significance of the observed t-value for each predictor were analysed. The results are summarized in Table 3.

Table 3. Coefficients of Multiple Intelligences

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1. (Constant)	20.306	11.545		1.759	.086	-3.027	43.639
natural	.525	.674	.108	.779	.440	-.837	1.888
musical	-4.740	1.865	-.380	-2.541	.015	-8.510	-.970
existential	2.618	1.659	.236	1.578	.122	-.735	5.971
interpersonal	1.294	.622	.311	2.080	.044	.037	2.551
logical	-.382	1.411	-.038	-.270	.788	-3.234	2.470
kinesthetic	2.361	.882	.358	2.677	.011	.578	4.144
verbal	.217	1.385	.022	.157	.876	-2.582	3.017
intrapersonal	2.515	1.911	.195	1.316	.196	-1.348	6.377
visual	1.835	1.316	.189	1.394	.171	-.826	4.496

a. Dependent Variable: reading

As Table 3 shows, among of all the nine predictors, musical, interpersonal, and kinaesthetic intelligences is indicated statistically significant of the variance in reading comprehension. Among these three intelligence types, kinaesthetic intelligence is the best predictor of reading comprehension since the sig value is 0.011. This is closely followed by musical intelligence which has the sig value 0.015 and the least powerful predictors are interpersonal intelligences which has the sig value 0.044.

Furthermore, based on the finding this research examined which MI types that have affected reading comprehension skills. The result found there were three types of MI that assist reading such as musical intelligence, kinaesthetic intelligence, and interpersonal intelligence. Since reading has a strong connection with vocabulary items. Vocabulary knowledge is a complex construct that involves the acquisition of multiple word knowledge components (Henriksen 1999; Read 2000; Nation 2013; Schmitt 2014). However, most of our current understanding about this construct derives from studies that have assessed only one type of word know- ledge, especially the form–meaning link (Melka 1997; Milton and Fitzpatrick 2014a). As a consequence, the construct of vocabulary knowledge as a whole is still largely unexplored, and it is unclear how the different word knowledge components are acquired and fit together (Milton and Fitzpatrick 2014b; Schmitt 2014).

Experts classified vocabulary knowledge into 4 dimensions. The first dimension is multiword expression. It is defined as Many word bundles occur in texts more frequently than would be expected by chance (Biber, Conrad, & Cortes, 2004; Hyland, 2012). Reading research in which text is manipulated to include or exclude multiword expressions shows that the occurrence of these expressions impacts comprehension, even controlling for the frequency of words used in the passages (Martinez & Murphy, 2011). These finding indicated that vocabulary knowledge is connected with reading comprehension. The second dimension is topical associates. It can be inferred the way to understand the similarities across words to establish categories. Indeed, some researchers have understood vocabulary knowledge primarily as network building (Haastrup & Henriksen, 2000) and have even suggested that there is no difference between knowing a word well and having a rich lexical network related to that word (i.e., there is no distinction between vocabulary depth and breadth; Vermeer, 2001).

The next is hypernyms. A hypernym is a superordinate general term that subsumes a set of specific hyponyms. For instance, dog is a hypernym to poodle, terrier, and mutt. Collins and Quillian

(1969) argued that our mental lexicon is stored in hypernym chains (animal > dog > poodle). In a follow-up study, Johnson-Laird (1983) hypothesized that subjects respond faster to adjacent higher-order hypernyms (dog-animal) than to adjacent lower-order hypernyms (dog-poodle) but was unable to confirm the hypothesis. Understanding a word's superordinates (i.e., that the word is an instance of a broader category) may be a component of word knowledge that influences lexical processing and may explain variance in reading comprehension.

Lastly is definition knowledge. Unlike the other kinds of word knowledge described here, definitional knowledge involves both understanding something about a word and understanding something about a very unique academic genre. It is difficult to understand definitions, and children can easily misinterpret or misapply them. On the one hand, it has been amply demonstrated that definitions are hard to interpret, so providing children with a definition alone is not sufficient to ensure that they have an accurate representation of a word and how it is used (Miller & Gildea, 1987; Scott & Nagy, 1997). On the other hand, the combination of a definition with contextualized exposures to a word results in richer word learning (Bolger, Balass, Landen, & Perfetti, 2008; Gardner, 2007). For our purposes, the most relevant studies to date examined the extent to which additional variance in students' reading comprehension was explained by performance on a definition task, after controlling for their knowledge of the word's synonyms (Ouellette, 2006; Cain & Oakhill, 2014). These studies suggested that understanding a word's definitions explains additional variance in reading comprehension, although in these cases, latent scores were not used to model the relationships between these collinear predictors.

5 CONCLUSIONS

Regarding to the research finding, a number of points may be concluded. First, the findings indicate that musical intelligence is the best predictor for reading comprehension that has the sig. value 0.015. Since musical intelligence involves the ability to sing, and to understand the vocabulary and use rhythm, it can be concluded that the inclusion of poems and songs should facilitate reading comprehension.

Second, kinaesthetic intelligence turned out to be significantly affected reading comprehension which has sig value 0.011. Although people with this type of intelligence understand things better when they are physically involved with something rather than reading or listening about it. Learners with this type of intelligences have a high awareness of balance, position, momentum, and stationary presence. Besides, they usually follow their gut instincts and do not like to be told what to do.

Third, Interpersonal intelligence positively influence the learners' reading comprehension skills. Interpersonal intelligence is the ability to understand and interact effectively with others. It involves effective verbal and nonverbal communication, the ability to note distinctions among others, sensitivity to the moods and temperaments of others, and the ability to entertain multiple perspectives. It has to be a good predictor for reading comprehension skills since the type of intelligence has the sig value of 0.044.

In addition, since reading and vocabulary mastery triggered with only three and four of the intelligences, respectively, activities could be incorporated in the classroom to activate only the right kind of intelligence to improve the learning conditions. In short, the findings of the present study can help teachers to obtain a clear understanding of MI theory and its applicability in a pedagogical context. Teachers can find new ways of teaching to consider their learners' need as well as their intelligence profiles. The present study may also have implications for material developers and syllabus designers. They should develop materials and course books to improve the specifications of MI types as predictors of language learning.

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