

MULTIPLE INTELLIGENCES AS PREDICTORS OF SELF-EFFICACY

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ABSTRACT

The present study was conducted to investigate types of intelligences as predictors of self-efficacy (general self-efficacy). The participants were 148 male and female Iranian B.A. students majoring in teaching of English as a foreign language (TEFL) and Translation at Takestan Azad University, Zanzan University, Zanzan Azad University, Payame Noor University of Zanzan, Payame Noor University of Abhar, and Shaheed Rajaei Teacher Training University. The instruments included a 100-item Michigan test, Gardner's MI questionnaire, and a 12-item General Self-efficacy scale. Data were analyzed through multiple regression analyses. Results indicated that musical and linguistic intelligences were predictors of general self-efficacy.

KEY WORDS: Multiple Intelligences, self-efficacy, general self-efficacy.

INTRODUCTION

The Multiple Intelligences Theory (MIT), proposed in the early 1980s by Gardner, provided evidence that there are several independent ability areas, unlike traditional general intelligence concentrating on a narrow range of two logical-mathematical and linguistic intelligences. He redefined the concept of intelligence as a "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (Gardner, 1999, pp. 33-34).

Most previous studies in the field of second and foreign language learning have been conducted from the learners' perspective, and learners play a vital role in investigations. The application of multiple intelligences theory (MIT) is suggested as a structured way to address and understand the holistic nature of learners' diversity (Christison, 1996; Arnold & Fonseca, 2004). Besides MIs, another issue of increasing importance is learner beliefs about their potentials known as self-efficacy (SE). Bandura (1997) defines self-efficacy as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 3).

Although many studies have been conducted on MI and self-efficacy, few of them have explored the interrelationship between MI and self-efficacy, especially in foreign language learning situations. This justifies the need for studies relating MI theory aimed at fostering learners' intelligence profiles to learners' self-efficacy. Therefore, the present study aims to answer the following research question: Which type of multiple intelligences is a better predictor of generalized self-efficacy?

LITERATURE REVIEW

Multiple Intelligences

During the last two decades, Gardner's MIs has been appreciated in language learning. Gardner (1983) suggested several intelligences to be at work simultaneously; so he changed the perception of a general factor of intelligence. He claims that humans possess a number of distinct intelligences that are manifested in different skills and abilities. Gardner (1983) believes that each person possesses at least seven basic intelligences. Armstrong (2002, p. 6) explained these intelligences as follows:

Linguistic intelligences: the ability to use words effectively.

Logical/mathematical intelligence: the capacity to use numbers and reason effectively.

Spatial intelligence: the ability to recognize form, space, color, line, and shape.

Bodily/kinesthetic intelligence: the ability to use body to express ideas and produce things.

Musical: The ability to recognize and perceive musical forms.

Interpersonal intelligence: the ability to understand the feeling and intention of other people.

Intrapersonal intelligence: the ability of self-knowledge and self-understanding.

Haley (2004) showed that through the implementation of MIT, students achieve greater success rates and develop a high degree of satisfaction and positive attitude toward the content. To find empirical evidence for this claim, a number of investigations have been done. Green's study (1999) supports this view by finding that the MI-based classrooms successfully produced environments with rich materials in which learners were motivated in the process of their learning. Temiz and Kiraz (2007) tried to find out whether the implementation of MIT has any effect on Literacy Education (LE). The results showed a positive relationship between them.

In another study, IKiz and Çakar (2010) studied the relationship between multiple intelligences and the academic achievement levels. Academic achievement scores turned out to be related to students' multiple intelligences. Results also contribute awareness to the self knowledge and self-efficacy of the students and to developing programs to improve their academic achievement.

The MIT, which provides a new approach in education, is the most important theory in the area of personal development area (Tirri & Komulainen, 2002). Nowadays, teachers apply the MI-based educational program since it addresses a variety of ways people learn (Shore, 2004; Kallenbach, 1999). The relationship between multiple intelligences and the learning of second language skills is a burgeoning area of research. In this regard, Ahmadian and Hosseini (2012) showed a statistically significant relationship between L2 learners' MI and their writing

performance. In another study, Marefat (2007) concluded that kinesthetic, existential, and interpersonal intelligences were the best predictors of writing scores. However, Sadeghi and Farzizadeh (2012) indicated contrary results, that the components of MI did not have a significant relationship with the writing ability of the participants. Similarly, Hajhashemi and Eng (2012) reported no significant correlation between MI and the performance in reading competency.

In a study by Panahi (2011), the relationship between MI and the grammar knowledge of male and female EFL learners was examined. Results showed a significant relationship between MI of the learners and their grammar knowledge. In another study, Zarei and Mohseni (2012) investigated the relationship between four types of intelligence and grammatical and writing accuracy of EFL learners. The results indicated that intrapersonal and interpersonal intelligences were predictors of grammar accuracy, and intrapersonal intelligence was also a significant predictor of the learners' writing accuracy.

Another aspect of MI theory is the relationship between MIs and language learning strategies. In this regards, Hajhashemi, et al., (2011) reported a low positive correlation between MI and different strategy types. It was also revealed that the highest correlation was between meta-cognitive strategies and MI, followed by compensation and cognitive strategies.

Self-efficacy

Self-efficacy is grounded in a larger theoretical framework known as Social Cognitive Theory (SCT), in which there are bidirectional interactions between the cognitive, behavioral and environmental or situational contexts (Wood & Bandura, 1989). Self-efficacy beliefs are not a stable attribute of an individual, but they are an active and learned system of beliefs held in context. The concept of self-efficacy is concerned with judgments of one's capability to produce a given pattern of behavior (Schunk, 1981).

According to Bandura (1994, 1997) and Bandura et al., (2003), learners can construct their self-efficacy beliefs through four sources of experiences including mastery experiences, vicarious experience or modeling, social persuasion, and physiological and emotional states. Mastery experiences are the most influential factor for developing self-efficacy and it helps learners determine the level of effort necessary for a success (Bandura, 1997).

The concept of self-efficacy has been widely investigated in various aspects of second and foreign language learning. Pintrich and De Groot (1990) showed that self-efficacy facilitated cognitive engagement. The study conducted by Mohsenpour, et al., (2008) revealed a negative relationship between self-efficacy and learning strategies. However some other researchers were against this claim by finding a positive relationship between these variables (e.g. Ames & Archer, 1988; Elliot, 1999).

Carroll, et al., (2009) examined the structural relations among self-efficacy, and academic aspirations. The results showed that academic self-efficacy and self-regulatory efficacy had a strong relationship with academic achievement. However, a negative relationship between social

self-efficacy and academic achievement was reported. According to Newby-Fraser and Schlebusch (1997), self-efficacy has a significant negative correlation with level of stress.

General self-efficacy

Although Bandura (1997) originally focused on task-specific self-efficacy with a stronger predictive power than general self-efficacy, numerous experiences in different domains of functioning have generated more generalized beliefs of self-efficacy that have explanatory value as well (Bosscher & Smit, 1998). This has been supported by many studies (Chen, et al., 2001; Scholz, et al., 2002; Sherer, et al., 1982; *Yildirim & Ilhan*, 2010). General self-efficacy (GSE) refers to a broad and stable sense of personal competence which effectively deals with a variety of stressful situations (*Luszczynska*, et al., 2005; Schwarzer & Jerusalem, 1995; Sherer, et al., 1982).

Multiple Intelligences and Self-Efficacy

Many studies (Chan, 2007; Mikolajczak & Luminet, 2007; Penrose, Perry & Ball, 2007; Rastegar & Memarpour, 2009) have explored the connection of emotional intelligence and self-efficacy of teachers. In this regard, Penrose, et al., (2007) and Rastegar and Memarpour, (2009) concluded that there is a positive significant relationship between emotional intelligence and self-efficacy of teachers. Another study (Moafian & Ghanizadeh, 2009) in Iranian context supported the findings of this study, reporting a significant relationship between teachers' emotional intelligence and their self-efficacy while three subscales of emotional intelligence were found to be good predictors of teachers' self-efficacy. Chan (2007) also found that individuals who exhibited higher emotional intelligence had higher self-efficacy. However, Nikoopour, et al., (2012) concluded that all subconstructs of trait EI were moderate predictors of self-efficacy. In an attempt to investigate the effect of emotional intelligence and self-efficacy beliefs on high school students' achievement, Yazici, Seyis and Altun (2011) found gender, age and self-efficacy as the major predictors of learners' academic achievement.

Through the use of MI, students' sense of responsibility and efficacy as learners will be improved (Kolata, 2003). Traub (1998) showed that MI theory should be implemented with caution since educators have adapted MIT and applied its concepts in class without evidence about its efficacy. Many studies have examined the relationship between multiple intelligences and self-efficacy of learners.

Young (2003) suggested a new approach to improving mathematics achievement by the integration of MIT and self-efficacy theory. He claimed that learning through intellectual strengths increases students' mathematics achievement both directly from their increased understanding and indirectly by raising students' self-efficacy for mathematics.

Teacher self-efficacy construct, which refers to teachers' beliefs about their abilities to control the reinforcement of their actions within themselves or in the environment (Bandura, 1977; Rotter, 1990), plays a major role across diverse teaching conditions (Klassen, et al., 2009). It has been related to students' own sense of efficacy (Anderson, Greene, & Loewen, 1988; Tschannen-Moran, et al., 1998) as well as student outcomes such as achievement and motivation

(Tschannen-Moran, et al., 1998). In Yazdanimoghaddam and Khoshroodi's (2010) study, the possible relationship between English language teachers' teaching efficacy and their multiple intelligences were examined. Based on the results, it was concluded that the linguistic and musical intelligences were the two main predictors of teachers' teaching efficacy whereas the other domains of intelligences, although intercorrelated, did not significantly contribute to the construct of teachers' teaching efficacy.

Mahasneh (2013) investigated the relationship between multiple intelligence and self-efficacy of students. Results indicated that there was a significant positive correlation between self regulatory and the bodily/kinesthetic, intrapersonal, logical, interpersonal, visual, musical, existential, and verbal linguistic intelligences. In another study, Beichner (2011) showed a relationship between multiple intelligences and students' academic self-efficacy. He reported higher self-efficacy for students in classrooms where teachers used two of their three dominant MI than the other two groups: classrooms where the teacher used one of their three dominant MI and the group in which none of students' dominant MI were emphasized. To conclude, although there are a number of studies that explore the relationship between self-efficacy and multiple intelligences, they are few, and there are still some gaps.

RESEARCH QUESTION

In order to fill the above mentioned gaps, this study aims to answer the following research question:

Which type of multiple intelligences is a better predictor of generalized self-efficacy?

METHODOLOGY

Participants

This study was conducted with 148 male and female Iranian B.A. students majoring in TEFL and Translation at Islamic Azad University of Takestan, Zanjan University, Islamic Azad University of Zanjan, Payame Noor University of Zanjan, Payame Noor University of Abhar, and Shaheed Rajae Teacher Training University.

Instruments

In this study, the following instruments were utilized: An already established MTELP (Michigan Test of English Language Proficiency) was used to specify the participants' level of proficiency and to homogenize them. It included 100 multiple choice items consisting of 40 grammar items; 40 vocabulary items; and four reading passages followed by 20 reading comprehension items.

A Multiple Intelligences questionnaire, based on Howard Gardner's MI Model, was administered to the participants to specify their intelligence profile. It measured seven dimensions of Gardner's MI theory. It comprised a set of 35 statements with 5 statements for assessing each of the intelligences. This questionnaire is available at http://www.businessballs.com/freepdfmaterials/free_multiple_intelligences_test_young_people.pdf

Furthermore, a general self-efficacy, consisting of 12 items, which is the modified version of Sherer's General Self-efficacy (SGSES) was administered, with reported range of internal consistency of $\alpha = 0.69$ (Bosscher & Smit, 1998).

Procedure

Initially, the MTELP was utilized; those students whose scores were less than one standard deviation away from (mean = 30.425, SD=10.7) the mean were selected as the sample of the present study. As a result, 32 of the participants were excluded, leaving a total number of 148 numbers.

In another session, Gardner's MI questionnaire and generalized self-efficacy were administered. The participants were required to complete both questionnaires by choosing among 5 alternatives, ranging from strongly agree to strongly disagree.

RESULTS AND DISCUSSION

Results

The research question attempted to see which types of MIs are predictors of general self-efficacy scale. To this end, a multiple regression analysis was used. The results of the descriptive statistics are presented in Table 1.

A correlation coefficient was run between general self-efficacy of the students and their types of MI to see the degree of the relationship between them. Of all the seven predictors, only linguistic and musical intelligences account for a statistically significant correlation with general self-efficacy ($r_{\text{linguistic}} = .249, p < .05$; $r_{\text{musical}} = .287, p < .05$).

The result of the model summary (Table 2) shows that musical intelligence shared 8 % of variance with general self-efficacy while, together, the linguistic and musical intelligences account for around 14% of the total variance with general self-efficacy.

Table 1: Descriptive statistics for general self-efficacy and multiple intelligences

	Mean	Std. Deviation	N
GSE	38.2905	7.53699	148
Linguistic	2.8176	1.31985	148
Logical/math	2.8514	1.03256	148
Musical	2.9797	1.17496	148
Bodily/kinesthetic	3.5068	1.22611	148
Spatial / visual	3.0608	1.10796	148
Interpersonal	3.6622	1.09764	148
Intrapersonal	3.3378	1.23748	148

Table 2: Model Summary^c

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	.287 ^a	.082	.076	7.24414
2	.382 ^b	.146	.134	7.01293

a. Predictors: (Constant), musical

b. Predictors: (Constant), musical, linguistic

c. Dependent Variable: GSE

Based on Table 3, the results of the ANOVA ($F_{(1, 146)} = 13.12, p < .05$; $F_{(2, 145)} = 12.39, p < .05$) show that the predictive power of both models is significant.

Table 3: ANOVA^c on general self-efficacy

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	688.778	1	688.778	13.125	.000 ^a
	Residual	7661.729	146	52.478		
	Total	8350.507	147			
2	Regression	1219.236	2	609.618	12.395	.000 ^b
	Residual	7131.271	145	49.181		
	Total	8350.507	147			

a. Predictors: (Constant), musical

b. Predictors: (Constant), musical, linguistic

c. Dependent Variable: GSE

Table 4: Coefficients^a of Multiple Intelligences

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.		
		B	Std. Error	Beta				
1	(Constant)	32.801	1.628		20.148	.000		
	musical	1.842	.509	.287			3.623	.000
2	(Constant)	28.692	2.012		14.258	.000		
	musical	1.860	.492	.290			3.779	.000
	linguistic	1.439	.438	.252			3.284	.001

a. Dependent Variable: GSE

Table 4 contains the unstandardized as well as standardized coefficients of the two models, along with the observed t-values and significance levels. The first model shows that for every one standard deviation of change in one's musical intelligence, there will be about .28 of a standard deviation change in one's general self-efficacy. The second model shows that when musical and linguistic intelligences are taken together, for every one standard deviation change in ones musical and linguistic intelligences, there will be .29 and .25 of a standard deviation change in

one's general self-efficacy, respectively. Meanwhile, all the standardized coefficients are statistically significant.

These results indicate that two types of intelligences including musical and linguistic intelligences are predictors of general self-efficacy.

Discussion

The findings of some previous studies are partially similar to the results of the present study, in that they also emphasize MI as predictors of self-efficacy. Yazdanimoghaddam and Khoshroodi (2010) concluded that linguistic and musical intelligences are the two main predictors of teachers' teaching efficacy. This is in partial accordance with the findings of the present study since the same two types of intelligences turned out to be predictors of general self-efficacy.

Furthermore, the findings of the present study partially approve those of Shore (2001). Shore (2001) investigated the relationship between MI and students' self-efficacy. It was concluded that MI-based classrooms would have a positive effect on self-efficacy in ESL courses. Although a relationship was found between MIs and self-efficacy, the present study does not lend full support to that finding. Shore's study showed a relationship between writing self-efficacy and interpersonal, intrapersonal, bodily-kinesthetic, and linguistic intelligences.

A number of factors might have contributed to the results obtained in this study. This study was conducted with a small sample size of participants (180) while in studies like Mahasneh (2013), the number of participants was 576, and in Carroll, et al., (2009), the participants included 935 learners. The other possible factor resulting in different findings may be gender differences. In the present study, gender was not considered as a variable, but the previous studies on multiple intelligences like Nikoopour, et al., (2012), Schneider and Arikan (2009), and Razmjoo (2008), Hanafiyeh (2013) have emphasized gender differences among the participants in MI-based instruction. Another possible factor, which was not controlled in the present study, includes learners' level of proficiency; this study was conducted with B.A level students.

CONCLUSION

The present study attempted to investigate types of multiple intelligences as predictors of self-efficacy. Findings showed that musical and linguistic intelligences are predictors of general self-efficacy. Based on the results of this research, it is concluded that learners' multiple intelligences made a contribution to predicting self-efficacy and some of the intelligence types are a better predictor of self-efficacy. This means that the enhancement of learners' MI will increase their level of self-efficacy and attention to learners MI profiles will raise learners' beliefs about their ability.

Implications

The findings of the present study may have implications for teachers, learners and materials developers. The findings of the present study seem to imply that teachers find better ways to help learners explore their ability as language learners and support them in developing their sense of

self-efficacy. And it helps learners and teachers in planning activities to relate students' self-efficacy and their MI profiles and support learners with the best possible instruction. It also has some implications for materials developers and syllabus designers in developing materials and course books to improve the specific MI types that are directly related to self-efficacy.

LIMITATIONS OF THE STUDY

There were a number of limitations in this study. One of the most important ones was finding homogenous students at the same level of language proficiency. In this study, the participants were homogenized in terms of their language proficiency based on their obtained score on the Michigan test; other elements affecting their proficiency level were not considered here.

Furthermore, the participants were selected from among B.A. level learners of English majoring in TEFL and translation. Therefore, care must be exercised in generalizing the results to other learners.

Finally, the participants of the present study included both female and male learners; so gender was not a variable. Besides this variable, the findings of the study may have been affected by some other variables like cultural and social factors, which were not considered in this study.

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