

# **Iranian EFL Student-Teachers' Multiple Intelligences and Their Self-Efficacy: Patterns and Relationships**

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**Received:** June 18, 2014; **Accepted:** February 10, 2015

## **Abstract**

Nowadays, in line with trends in language teaching that follow the use of student-centered teaching/testing activities, there is growing consensus that students differ in their multiple intelligences. Furthermore, self-efficacy is one of the determining factors of success for people almost in any context. Assuming that the multiple intelligences profiles in tandem with self-efficacy of teachers may jointly work in shaping the efficiency and effectiveness of their teaching careers, this study investigated the relationship between Iranian EFL student-teachers' multiple intelligences and their self-efficacy. Thirty five male and female EFL student-teachers from private language schools in Urmia completed Multiple Intelligences (McKenzie 1999) and the Teachers' Senses of Efficacy Scale (Tschannen-Moran and Woolfolk-Hoy, 2001) questionnaires. A positive large correlation was found between total multiple intelligence and total self-efficacy of the student-teachers. The amount of R square in regression analysis indicated that teachers' self-efficacy is accounted for by their multiple intelligences, and intrapersonal intelligence played a pivotal role in predicting self-efficacy of these teachers. The most frequently used and favored abilities were found to be intrapersonal and existential intelligences. Concerning self-efficacy sub-scales, teachers most reported to be self-efficacious in instructional strategies and student engagement. This study suggests that language teachers can benefit from multiple intelligences training programs and can apply the principles in their own classes in order to enhance the quality of the materials they deliver.

**Keywords:** Iranian EFL student-teachers, multiple intelligences, self-efficacy

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## INTRODUCTION

Although the concept of general intelligence has long been widely accepted by psychologists, Gardner (1983) replaced it by a theory of multiple intelligences which later under questioned the traditional psychological view of intelligence as a single capacity that bears on mathematical and logical thought. Gardner (1983, p. 21) defined intelligence as one's ability to find and solving, to learn from past experiences, and to act successfully in response to new conditions. Some years later, he redefined the concept of intelligence as a "bio-psychological 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). In this way, intelligence can be said to have special ramifications in the classroom, since if we can identify learners' different strengths regarding these intelligences or in other words, their multiple intelligences, it will be possible to more successfully accommodate different learners' capabilities based on their orientation to learning.

Multiple intelligences consist of three domains: analytical, introspective, and interactive (McKenzie, 2002). These three domains act as an organizer for realizing the kind of relationship among the intelligences and how they work in cooperation with each other. The types of intelligences in the analytic domain (logical, rhythmic, and naturalistic) promote analysis of knowledge the learner is exposed to and by their nature heuristic processes. They are claimed to be analytic since, although they may include other components, they enhance the analyses and incorporation of data into an available schema. The types of intelligences in the second domain are called interactive since they typically invite and encourage interaction to achieve understanding (they include bodily-kinesthetic, interpersonal, and linguistic intelligences). They are typically used by the learners to discover their environment and to express themselves. These intelligences are naturally social processes in that even if, for example, a student performs a task individually, she or he must consider others through the way she or he writes, constructs, and makes conclusion. The last category of intelligence is introspective intelligences (including, intrapersonal, existential, and visual) which have a particularly affective component to them. They are categorized as introspective since they are in nature affective processes and necessitate the learner to look inward and in order to understand new learning, to

relate it emotionally to their own beliefs and experiences. Therefore, teachers can schedule units and lessons that effectively address all intelligence types mentioned here in the classroom (McKenzie, 2002).

Another element of success in every program, in addition to intelligence discussed above, is how one feels about oneself in a certain situation and about her/his capacities to reach to the outcomes which is known as self-efficacy. Grounded in a broader theoretical framework termed *social cognitive theory* (Wood & Bandura, 1989), in which bidirectional interactions exists between the cognitive, behavioral, and situational or environmental contexts, self-efficacy is defined by Bandura (1997, p. 3) as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations". Self-efficacy beliefs are generally not stable attributes of individuals, but they are learned active systems of beliefs held in particular contexts. By the same token, Schunk (1981) states that the concept of self-efficacy is, therefore, concerned with one's judgments of her/his capability to produce a certain pattern of behavior.

In this respect, by deepening our understanding about the variables which might affect teachers' efficacy beliefs might prove helpful in increasing their efficacy and enhancing their willingness for and commitment to teaching (Allinder, 1994; Coladarci, 1992). Zimmerman (1995, p. 203) in a discussion on the effect of students' confidence in their abilities in his work on self-efficacy, defined it as "the belief in one's capabilities to organize and execute the sources of action required to manage prospective situations". There he argued that the way individuals feel about their intellectual experiences affects the extent to which they can have control over their feelings in relation to the experience as well as their overall thoughts of the experience; it will also influence if they will undertake even more challenging tasks (also Bandura, 1986; Pajares & Schunk, 2014). These self-directed beliefs play a fundamental role in how an individual will perform a task. It is claimed that when one feels confident in relation to a particular task, their self-efficacy increases, however, when one does not feel confident or competent at a task, their sense of self-efficacy decreases (Kolata, 2001). The present research was aimed at exploring the possible relationship between Iranian EFL student teachers' multiple intelligences and their senses of self-efficacy.

## **LITERATURE REVIEW**

Gardner (2004) believes that apart from the theoretical underpinnings of multiple intelligence theory, it has entered the educational contexts hoping to put more students on the right path through taking into account their areas of weaknesses and strengths. In the same way, Armstrong (2000) referring to multiple intelligences as tools at teachers' hands states that multiple intelligence theory is necessarily what good teachers have in their teaching by which they reach beyond the text and the blackboard in order to raise awareness in students' minds. Some scholars (Arnold & Fonseka, 2004; Christison, 1996) suggest that the application of multiple intelligences theory is a structured way to deal with and understand the holistic nature of diversity among learners. Chan (2003) in Hong Kong assessed multiple intelligences among a group of Chinese secondary school teachers with the aim of exploring the relationship between the teachers' multiple intelligences and their responsibility areas. Relative strengths were generally discovered in teachers' intrapersonal and interpersonal intelligences as well as weaknesses in their bodily-kinesthetic and visual-spatial intelligences. He also found that in case age was held constant, compared with social studies and language teachers, arts, music, and sports teachers were found to have greater strengths in musical intelligence; however, guidance teachers were reported to have greater strengths in interpersonal and intrapersonal intelligences. All in all, he found that considering all eight intelligences as possible predictors, interpersonal intelligence revealed to be a significant predictor of self-efficacy in teachers in providing helps to other individuals.

Some studies showed the positive impact of incorporating multiple intelligences theory in classroom activities on the extent of students' success. Their findings suggested that multiple intelligences in institutional presentations have the advantage of promoting the underutilized intelligences among the students (e.g., Coleman et al., 1997; Haley, 2004). In another study, interpersonal, existential, and kinesthetic, intelligences were concluded to be the best predictors of writing scores (Marefat, 2007). Some years later, researchers found that the implementation of multiple intelligences theory into writing classrooms would be a positive contributor to the overall writing ability of the students (Eng & Mustapha, 2010). Loori (2005) investigated the differences in intelligences preferences among international male and

female ESL students at three American universities. The results revealed significant differences between males' and females' intelligence tendencies. While males preferred learning logical and mathematical intelligences activities, female students preferred activities dealing with intrapersonal intelligence. Furthermore, Eisner (1998), Gardner (1993, 2000), and Metteal and Jordan (1997) reported that schools that teach through the application of multiple intelligences have observed an increase in their students' test scores and in discipline as well as parent participation and promotions in skills for those suffering from learning disabilities. Research of this type suggests that those schools that teach based on multiple intelligences, their students show signs of improvements in many areas.

In a study on the relationship between multiple intelligences and teachers' teaching efficacy, Yazdanimoghaddam and Khoshroodi (2010) concluded that musical and linguistic intelligences are the two main predictors of teaching efficacy among the teachers. Studies were also conducted to discover the relationship between students' motivation and teachers' sense of efficacy (e.g., Ross, 1992) and between teachers' efficacy and students' achievement (Caprara, Babaranelli, Steca, & Malone, 2006). By the same token, Tschannen-Moran and Woolfolk Hoy (2001) concluded that as regards the amount of effort teachers undertake in teaching, efficacy has been shown to be of remarkable importance. Similarly, Guskey (1988) established the significant role of a strong sense of efficacy in teachers' exhibition of a much greater tendency to examine innovations in their methodology and in producing higher levels of planning in them (Allinder, 1994). Besides, some studies have also demonstrated a higher sense of efficacy as a predictor of willingness for teaching among the teachers (e.g., Allinder, 1994; Guskey, 1988), their probability of remaining in the profession (Glickman & Tamashiro, 1982) as well as their commitment to teaching (Coladarci, 1992).

In this line of inquiry, a host of studies have been conducted to explore the possible connection between teachers' self-efficacy beliefs and their emotional intelligence (Chan, 2003; Mikolajczak & Luminet, 2007; Penrose, Perry & Ball, 2007), and have come up with a significant correlation between the two variables. Schacher and Shmuelewitz (1997) reported the positive effect of cooperation among teachers on their sense of efficacy. Knoblauch and Woolfolk Hoy (2008), in another study on the influence of contextual factors on student teachers' efficacy beliefs,

found enhanced efficacy beliefs among the student teachers located in urban settings after their experience as student teachers.

Haley (2004) showed that through the implementation of multiple intelligences theory, students were found to develop a high degree of positive attitude and satisfaction toward the content, thereby achieving greater success rates. In another study, Ikiz and Çakar (2010) investigated the relationship between multiple intelligences and academic achievement levels and found that students' academic achievement scores were related to their multiple intelligences. Their results raised the importance of catering to students' self-knowledge and self-efficacy in order to increase their academic achievements.

Bandura (1997) and Bandura et al. (2003) also found that learners can construct their self-efficacy beliefs through four sources of experiences. These sources include vicarious experience (modeling), mastery experiences, physiological and emotional states, and social persuasion. Amongst these sources, mastery experiences turned out to be the most influential factor for establishing self-efficacy. It also assists the determination of the level of effort necessary for success by a learner (Bandura, 1997). Furthermore, self-efficacy has been shown to facilitate cognitive engagement (Pintrich & De Groot, 1990).

## **PURPOSE OF THE STUDY**

The studies reported above on multiple intelligences and self-efficacy along with the theoretical rationales behind these factors underscore the importance of these two issues in educational settings. One difference between them, however, would seem to be a matter of dynamicity in that the latter seems to be more unstable or situation-specific than the former, even though both are subject to improvement. In this paper, the relationship between these two variables is delved into in a slightly different context compared to previous studies in that Iranian EFL student-teachers are being investigated, a population which is less being paid attention to especially with regard to their self-efficacy measures in Iran. In particular, the research sought to answer the following research questions:

1. Is there any relationship between Iranian student language teachers' multiple intelligences and their self-efficacy?

2. Do Iranian student language teachers' multiple intelligences predict their self-efficacy?

## **METHOD**

### **Participants**

The participant in this study included 35 male and female Iranian EFL student-teachers who were selected through random sampling from the EFL student population of Urmia University. They were within the age range of 23 to 25 and were all language teachers at different language institutes in Urmia. They are called student-teachers in this study to show that they were teachers at language institutes at the same time as they were students pursuing their TEFL study at university. As far as they were senior students, their proficiency levels were assumed to range from upper intermediate to advanced. As regards their academic, linguistic, and cultural backgrounds, they were more or less the same since they were coming from the same culture and linguistic background and they were at the same level of study.

### **Instrumentation**

The two instruments used in this research were Walter McKenzie (1999) multiple intelligences (MI) questionnaire and the teachers' senses of efficacy scale (Tschannen-Moran & Woolfolk-Hoy, 2001). The first one covered 9 types of intelligences recognized up to now (namely, natural, musical, logical-mathematical, existential, interpersonal, bodily-kinesthetic, verbal-linguistic, intrapersonal, and visual-spatial intelligences), and consequently was divided into 9 parts each estimating a particular type of intelligence through 10 items. The second instrument, that is self-efficacy (SE) scale was divided into 3 subscales each focusing on a separate subset of teachers' self-efficacy, namely, efficacy for instructional strategies (8 items), efficacy for classroom management (7 items), and efficacy for student engagement (8 items). SE scale had in general 23 items. Both questionnaires followed 5-point Likert scale in which the options were '1 = never true of me; 2 = rarely true of me; 3 = sometimes true of me; 4 = often true of me; and 5 = always true of me'. The two questionnaires were checked for validity by three EFL field specialists and their reliability coefficients, using Cronbach alpha, was

estimated as  $r = .94$  and  $r = .88$  for MI and SE questionnaires, respectively.

### **Data Collection Procedure**

After having invited the language teachers who were also English major undergraduate students at Urmia University, they were briefed on the way they were expected to answer the two questionnaires. They were required to read the instructions provided at the beginning of the questionnaires and follow the given examples. However, to make sure that every teacher understood the directions, the researcher briefly asked them to study each statement in the tables on their sheets and to determine the extent to which each statement is true of them by placing a mark in front of the statement in the associated cell. The participants were also required not to hurry and to reflect upon the statements as much as they needed. The two questionnaires took nearly one hour to be completed.

### **Data Analysis**

The language teachers' answers were entered into SPSS (version16) and were analyzed through Pearson Product-Moment Correlation and Regression. To find the answer for the first research question, Pearson Product-Moment Correlation was employed to see if there is a relationship between Iranian EFL student-teachers' MI (and its subtypes) and their SE (and its categories). Moreover, regression analysis was used to find out the extent to which the categories of MI were able to predict SE. The following section presents the findings in detail.

## **RESULTS**

This study investigated the relationship between Iranian EFL student-teachers' multiple intelligences and their self-efficacy. In this section, detailed analyses and the findings are presented.

### **Multiple Intelligences and Self-efficacy**

The first research question in this study was concerned with finding a relationship between Iranian EFL student-teachers' multiple intelligences and their self-efficacy. Table 1 shows descriptive statistics for total multiple intelligence and self-efficacy scores of all participants.

**Table 1:** Descriptive statistics for total MI and SE scores

<b>Descriptive Statistics</b>			
	Mean	Std. Deviation	N
Total self-efficacy	85.24	10.433	35
Total ability	72.88	11.425	35

Table 2 illustrates the result of correlation analysis between total MI and SE scores. It revealed that, based on Pallant (2007), a nearly large positive relationship exists between the two variables of MI and SE ( $r = .49$ ).

**Table 2:** Pearson product-moment correlation between MI and SE

<b>Correlations</b>			
		Total self-efficacy	Total ability
Total SE	Pearson Correlation	1	.493*
	Sig. (2-tailed)		.012
	N	35	35
Total MI	Pearson Correlation	.493*	1
	Sig. (2-tailed)	.012	
	N	35	35

\*. Correlation is significant at the 0.05 level (2-tailed).

Table 3 displays the participants' performances on the types of MI and the categories of SE scale. It is evident that the order of frequency of use of abilities among participants, on a continuum from the most frequently used to the least frequently used, is as follows: Intra-personal, Existential, Bodily-kinesthetic, Natural, Musical, Logical-mathematical, Visual-spatial, Verbal-linguistic, and Inter-personal intelligences. It is worth mentioning that the first two abilities were used with a much higher frequency than did the rest of the abilities. As regards the self-efficacy subscales, from the highest to the lowest degree of self-efficacy, the first position belonged to efficacy for instructional strategies, followed by efficacy for student engagement, and finally, Efficacy for classroom management. It can be seen that EFL student-teacher' sense of self-efficacy for the first two subscales has a mean well different and quite above the mean of the third category.

**Table 3:** Descriptive statistics for the elements of MI and SE

<b>Descriptive Statistics</b>			
	Mean	Std. Deviation	N
<b>MULTIPLE INTELLIGENCE</b>			
Total natural intelligence	34.72	6.687	35
Total musical intelligence	34.32	5.596	35
Total logical mathematical intelligence	33.92	4.999	35
Total existential intelligence	37.16	7.392	35
Total interpersonal intelligence	31.28	7.203	35
Total bodily kinesthetic intelligence	35.72	6.925	35
Total verbal linguistic intelligence	32.40	8.411	35
Total intrapersonal intelligence	37.32	9.856	35
Total visual spatial intelligence	33.76	10.333	35
<b>SELF-EFFICACY</b>			
Total efficacy for instructional strategies	29.80	3.851	35
Total efficacy for classroom management	25.84	3.484	35
Total efficacy for student engagement	29.60	4.368	35

Pearson product-moment correlation was also run to investigate the relationships among specific types of MI and SE categories. As can be seen in the associated table (Table 4), given that all the relationships in the table are statistically significant and positive, it can be claimed that on a descending order, *existential intelligence* (EI) was related to all categories of SE, followed by *natural intelligence* (NI), *logical-mathematical intelligence* (L-MI), and *interpersonal intelligence* (Inter-PI) that were related to two components of SE, and finally, *mathematical* (MI) and *bodily-kinesthetic intelligences* (B-KI) correlated with just one component of SE, the other categories of MI, including *verbal-linguistic* (V-LI), *intrapersonal* (Intra-PI), and *visual-spatial intelligences* (V-SI) were not related to any of SE components. It can also be inferred from the table that all the categories of MI that were related to SE components correlated with *efficacy for student engagement* (ESE, related to six MI categories). Then, they are related to *efficacy for instructional strategies* (EIS, being related to four of the MI categories), and finally, only one of the SE components, i.e., *efficacy for classroom management* (ECM, related to just one of the MI components, i.e., EI).

Concerning the relationship among the variables of MI, it can be seen that again in a descending order, first, NI, MI, and B-KI were related to five other MI categories, second, V-LI, Intra-PI, and V-SI were related to three categories of MI, third, EI was related to two other MI

components, and finally, L-MI and Inter-PI correlated with just one MI component. However, the elements of SE were all related with each other with no exception. As the findings in Table 4 reveals, a tentative conclusion that can be drawn is that among the elements of MI, the most contributing ones to both elements of MI and SE were NI, MI, B-KI, and V-SI. As regards the elements of SE, it can be hypothesized that ESE was the most fruitful one as this study found that it was related to eight of the MI components, followed by EIS (correlated with four MI categories), and finally, ECM which has the least (just one) relationship with the categories of MI.

**Table 4:** Pearson product-moment correlation among categories of MI and the components of SE

		Correlations											
		N I	MI	L- MI	EI	Inter -PI	B-KI	V-LI	Intra -PI	V-SI	EIS	EC M	ESE
NI	Pearson Correlation	1	<b>.681*</b>	.360	<b>.546*</b>	<b>.487*</b>	<b>.521*</b>	.368	.080	<b>.448*</b>	<b>.446*</b>	.239	<b>.585*</b>
	Sig. (2- tailed)		.000	.078	.005	.014	.008	.070	.705	.025	.025	.249	.002
	N		35	35	35	35	35	35	35	35	35	35	35
MI	Pearson Correlation		1	<b>.521*</b>	<b>.642*</b>	.280	<b>.440*</b>	.273	.154	<b>.522*</b>	.392	.187	<b>.503*</b>
	Sig. (2- tailed)			.008	.001	.175	.028	.186	.463	.007	.053	.372	.010
	N			35	35	35	35	35	35	35	35	35	35
L- MI	Pearson Correlation			1	.395	.242	-.014	-.111	-.109	.110	<b>.408*</b>	.109	<b>.412*</b>
	Sig. (2- tailed)				.051	.243	.947	.597	.603	.600	.043	.603	.040
	N				35	35	35	35	35	35	35	35	35
EI	Pearson Correlation				1	.334	.335	.149	.131	.343	<b>.450*</b>	<b>.449*</b>	<b>.628*</b>
	Sig. (2- tailed)					.103	.102	.477	.533	.094	.024	.024	.001
	N					35	35	35	35	35	35	35	35
Inter -PI	Pearson Correlation					1	.159	-.234	-.370	-.124	<b>.448*</b>	<b>.249*</b>	<b>.404*</b>
	Sig. (2- tailed)						.449	.259	.069	.553	.025	.230	.045
	N						35	35	35	35	35	35	35
B- KI	Pearson Correlation						1	<b>.724*</b>	<b>.572*</b>	<b>.763*</b>	.276	.090	<b>.434*</b>
	Sig. (2- tailed)							.000	.003	.000	.182	.670	.030
	N							35	35	35	35	35	35
V-LI	Pearson Correlation							1	<b>.778*</b>	<b>.754*</b>	.008	-.131	.201
	Sig. (2- tailed)								.000	.000	.971	.531	.336
	N								35	35	35	35	35

Intra-PI	Pearson Correlation	1	<b>.728*</b>	.153	.101	.216
	Sig. (2-tailed)		.000	.465	.631	.300
	N	35	35	35	35	
V-SI	Pearson Correlation	1	.158	.103	.368	
	Sig. (2-tailed)		.451	.624	.070	
	N	35	35	35	35	
EIS	Pearson Correlation		1	<b>.687*</b>	<b>.755*</b>	
	Sig. (2-tailed)			.000	.000	
	N		35	35	35	
ECM	Pearson Correlation			1	<b>.623*</b>	
	Sig. (2-tailed)				.001	
	N				35	
ESE	Pearson Correlation					1
	Sig. (2-tailed)					
	N					

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Note: NI: Natural intelligence; MI: Musical intelligence; L-MI: Logical-mathematical intelligence; EI: Existential intelligence; Inter-P-: Inter-personal intelligence; B-KI: Bodily-kinesthetic intelligence; V-LI: Verbal-linguistic intelligence; Intra-PI: Intra-personal intelligence; V-SI: Visual-spatial intelligence; EIS: Efficacy for instructional strategies; ECM: Efficacy for classroom management; ESE: Efficacy for student engagement

## Self-efficacy Prediction through Multiple Intelligences

As stated in Research Question 2, this study also investigated the extent to which the categories of MI were able to predict SE through regression analysis. Generally speaking, as the following Model Summary table (Table 5) represents, the value of R square equaled .57 meaning that MI was able to predict 57 percent of SE which is fairly a good indication.

**Table 5:** Model summary for MI and SE

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760 <sup>a</sup>	<b>.577</b>	.323	8.584

a. Predictors: (Constant), Total visual spatial intelligence, Total logical mathematical intelligence, Total interpersonal intelligence, Total existential

intelligence, Total natural intelligence, Total intrapersonal intelligence, Total musical intelligence, Total bodily kinesthetic intelligence, Total verbal linguistic intelligence

However, ANOVA table that follows shows that the model does not reach statistical significance.

**Table 6:** ANOVA table for MI and SE

		ANOVA <sup>b</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1507.409	14	167.490	<b>2.273</b>	<b>.077<sup>a</sup></b>
	Residual	1105.151	20	73.677		
	Total	2612.560	35			

a. Predictors: (Constant), Total visual spatial intelligence, Total logical mathematical intelligence, Total interpersonal intelligence, Total existential intelligence, Total natural intelligence, Total intrapersonal intelligence, Total musical intelligence, Total bodily kinesthetic intelligence, Total verbal linguistic intelligence

b. Dependent Variable: Total self-efficacy

The following table reveals the amount of contribution of each of the components of MI to SE. Considering the corresponding standardized Beta scores and the P-values, it can be easily extracted from the table that the only significant component is Intra-personal intelligence which means that this component most strongly predicts SE.

**Table 7:** Coefficients for each component of MI

		Coefficients <sup>a</sup>												
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error				Beta	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	29.39	18.40		1.59	.13	-9.83	68.61						
	NI	.65	.48	<b>.41</b>	1.36	.19	-.36	1.67	.49	.33	.22	.29	3.35	
	MI	-.23	.55	<b>-.12</b>	-.42	.68	-1.41	.94	.41	-.10	-.07	.32	3.12	
	L-MI	.28	.44	<b>.13</b>	.64	.52	-.66	1.23	.36	.16	.10	.62	1.61	
	EI	.43	.32	<b>.30</b>	1.33	.20	-.26	1.13	.57	.32	.22	.52	1.91	
	Inter-PI	.24	.36	<b>.16</b>	.65	.52	-.53	1.01	.41	.16	.11	.44	2.25	
	B-KI	.32	.49	<b>.21</b>	.64	.52	-.74	1.38	.31	.16	.10	.25	3.88	

V-LI	-.80	.45	<b>-.64</b>	-	.10	-1.78	.17	.04	-.41	-.29	.20	4.86
Intra-PI	.74	.35	<b>.70</b>	1.75	<b>.05</b>	-.01	1.50	.18	.47	.35	.24	4.02
V-SI	-.16	.37	<b>-.16</b>	-.43	.66	-.96	.63	.24	-.11	-.07	.20	4.85

a. Dependent Variable:  
Total self-efficacy

Note: NI: Natural intelligence; MI: Musical intelligence; L-MI: Logical-mathematical intelligence; EI: Existential intelligence; Inter-P.: Inter-personal intelligence; B-KI: Bodily-kinesthetic intelligence; V-LI: Verbal-linguistic intelligence; Intra-PI: Intra-personal intelligence; V-SI: Visual-spatial intelligence

Having discussed the findings above, the researchers found that there was a large positive relationship between Iranian EFL student-teachers' multiple intelligences and their self-efficacy and that multiple intelligences could predict Iranian EFL student-teachers' self-efficacy to a large extent.

## DISCUSSION

This study found that there is a large positive relationship between Iranian EFL student-teachers' multiple intelligences and their self-efficacy. It also revealed that multiple intelligence and particularly, intrapersonal intelligence is a predictor of the teachers' self-efficacy in this research. Positive relationships were also found among the types of intelligence and self-efficacy sub-scales. The researchers also found that the most frequently used abilities included the intrapersonal and existential categories and the least used ones were verbal-linguistic and interpersonal intelligences with the remaining ones placed in between these two ends. Teachers also felt most self-efficacious in applying instructional strategies and using strategies for student engagement. They gained the lowest mean score in utilizing strategies for classroom management.

Teachers' self-efficacy construct defined as 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 different teaching conditions (Klassen, et al., 2009). Furthermore, assuming that every individual differs in their intelligences and that one's intelligences have a pivotal role in how one performs, it can be expected that self-efficacy variables can be related to intelligence. This view would make the findings of the present research plausible. This is also somehow strengthened by previous similar studies in the literature. For example, in a study, Beichner (2011) showed a relationship between multiple intelligences and students' academic self-efficacy. He also reported higher self-efficacy for students in classrooms

where teachers used two of their three dominant intelligence types than the other two groups: classrooms where the teacher used one of their three dominant multiple intelligence and the group in which none of students' dominant multiple intelligences were emphasized. Similarly, two years later, Mahasneh (2013) investigated the relationship between multiple intelligence and self-efficacy of students and found a significant positive correlation between self-regulatory and the bodily-kinesthetic, logical, interpersonal, intrapersonal, musical, existential, visual, and verbal linguistic intelligences.

Armstrong (2000, p. 3) defines intrapersonal intelligence as “having an accurate picture of oneself (one’s strengths and limitations)” or in other terms as one’s capacity for discipline, esteem, and understanding. Having this definition in mind, it can be claimed that intrapersonal intelligence would have a leading role in self-efficacy because it may introduce discipline and strength into the work which in consequence would cause better results and a sense of self-satisfaction, so the finding that intrapersonal intelligence was the most powerful one among other intelligences in predicting Iranian EFL student-teachers’ self-efficacy is acceptable as it can be attributed to this view of self-efficacy.

In line with the results of the present research, Moafian and Ebrahimi (2015) found that linguistic and intrapersonal intelligences had strong positive correlations with learners' self-efficacy beliefs and that intrapersonal and linguistic intelligences were positive predictors of learners’ beliefs about self-efficacy. In addition, Khosravi and Saidi (2014) found positive significant correlation between personal intelligences and self-efficacy among 120 Iranian language and content English for academic purposes instructors.

In contrast to the findings of the present study, in Yazdanimoghaddam and Khoshroodi's (2010) study on the possible relationship between English language teachers' teaching efficacy and their multiple intelligences, it was concluded that linguistic and musical intelligences were the two main predictors of teachers' teaching efficacy. They also found the other domains of intelligences, though inter-related, made no significant contribution to the construct of teachers' teaching efficacy in their study.

The results of this study are not consistent with those of previous studies, in which a strong link was found between English as a foreign language teachers’ emotional intelligence and their self-efficacy beliefs (Chan, 2003; Mikolajczak & Luminet, 2007; Penrose, Perry & Ball,

2007), as this concept is akin to the concept of personal intelligences (Gardner, 2005). The findings are, however, partially in line with those of Tajeddin and Saidi (2011), in which English as foreign language teachers' interpersonal and intrapersonal intelligences were found to be predictors of their self-efficacy. Indeed, it seems plausible to postulate that self-efficacy beliefs and the personal intelligences fit in a general ability of being able to take advantage of one's capabilities and awareness of one's strengths and weaknesses to attain the desired goals. It might further suggest that these intelligence types could improve the instructors' ability to be in touch with their learners well and to influence their motivation.

## **CONCLUSION AND IMPLICATIONS**

The results of the present study demonstrated a strong relationship between student-teachers' multiple intelligences and their self-efficacy. This study also found that particular intelligence types can predict self-efficacy. Hence, the present research underscores the importance of multiple intelligences and self-efficacy for the success of an educational program particularly as far as Iranian EFL student-teachers' professionalism is concerned. Therefore, it is hoped that through catering to multiple intelligences in planning the curricula, instructors can directly address and fulfill the individual needs of their students and possibly open a world of possibilities to diverse learners which in turn will empower these students' sense of responsibility and efficacy as learners and can positively influence teachers' senses of self-efficacy. In this regard, a variety of workshops might be held in which both teachers and learners are equally provided with ample opportunities to develop their multiple intelligences. Therefore, the present study can have implications for teachers, curriculum developers, course designers, and the learners themselves. Generally speaking, by planning classroom activities and teaching methods that can first explore students' and teachers' multiple intelligences profiles and then relate them to their self-efficacy, more efficient instructions can be provided. Learners and teachers can mutually benefit from such improvements in any educational program.

The findings of this study corroborated the findings of the previous studies in this realm of research. Nonetheless, the presence of some inevitable limitations would decrease generalizations of the findings. First, the small sample size and the educational and cultural backgrounds

were the same for the participants. Since teachers' sense of efficacy has also been related to students' own sense of efficacy (e.g., Anderson, Greene, & Loewen, 1988; Tschannen-Moran, et al., 1998) and their outcomes, for example, achievement and motivation (e.g., Tschannen-Moran, et al., 1998), future studies in the context of the present research can be replicated to scrutinize the extent to which students' efficacy would affect Iranian EFL student-teachers' sense of efficacy and vice versa. Similar studies may also be conducted to investigate the possible relationship among teachers' gender, job experience, socio-economic status, and knowledge of subject matter with their self-efficacy and multiple intelligences. Applying a number of qualitative tools, for instance, interviews, observations, and so forth can be highly insightful and illuminating.

### **Bio-data**

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