

The relationship between teachers' teaching efficacy and their multiple intelligences

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ABSTRACT

This study was conducted to investigate the possible relationship between English language teachers' teaching efficacy and English teachers' multiple intelligences. And also it was a probe into whether English teachers scored differently in different dimensions of intelligence. 101 participants took part in this study. They were asked to fill out the two related questionnaires i.e. multiple intelligences known as MIDAS consisting of 116 items and teaching efficacy including 24 items scored based on a likert scale ranging from 1 to 9. Based on the results of the study, it could be concluded that the linguistic and musical intelligences are the two main predictors of teachers' teaching efficacy whereas the other domains of intelligence, although intercorrelated, are not significantly contributing to the construct of teachers' teaching efficacy.

Key words: Teaching efficacy; Intelligence; Multiple intelligences

1. Introduction

Gardner (1999) states that he does not want his children to understand the world because the world is fascinating, but he wants them to understand it so that they will be positioned to make it a better place. Teachers' Multiple intelligences and teachers' teaching efficacy separately have been explored to a great extent since the last decades. William and Burden (1997) define intelligence as an ever-confusing topic and continue that intelligence refers to some inborn, general ability which helps us to learn better or faster than others. Christison (1998) also probes into the concept of intelligence and

mentions that the notion of intelligence has a profound effect on one's social status, educational opportunities, and career choices. As William and Burden (1997) put it, it was assumed that intelligence was fixed at birth and unlikely to change after the age of five. As a result, it will lead to segregation of some children in special schools since it also holds that intelligence is the only key to success or failure. This fate of intelligence arose out of the work of eugenics movement that was committed to improve the human race by genetic engineering. Therefore, this gave rise to the misguided notions that some races were intellectually superior to others. (William & Burden, 1997)

According to Sternberg (2000), there are at least four reasons people's conceptions of intelligence matter: First, implicit theories of intelligence drive the way in which people perceive and evaluate their own intelligence and that of others. For example, parents' implicit theories of intelligence will determine at what ages they believe their children are ready to perform various cognitive tasks. Also, people will decide who to date on the basis of such theories. Therefore, knowledge about implicit theories of intelligence is so often used by people to make judgments in the course of their everyday life. Second, implicit theories of scientific investigators ultimately give rise to their explicit theories. Third, implicit theories can be useful when an investigator suspects that existing explicit theories are wrong or misleading. Finally, understanding implicit theories of intelligence can help elucidate developmental and cross-cultural differences.

On the other hand, Sternberg (1985) argues that what maybe considered intelligent behavior in one country or cultural context might be viewed as unintellectual in another. Thus, he proposes a triarchic theory of intelligence which contains three components, i.e., Metacomponents, Performance components, and knowledge acquisition components. Since the main emphasis in this approach is placed upon the concept of intelligent behavior as the use of cognitive skills and strategies within specific contexts, we could be released from thinking of intelligence as a fixed and static concept. Recently, this traditional view of intelligence was challenged by Howard Gardner which maybe of particular interest to language teachers. In his book "Frames of mind" (1983) he argues that we should consider the possibility of different kinds of intelligences. He suggests that seven of them are clearly identifiable, one of which is linguistic intelligence. (William & Burden, 1997)

Another construct which has been of much importance to the scholars is teachers' teaching efficacy. Teacher efficacy, also, has been explored to a great extent. According to Kass and Friedman (2002), it is defined as the extent to which a teacher believes that he or she can influence students' behavior and their academic achievement, especially the pupils with difficulties or those with particularly low learning motivation (p. 67).

Bandura (1997) explores the exercise of human agency (intentional action) through people's beliefs in their own ability to produce desired effects by their actions. Thus, the ability to produce certain outcomes and avoid others is what motivates people in their attempts to develop and exercise control over

their personal circumstances. Bandura (1997) claims levels of motivation, feelings and actual actions are based more on our beliefs than on reality. Beliefs of personal efficacy are a major basis for intentional action, as unless people believe they can produce desired effects by their actions they have little incentive to act. In fact, efficacy beliefs influence not only actions but thought processes, motivation, affective and physiological states as well. Perceived self-efficacy is defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). In other words, according to Wallace & Mulholland (2001) what one believes one can achieve under different circumstances is more significant than the level of skill. Thus, perceived self-efficacy depends on the context and will alter as the context in which a task is to be performed changes. So central are self-efficacy beliefs to intentional action that those who doubt their abilities in a particular area avoid difficult tasks in those areas. For example, Riggs (1995, cited in Wallace & Mulholland, 2001) says that elementary teachers with low science teaching self-efficacy showed greatest avoidance behavior toward science teaching during an in-service program. On the other hand, those with strong efficacy beliefs see difficult tasks as challenges to be overcome, setting goals and persisting with efforts to achieve.

More recently Jinks and Lorsch (1999) report the relationships between elementary students' perceptions of self-efficacy and self-reported grades, with these relationships holding constant across urban, suburban and rural school environments. Also, Bandura (1989) believes that self efficacy beliefs are not the only predictors of future behavior, but more efficacious students make things happen. In spite of the fact that each of these constructs has been explored to a great extent, no appropriate attention was paid to the relationship between these two traits. Therefore, this study is an attempt to investigate the relationship between English language teachers' intelligences and their teaching efficacy. Further, it is a probe into whether English language teachers have different scores on different dimensions of intelligence or not.

2. Review of the Related Literature

A great deal of research has been done in the domain of teaching and teacher education to arouse interest in teaching profession and learning to motivate teachers so that they could ponder upon their profession and create changes which are of

much significance. In doing so, Bandura (1997) developed social cognitive theory to explain that the control of humans' exercise over their lives through agentive actions is powerfully influenced by the strength of their efficacy beliefs. Then, he defines efficacy as beliefs in one's capabilities to organize and execute the courses of action required to produce the given attainments.

According to Spero and Hoy (2005) the continuing interest of researchers and practitioners in teachers' sense of efficacy- teachers' judgments about their abilities to promote students' learning- was identified almost 25 years ago as one of the few teacher characteristics related to student achievement in a study by the RAND Corporation. To study the relationship between teachers' sense of efficacy and the students' achievement, Ross (1992) reviews 88 teacher efficacy studies and identifies potential links between teachers' sense of efficacy and their behaviors. Ross states that teachers with higher levels of efficacy are more likely to:

- a. Learn and use new approaches and strategies for teaching,
- b. Use management techniques that enhance student autonomy and diminish student control,
- c. Provide special assistance to low achieving students,
- d. Build students' self-perceptions of their academic skills,
- f. Set attainable goals, and
- g. Persist in the face of student failure.

In line with Ross (1992), Wheatly (2002) believes that high sense of efficacy has positive impacts on teachers' teaching process efficacy. Bandura (1977) postulates four sources of efficacy expectations: mastery experiences, physiological and emotional states, vicarious experiences, and social persuasion. Mastery experiences are the most powerful sources of efficacy information. The perception that teaching has been successful raises efficacy expectation that teaching will be proficient in the future, unless the success requires such massive work that the individual feels unable to sustain this level of effort. The perception that one's teaching has been a failure lowers efficacy beliefs, contributing to the expectation that future performances will also be inept, unless the failure is viewed as providing clues about more potentially successful strategies. For novice teachers as Wallace and Mulholland (2001) put it, mastery experience is an important source of efficacy belief. Attributions play a role as well. According to Bandura (1997), if the success is attributed to internal or controllable causes such as ability or

effort, then self-efficacy is enhanced but if success is attributed to luck or the intervention of others, then self-efficacy may not be strengthened. The level of arousal, either of anxiety or excitement, adds to the feeling of mastery or incompetence, depending on how the arousal is interpreted.

Vicarious experiences are those in which someone else models a skill. The degree to which the observer identifies with the model moderates the efficacy effect on observer (Bandura, 1977). He keeps on that the more closely the observer identifies with the stronger will be the impact on efficacy. When a credible model teaches well, the efficacy of the observer is enhanced. When the model performs poorly, the efficacy expectations of the observer decrease.

To Spero and Hoy (2005), Social or verbal persuasion may entail a "pep talk" or specific performance feedback from a supervisor, colleague, or students. Student's evaluations of instruction at the college level can be a form of verbal persuasion, for better or worse. Bandura (1989) adds that social persuasion though limited in its impact, may provide an "efficacy boosts" to counter occasional setbacks that might have instilled enough self-doubts to interrupt persistence. The potency of persuasion depends on the credibility, trustworthiness, and expertise of the persuader. For beginning teachers, as was posed by Wallace and Mulholland (2001), potent source of efficacy is feedback from students in the form of enthusiasm and engagement and verbal persuasion from experienced teachers in the form of encouragement and advice.

Also, according to Goddard and Goddard (2001), there are two distinct, but theoretically-related, types of efficacy- namely; individual and collective. For more than two decades researchers interested in individual teacher efficacy have investigated its correlates and argued that teachers' perceptions of self-capability are important to student learning. More recently, researchers have shown that collective efficacy is also related to student achievement differences among schools. Goddard and Goddard (2001) add that collective efficacy is a potent way of characterizing the social influence of a school.

Tschannen-Moran et al. (1998) proposed an integrated model of teacher self-efficacy, which included two dimensions. The first was teaching tasks, and their context, and the second was the teacher's self-perception of teaching competencies. This model focuses on the teachers' performance in the classroom context, teaching specific subjects to students in a specific setting. It does not include

efficacy beliefs pertaining to other aspects of the school context.

Based on the considerable discontent with the above-mentioned models which rests on the assumption that the teacher's role is much more complex than represented in extant conceptualizations, Tschannen-Moran et al. (1998) introduced a new instrument to measure teacher efficacy, comprising three subscales:

a. Efficacy for instructional strategies b. Efficacy for classroom management, and finally c. Efficacy for student engagement.

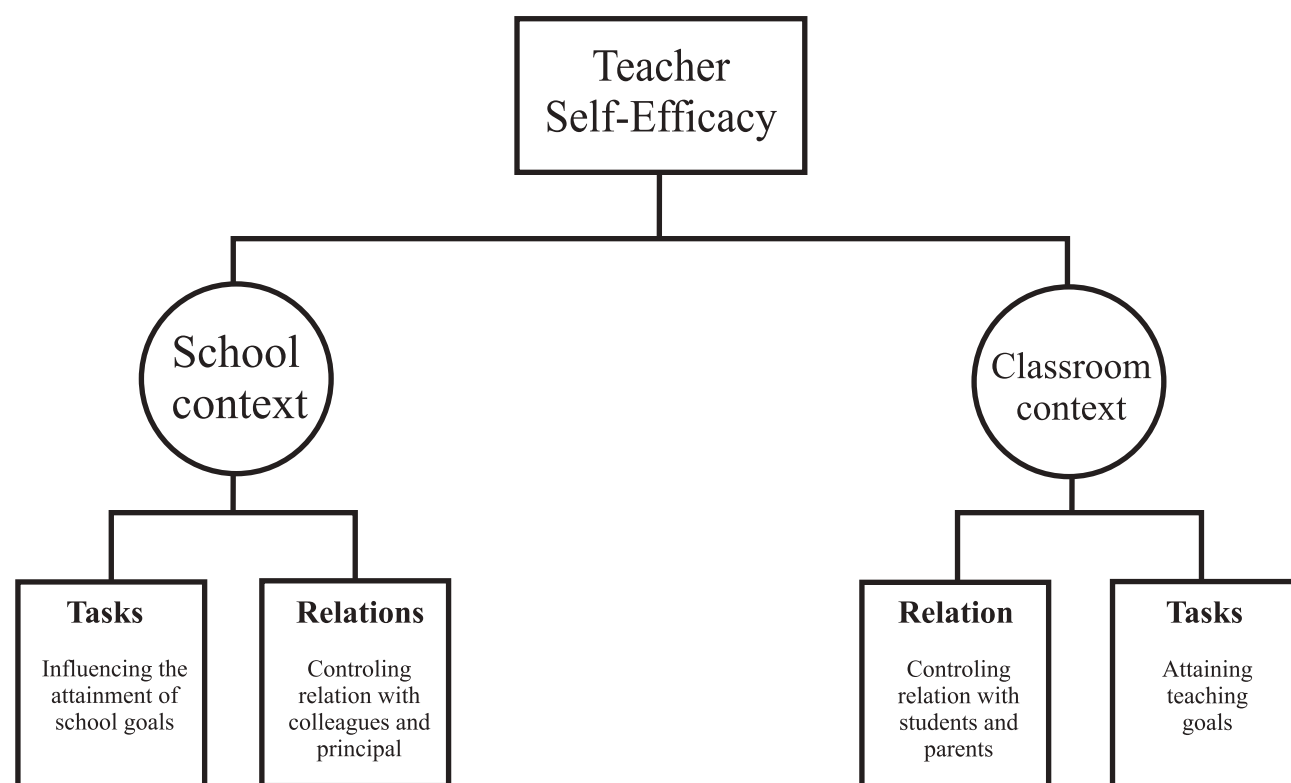
Cherniss (1993) suggests that teacher efficacy should consist of three dimensions: task (the level of teacher's skill in teaching, disciplining and motivating students); Inter-personal (the teacher's ability to work harmoniously with others, particularly service recipients, colleagues, and direct supervisors) and Organization (the teacher's ability

to influence the social and political powers of organization). He did not elaborate on this proposed conceptualization beyond its basic definition, and suggested that this three-dimensional model of teacher self-efficacy can contribute to understanding and preventing teacher burnout. and Friedman (2002) posed the classroom and school context (CSC) model of teacher self-efficacy: The CSC model is based on the following three premises:

1. The teacher operates simultaneously as a leader and as an employee within two social systems in the school: the classroom and the organization.

2. The teacher is engaged in two social systems. One social system connects the teacher to the students; the other connects the teacher to colleagues and the principal.

3. The teacher must function on two levels in both social systems in the school: the task and the relation levels.



The CSC model of teacher-efficacy (Cited in Kass and Friedman, 2002)

According to Kass and Friedman (2002), teacher efficacy should have two basic aspects:

- working with students within the classroom context, and
- being a member of the school as an organization.

2.2 Gardner's theory of MI

The theory of Multiple Intelligences challenges the traditional notion of Intelligence which has been defined in terms of Intelligent Quotient (IQ). According to Teele (2004), there are at least seven different types of intelligences that everyone seems

to possess to a greater or lesser degree. And then Gardner (1993, cited in Teele, 2004) added an eighth intelligence to the list. These eight intelligences are: Linguistic, Logical-Mathematical, Spatial, Musical, Bodily-kinesthetic, Intrapersonal, Interpersonal, and Natural.

In addition to the above mentioned types of intelligences, Smith (2002) lists some other types of intelligences such as spiritual, existential intelligences.

2.3 The Appeal of MI theory to Educators

According to Smith (2002), Gardner's theory of MI has not been readily accepted within academic psychology. However, it has met with a strongly positive response from many educators. It has been embraced by a range of educational theorists and, significantly, applied by teachers and policy makers to the problems of schooling. A number of schools in North America has looked to structure curricula according to the intelligences and to design classrooms and even whole schools to reflect the understandings that Gardner has developed. The theory can also be found in use within pre-school, higher, vocational, and adult education initiatives. Smith further mentioned that this appeal was not at first obvious. At first blush, as Gardner (1999) asserted, it seemed that it was hard to teach one intelligence "what if there are seven?" In response to this question, Gardner asserted that "seven kinds of intelligence would allow seven ways to teach, rather than one."

Armstrong (1994, cited in Christison, 1998) mentions four key points that educators find attractive about MI theory:

1. Each person possesses all eight intelligences; in each person the eight intelligences function together in unique ways. Some people have high levels of functioning in all or most of the eight intelligences; a few people lack most of the rudimentary aspects of intelligences.

2. Intelligences can be developed. Gardner suggests that every one has the capacity to develop all eight intelligences to a reasonably high level of performance with appropriate encouragement, enrichment, and instruction.

3. Intelligences work together in complex ways. No intelligence really exists by itself. Intelligences are always interacting with each other. For example, to cook a meal, one must read a recipe (linguistic), perhaps double it (logical-mathematical), and prepare a menu that satisfies others you may cook for (interpersonal) and yourself (intrapersonal).

4. There are different ways to be intelligent. There is no standard set of attributes that one must have in

order to be considered intelligent. Someone, who is awkward at sports, does not mean that he/she can not be a marvel in building construction.

3. Method

3.1. Participants

The participants of the study were selected through cluster sampling, that is, first of all, 10 language institutes in Tehran and Babol were randomly selected. Then, in each of these institutes 15 teachers were randomly selected. Totally, 150 participants accepted to take part in the study but 49 teachers did not complete all parts of the questionnaires. Therefore, the participants who completed the questionnaires thoroughly were 101.

3.2 Instruments

The instruments used in this study are described as follows: first, an MI questionnaire consisting of 8 dimensions developed and validated by Shearer (1996) was used. This questionnaire includes 116 items, all measuring the different dimensions of intelligence. The reliability and validity of this questionnaire were measured by Shearer (1996). The second questionnaire used in this study is called teaching efficacy scale including 24 items scored based on a likert scale ranging from 1 to 9. This questionnaire was validated by Abednia (2006). Then the gathered data were analyzed through different statistical procedures. A multiple regression (stepwise) test was run to estimate the relationship between teachers' teaching efficacy and their multiple intelligences. To find the related dimensions of intelligence which are the predictors of teaching efficacy, the researchers ran a repeated measure ANOVA test to compare the teachers' means on different dimensions of multiple intelligences.

Also, due to the lack of the required number of participants we were not able to control the variables of gender, experience, and language proficiency of language teachers.

4. Results and Discussions

This study was an attempt to investigate a relationship between teachers' teaching efficacy and their different dimensions of intelligence. It also investigated the English language teachers' scores on different dimensions of intelligence. The following two questions were put forward.

Research Question 1

Is there any difference between English teachers' scores in different dimensions of intelligence? A Repeated Measures ANOVA is run to compare the mean scores of the English teachers on the eight

components of the MI Profiles. Table 1 displays the descriptive statistics for the eight intelligence dimensions which are sorted on their ascending mean scores. The Natural and the Linguistic tests have the lowest and highest means respectively.

MI Profile	Mean	Std. Deviation	N
Natural	48.6139	10.90868	101
Musical	51.1782	15.12309	101
Kinesthetic	53.7228	13.74490	101
Spatial	55.3267	13.50119	101
Math	56.1485	14.30481	101
Intra	60.1782	18.39641	101
Interpersonal	64.1386	12.56426	101
Linguistic	64.8317	12.42342	101

Table 1: Descriptive Statistics MI Profiles

Table 2 displays the results of the Mauchly Test. Based on the results of this table; one can decide to report the multivariate or univariate tests. If the results of the Muchly test are significant one should report the results of the multivariate tests; otherwise he or she can report the results of the univaraite tests which are more straightforward than the multivariate ones.

The Mauchly W of .309 and its equivalent chi-square values have a probability of .000 indicating that the results of the multivariate tests should only be reported

Table 2: Mauchly Test

					Epsilon		
					Greenhouse-Geirsser	Huynh-Feldt	Lower-bound
Tests	.309	114.454	27	.000	.725	.768	.14

Table 3 displays the results of the multivariate tests. Four measures of Pillai, Wilk, Hotelling and Roy are calculated. Their respecting values are .622, .378, 1.646 and 1.346. Their partial eta squared values are all higher than .14. The partial eta squared results indicate that the statistics presented in Table 3 contribute to the model under study.

Table 3: Multivaraite Tests

Effect	Value	F	Df	Error df	Sig.	Partial Eta squared
Pillai's Trace	.622	22.097	7.000	94.000	.000	.622
Wilks' Lambda	.378	22.097	7.000	94.000	.000	.622
Hoyelling's Trace	1.646	22.097	7.000	94.000	.000	.622
Roy's Largest Root	1.646	22.097	7.000	94.000	.000	.622

Before commenting on the results of the F-values, it should be noted that a good multivariate model has three conditions:

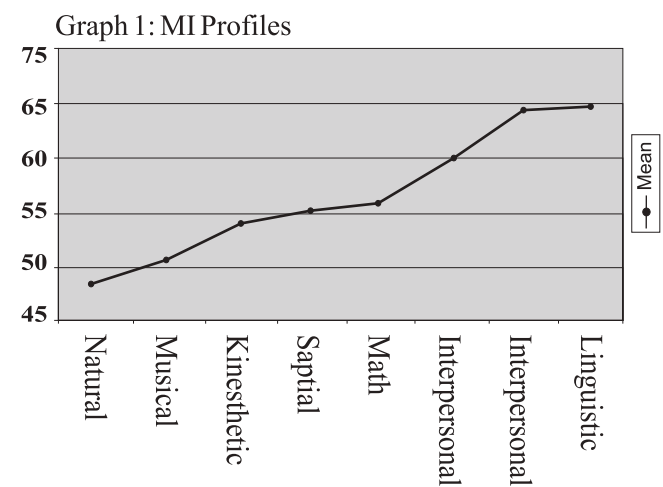
a. The values of Pillai and Hotelling should not be equal which the case in this model is. They are .622 and 1.646 respectively.

b. The value of Wilk should be the lowest among the four statistics. This is the case in this study again. The Wilk's lambda of .378 is the lowest statistic.

c. The partial eta squared values should be equal to or greater than .14.

The F-observed value is 22.097. At 7 (8 tests minus 1) and 94 (101 cases minus 7) degrees of freedom, this amount of F-value is greater than the critical value of F, i.e. 2.10. Based on these results it can be concluded that there are significant differences among the mean scores of the English teachers on the eight components of the MI Profiles. Thus the first null-hypothesis as there is not any difference between English teachers' scores on different dimensions of Intelligence is rejected and it can be concluded that there is difference between English teachers' score on different dimensions of Intelligence.

Graph 1 displays the mean scores of the eight intelligence test.



One of the biggest limitations of the Repeated Measure ANOVA is its incapability in running multiple comparison tests as Post Hoc Scheffe's Tests do. However, it allows us to compare the individual means through its own contrast tests. Since the mean scores are ordered on an ascending scale, the Difference contrast test is employed which compares each test with its following tests. For example, test 1 – Naturalist Profile – is compared

with the second test, Music Profile. The Music Profile is compared with its following test, Kinesthetic and so on. The results are displayed in Table 4. Based on these results it can be concluded that:

a. There is not any significant difference between the mean score of the Naturalist Profile (48.61) and the Music Test (51.17).

b. There is a significant difference between the mean score of the Music Profile (51.17) and the Kinesthetic Test (53.72). These results imply that there is a significant difference between Kinesthetic and Naturalist.

c. There is a significant difference between the mean score of the Kinesthetic Profile (53.72) and the Spatial Test (55.32).

d. There is a significant difference between the mean score of the Spatial Profile (55.32) and the Math Test (56.14).

e. There is a significant difference between the mean score of the Math Profile (56.14) and the Intra-Personal Test (60.17).

f. There is a significant difference between the mean score of the Intra-Personal Profile (60.17) and the Inter-Personal Test (64.13).

g. There is a significant difference between the mean score of the Inter-Personal Profile (64.13) and the Linguistic Test (64.83).

Table 4: Difference Contrast

Source	Tests	Type III Sum of Square	Df	Mean Square	F	Sig.
	Natural Vs. Musical	664.168	1	664.168	2.576	.112
	Musical VS. Kinesthe	1479.032	1	1479.032	10.529	.002
	Kinesthe VS. Spatial	1743.763	1	1743.763	12.277	.001
	Spatial VS. Math	1566.387	1	1566.387	11.133	.001
	Math VS. Intrapers	5207.080	1	5207.080	14.310	.000
	Intrapers VS. Interp	9986.985	1	9986.985	69.671	.000
	Interp VS. Linguistic	8579.159	1	8579.159	83.186	.000
	Natural VS. Musical	25782.832	100	257.828		
	Musical VS. Kinesthe	14046.718	100	140.467		
	Kinesthe VS. Spatial	14203.237	100	142.032		
	Spatial VS. Math	14070.301	100	140.703		
	Math VS. Intrapers	36388.600	100	363.886		
	Intrapers VS. Interp	14334.571	100	143.346		
	Interp VS. Linguistic	10313.168	100	103.132		

Research Question 2

Is there any relationship between teachers' multiple intelligences and their teaching efficacy?

A regression analysis through the stepwise method is carried out to regress the Teachers' Efficacy on Multiple Intelligences. Table 5 shows the Pearson correlation coefficients between the components of the MI Profile and the Teachers' Efficacy.

		t. effica	Musical	Kinesthe	Math	Spatial	Linguist	Interper	Intra	Natural
t. effica	Pearson or relation g.(2-tailed)	1	289**	280**	71**	200*	92**	191	012	221*
	N	101	101	101	101	101	101	101	101	101
Musical	Pearson or relation g.(2-tailed)	89**	1	464**	72**	57**	58**	185	005	72**
	N	101	101	101	101	101	101	101	101	101
Kinesthe	Pearson or relation g.(2-tailed)	80**	464**	1	520**	72*	42**	81**	65**	09**
	N	101	101	101	101	101	101	101	101	101
Math	Pearson or relation g.(2-tailed)	71**	272**	520**	1	29**	88**	45**	133	57**
	N	101	101	101	101	101	101	101	101	101
Spatia	Pearson or relation g.(2-tailed)	00*	357**	572**	529**	1	08**	28**	235*	60**
	N	101	101	101	101	101	101	101	101	101
Linguis	Pearson or relation g.(2-tailed)	92**	258**	442**	488**	08**	1	02**	182	00**
	N	101	101	101	101	101	101	101	101	101
Interper	Pearson or relation g.(2-tailed)	191	.185	381**	45**	28**	02**	1	66**	159
	N	101	101	101	101	101	101	101	101	101
Intra	Pearson or relation g.(2-tailed)	012	4.005	265**	133	235*	182	66**	1	091
	N	101	101	101	101	101	101	101	101	101
Natural	Pearson or relation g.(2-tailed)	21*	272**	409**	57**	60**	00**	159	091	1
	N	101	101	101	101	101	101	101	101	101
Relation is significant at the 0.01 level(2-tailed)										
Relation is significant at the 0.05 level(2-tailed)										

The upper line shows the Pearson correlation coefficients. The middle one displays the probabilities of the r-values and the lower line shows the number of cases. It should be noted that these three parts show the full matrix, i.e. the figures below and over the diagonal are the same.

Table 6 indicates that among the eight components of the MI Profile only two of them, i.e. Linguistic and Musical Intelligences predict the Teachers' Efficacy. The other components of the MI Profile do not contribute to the regression model.

Table 6: Regression Model Summary

Model	R	Square	sted R Square	Error of the Estimate
1	.392a	.154	.145	10.52954
2	.437b	.191	.175	10.34517

As displayed in Table 6, Linguistic Intelligence is the first variable to enter into the regression model. Its R is .392 with an R-squared of .154. After entering the Musical Intelligence on the second step the R increases to .437 and the R-squared increases to .191. That is the Linguistic and Musical Intelligences predict about 20 percent of the variance of the Teachers' Efficacy.

The results of the ANOVA indicate that the regression model at both steps is linear. The F-values of 17.98 and 11.59 have probabilities of .000 indicating that both F-values are statistically significant. These significant F-values indicate that the regression model is linear

Table 7: ANOVA Results for Linearity Assumption

Model		Sum of Square	Df	Mean Square	F	Sig.
1	Regression	1993.951	1	1993.951	7.984	.000a
	Residual	10976.247	99	110.871		
	Total	12970.198	100			
2	Regression	2481.992	2	1240.996	1.596	.000b
	Residual	10488.206	98	107.023		
	Total	12970.198	100			

The following scatter-plot also shows that the regression model is linear. No clear pattern can be identified in this plot which indicates the linearity of the regression model

Graph 2: Scatter-plot Teachers' Self-Efficacy on MI Profiles.

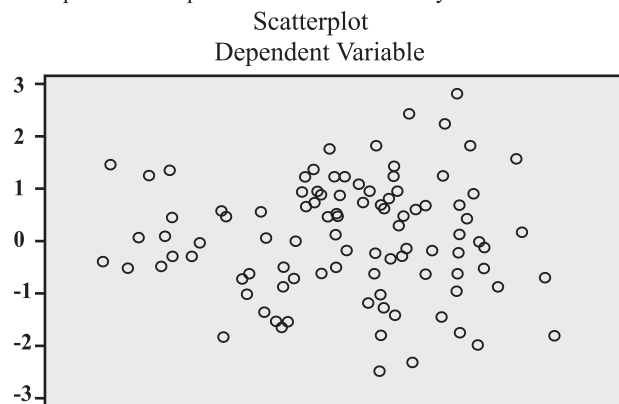


Table 7 displays the variables excluded at the first and the second steps.

Table 8: Variables Excluded

						Collinearity Statistics
						Tolerance
Musical	201a	2.135	.035	.211		.933
kinesthetic	133a	1.297	.198	.130		.805
Math	105a	.989	.325	.099		.762
Spatial	048a	.469	.640	.047		.833
Interper	-.070a	-.600	.550	-.061		.638
Intra	-.061a	-.648	.519	-.065		.967
Natural	114a	1.175	.243	.118		.910
Kinesthe	055b	.492	.624	.050		.673
Math	068b	.644	.521	.065		.739
Spatial	-.014b	-.136	.892	-.014		.765
Interper	-.079b	-.694	.489	-.070		.637
Intra	-.050b	-.543	.589	-.055		.964
Natural	.074b	.758	.450	.077		.869

The upper part of the table shows that the variables were not entered on the first step where the Linguistic Intelligence was entered due to its highest contribution to the regression model. It can be foreseen that the Musical Intelligence would be the second variable to enter into the regression model. Its t-value of 2.13 is the highest and its probability of .035 is the lowest among the excluded variables.

The lower part of the table shows the variables excluded on the second step. None of the probabilities are equal to or lower than .05, indicating that the excluded variables do not contribute to the regression model meaningfully.

To answer the second research question based on the above results it can be concluded that Linguistic and Musical Intelligences are the best predictors of the English teachers'

Self-efficacy.

Table 8 displays the regression coefficients and its constant values which can be used to form the regression equation. The probabilities under the last column are all below .05 indicating that the regression coefficients are statistically significant.

To predict a subject's score on the Teachers' Efficacy Measure, one should use the following regression equation:

$$\text{Teachers' Efficacy} = 46.126 + ((\text{Linguistic} * .312) + (\text{Music} * .151))$$

This equation means that to obtain any teacher's score on the Efficacy Measure, his or her score on the Linguistic and Music profiles be multiplied by .312 and .151 respectively. Then, it should be added to the constant value of 46.126.

Table 9: Regression coefficients

	Coefficients				
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	50.787	5.594		9.079	.000
Linguis	.359	.085	.392	4.241	.000
(Constant)	46.126	5.913		7.800	.000
Linguis	.312	.086	.340	3.620	.000
Musical	.151	.071	.201	2.135	.035
a. Dependent Variable : t.effic					

Discussion:

The results of the present study indicate that in spite of the fact that multiple comparisons show different dimensions of intelligences, they are related to each other, only the two constructs, musical intelligence and linguistic intelligence are predicted to have correlation with teaching efficacy. The other dimensions of intelligences are not significantly correlated with teaching efficacy. The results indicate that the two constructs of linguistic and musical intelligence shared almost 20% variance with teaching efficacy. These two constructs were found as positive predictors of teachers' teaching efficacy.

To justify the relationship between linguistic intelligence and second language learning in general, and second language learning strategy use in particular, it makes sense to say that as soon as someone accepts the existence of such a construct as linguistic intelligence, it will be a natural assumption that such an intelligence does have a direct relationship with verbal and linguistic abilities. "Language learning and use are obviously closely

linked to what MI theorists label Linguistic Intelligence". (Richards & Rodgers, 2001, 117). In line with Richards and Rodgers (2001), it could be firmly argued that the existence of the construct of linguistic intelligence among English language teachers can be of much contribution to the process of their teaching in general and their teaching effectiveness in particular. As Wheatly (2002) believes teaching efficacy can influence teachers' outcomes. Therefore, based on the teachers' scores on linguistic intelligence, one can accurately predict the English language teachers' general outcomes.

In none of the studies carried out up to now, musical intelligence was found to be a predictor of teachers' teaching efficacy and effectiveness. There was one study done by Marshland (2005) "based on the results of which, he concluded that linguistic intelligence was highly correlated with effective teaching; he could not find any relationship between effective teaching and other dimensions of intelligence; whereas, the results of the present study (table 4) found musical intelligence as a

positive predictor of teaching efficacy.

The use of music in the language classroom is not new. In Suggestopedia, for example, the teacher tunes her voice to the classical/baroque music during the concert session. This tuning affects language in several ways: pauses between thought groups become more obvious, musical rhythm causes a slowing down in speech production and musical melody guides the teacher's pitch variation. Research done on the effects of music in the classroom (Wood cited in Fonseca & Arnold, 2004) shows that students who had received musical education or those who had been frequently exposed to classical/baroque music had higher academic results. Fonseca and Arnold (2004), point to the effect of listening to music on the development of learners' spatial/temporal intelligence. Music also has physical effects such as the adaptation of breathing to the musical rhythms, the impact on muscular energy and psychological effects as seen in its ability to induce a certain type of mood.

In general, it can be affirmed that the development of musical intelligence in the second language classroom can have benefits such as helping students to concentrate and connect with their inner self, stimulating creative processes, cutting out the black noise, that is to say, eliminating distracting sounds from in or outside the classroom, and, above all, fostering a relaxed but motivating and productive classroom atmosphere. Therefore, teachers who are musically intelligent learn how to energize their teaching and transfer the teaching stuff with a better efficiency. As we noticed the relationship between teaching efficacy and musical intelligence was significant. Further, applying musical intelligence strategies in the classroom fosters learning and when the teacher is benefiting from this blessing so she could apply the teaching stuff easier.

It could be discussed that teachers who have a high sense of efficacy have also higher scores on linguistic and musical intelligences. So, the higher their scores on linguistic and musical intelligences the higher their sense of teaching efficacy is. To put in another way, researchers can predict teachers' teaching efficacy based on their scores on the variables of musical and linguistic intelligences. Based on the results of the study, it could be argued that in addition to linguistic intelligence which is highly correlated with teaching effectiveness of teachers, musical intelligences is also a predictor of English language teachers' teaching efficacy.

6. Conclusion

This study aimed to investigate whether there

was any relationship between English teachers' teaching efficacy and English teachers' multiple intelligences and also to see whether there is any significant difference between English teachers' score in different dimensions of Intelligence? To do so, the 101 related questionnaires which were collected were analyzed through two statistical tests, namely, a multiple regression (Stepwise) and repeated measure ANOVA tests. They came to the following results: There is a significant correlation between teachers' teaching efficacy and their multiple intelligences ($p=.05$). That is, the two constructs of musical intelligence and linguistic intelligence are predicted to have relationship with teachers' teaching efficacy while the other six dimensions of intelligence are not significantly correlated with teachers' teaching efficacy. And as we noticed, there was not any significant difference between musical intelligence and natural intelligence but about the others, teachers scored differently on different dimensions of intelligence.

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