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Multiple Intelligences as predictors Cognitive and Metacognitive Self-regulated Learning

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Abstract

The present study aimed to investigate the relationship between multiple intelligences and self-regulated learning components of Iranian EFL university students majoring in Teaching English and English Translation. To this end, a sample of 150 intermediate level students from Imam Khomeini International University in Qazvin and Islamic Azad University in Takestan were selected. Data were gathered by means of questionnaires and were analyzed using stepwise multiple regression procedures. Results indicated that in relation to the first research question, verbal and existential intelligences were predictors of cognitive self-regulated learning. About second research question related to the field of study, findings revealed that visual and verbal intelligences made significant contributions to predicting metacognitive self-regulated learning. Likewise, there was a negative relationship between visual intelligences and metacognitive self-regulation. The findings have implications for teachers, learners, and material developers.

Key words: Cognitive self-regulation, Metacognitive self-regulation, multiple intelligences, Self- regulation

Introduction

The notion of intelligence has a great effect on ones' educational opportunities, job selection and social status (Christison, 1998). The existence of different theories of intelligence indicates that intelligence is a vibrant and relevant concept in psychology (Akbari and Hosseini, 2008). Many philosophers and psychologists have accepted the notion that intelligence has a lot to do with being flexible in following one's goals. "This means that there are as many types of human intelligence as there are types of human goal" (White, 2004, p.2).

It has become important for researchers to understand the nature of self-regulatory processes that facilitate learning (Azevedo, 2007). Self-regulated learning (SRL) entails different types of prior knowledge, and key elements of SRL refer to the awareness of and access to this knowledge and the ability to develop knowledge on the basis of their experiences (Boekaerts, 1996).

Multiple intelligences and self-regulated learning along with their components has become a significant subject in academic curriculum design. The examination of our understanding of the relationship between multiple intelligences and self-regulated learning from previous studies shows that there is a need for further research in this area. Several previous studies have investigated various aspects of multiple intelligences and self-regulated learning. However, few studies, if any, have focused on the relationships between multiple intelligences and the components of self-regulated learning. The present study aims to fill part of this gap. It attempts to answer the following research questions:

- Which type of multiple intelligences is a better predicator of cognitive self-regulated learning?
- Which type of multiple intelligences is a better predictor of metacognitive self-regulated learning?

Multiple Intelligence

The theory of multiple intelligences was proposed by Howard Gardner in 1983. He asserts that intelligence is different from IQ because intelligence has to do with productivity and creativity. Gardner (1983, p. 81) defines intelligence as "the ability to solve problems or to create fashion products that are

valued within one or more cultural settings".

Multiple intelligences theory can have applications in language teaching and learning. As Gardner (1993) points out, knowing the type of intelligence is directly related to learning because "education is responsible for the growth of intelligence: its nurture and instruction" (p.27). Richards and Rodgers (2001) claim that MI theory not only has been attended to in public instruction but also in teaching English, and its application in teaching English is recent and new. Kezar (2001) believes that if students apply MI theory in their schooling, they can increase their self-esteem. In addition, Arnold and Fonseca (2004) claim that MI theory has affected students and their aptitude, methods of teaching and learning, and curriculum content. Moreover, Nikolova and Taneva-Shopova (2007) assert that Gardners' theory allows educators to go beyond the narrow confines of skilling, curriculum, and testing.

A number of studies have investigated the effects of MI on various aspects of language learning. Akbari and Talebinezhad (2003) conducted a study to investigate the relationship between the use of language learning strategies, foreign language proficiency and IQ scores of Iranian EFL learners. The results indicated a positive relationship between the use of LLS and students' proficiency scores. No significant relationship was found between participants' strategy use and their IQ scores.

Temiz and Kiraz (2007) found that the effect of MI theory on literacy education was positive. Akbari and Hosseini (2008) found a significant relationship between the use of language learning strategies and IQ scores of learners. Musical intelligence, however, did not correlate with any aspect of strategy use, and kinesthetic intelligence correlated only with memory learning strategies.

Nasser, Singhal, and Abouchedid (2008) compared the self-estimate of intelligence of Indian and Lebanese university entering students. The results indicated that Lebanese participants rated verbal, logical, and kinesthetic intelligences higher than the Indian participants.

Isik and Tarim (2009) sought to determine the effects of the cooperative learning method supported by MI theory (CLMI) on Turkish elementary students' academic achievement and retention. The participants were divided into two experimental groups (which used CLMI method) and two control groups (which used traditional method). The findings indicated that CLMI was more effective than the traditional method, and that CLMI improved academic achievement in long-term use.

In still another study, Baran and Maskan (2011) investigated the relationship between students' multiple intelligences and variables including types of school, gender, financial state of the family, parental education, availability of the computer at home, and the relationship between MI and students' physics achievement. Findings showed significant differences between students' MI and the mentioned variables. Moreover, there was a positive correlation between intrapersonal and logical intelligences and physics achievement. However, they reported a negative correlation between kinesthetic intelligence and physics achievement.

In another study, the relationship between Iranian EFL high school students' multiple intelligences and their use of learning strategies was examined by Hajhashemi, Parasteh Ghombavani and Yazdi Amirkhiz (2011). They found a low, positive correlation between MI and different types of learning strategies. Moreover, they concluded that there is a high correlation between metacognitive strategy and MI. Linguistic, visual, and logical intelligences showed significant correlation with all strategies except memory strategies.

Soleimani, Moinnzadeh, Kassaian, and Ketabi (2012) reported that students taught based on MI theory outperformed the traditionally instructed students both in general and in vocabulary, reading comprehension, and structure.

Zarei and ShokriAfshar (2012) investigated types of MI as predictors of reading comprehension and vocabulary knowledge. The results of the regression analysis showed that musical, interpersonal, kinesthetic, and logical intelligences were predictors of reading comprehension, and musical, verbal, visual, kinesthetic and natural intelligences were predictors of vocabulary knowledge.

Self-regulated learning

The subject of self-regulatory learning was proposed by Bandura in 1960. Chen (2002) believes that understanding the concept of self-regulation is important in the development of achievement capabilities for both teachers and students. Zimmerman (2008, p.166) defines self-regulated learning as "the self-directive processes and self-beliefs that enable learners to transform their mental abilities into an academic performance skill".

Zimmerman (1998) asserts that self-regulation is not considered as a fixed characteristic of students but rather as context-specific processes that are selectively used to succeed in school. He continues that self-regulation is not a singular aspect; rather, it is multidimensional in scope, contextual in application, and dependent on perceived outcomes.

Boekaerts (1999) offers a three layer model of self-regulated learning in which the innermost layer refers to the information about the typical way that students learn and explain the quality of their self-

regulation processes. The middle layer refers to the students' ability to regulate their own learning according to their skills. The outmost layer refers to the regulation of the self that involves their ability to define ongoing and upcoming activities based on their own wishes, needs, and expectancies.

Pintrich (2004) describes self-regulatory processes in four phases including: a) planning, b) self-monitoring, c) control, and d) reflection or evaluation. Within each of these four phases, self-regulation activities are organized into four areas including: cognitive, motivational/affective, behavioral, and contextual. Bandura (1997) maintains that Pintrich's model is based on the socio-cognitive perspective of learning.

Pintrich and De Groot (1990) assert that self-regulated learning involves three major components: a) cognitive strategies that students employ to learn, remember, and understand the material. b) Metacognitive strategies for planning, monitoring and regulation. c) Students' management and control of their effort on academic tasks. Schraw, Crippen, and Hartley (2006) offer a slightly different classification and hold that self-regulated learning consists of three components: cognition, metacognition and motivation.

The cognitive component consists of three types of learning skills including cognitive strategies, problem solving strategies, and critical thinking skills. Cognitive strategies refer to the different individual tactics that teachers and learners use to improve learning. Problem solving strategies refer to either the development of a general problem solving strategy or situated practice. Critical thinking involves the individual identifying the source of information, analyzing its credibility, reflecting on whether that information is consistent with their prior knowledge, and drawing conclusions based on their critical thinking (Schraw, et al., 2006).

During metacognition processes, self-regulated learners plan, set goals, self-monitor, and self-evaluate their acquisition, which helps them to be self-aware and decisive in their learning (Zimmerman, 1990).

Boekaerts and Corno (2005) distinguish two parallel processes of self-regulation: top-down self-regulation and bottom-up self-regulation. In 1997, Boekarets introduced a model of classroom self-regulation in which students benefit from two priorities. One priority is to achieve mastery or growth goal, which refers to the selection of learning goals that enhance academic resources. The mastery or growth goals refer to top-down self-regulation because they are activated by motivation, like personal interest, values, and rewards. The second priority is to maintain emotional well-being. When students attempt to protect their ego or try to look smart and avoid harm, they are in fact attempting to maintain emotional well-being. This priority refers to bottom-up self-regulation.

The learners who apply self-regulated processes possess characteristics that distinguish them from other learners. Self-regulated learners believe that acquisition is a systematic and controllable process and are responsible for their achievement results and outcomes. These students are metacognitively, motivationally, and behaviorally active participants in their learning (Zimmerman, 1990).

Boekaerts (1996) notes that self-regulated learning is a powerful learning theory that helps learners transfer their skills and knowledge to real life contexts and make them more independent of their teachers. In addition, he adds that self-regulated learners are able a) to control different aspects of learning processes that are the selection, combination, and coordination of cognitive strategies in a context, and b) to assign resources to the different dimensions of the learning processes. The two components of self-regulated learning, namely; cognitive and metacognitive are the main concern of this study.

A number of studies have been conducted on various aspects of self-regulated learning. Zimmerman and Bandura (1994) investigated the predictive power of self-regulation for academic achievement in writing. They concluded that both perceived academic self-efficacy and self-evaluative standards are influenced by perceived self-efficacy in writing.

Samadi (2004) compared self-regulated learning strategies in both students and their parents by focusing on the role of gender and performance achievement. Data analysis showed that there was no significance difference between girls and boys in self-regulated learning strategies. But there were significant differences between the self-regulation of high and moderate achieving groups on the one hand, and the low achieving ones, on the other.

Heikkila and Lonka (2006) worked on the relationship between learning approaches, self-regulation and cognitive strategies. They concluded that learning approaches, regulation of learning and cognitive strategies were all related to each other.

Mih and Mih (2010) sought to determine the variables involved in the school learning process and the way each construct develops with the advancement of age. They found that students use more in-depth processing and a high level of critical thinking and self-regulated learning strategies as they advance in school years. Metacognitive regulation does not develop progressively together with advancement in school.

In their study, Farajollahi and Moenikia (2011) investigated the effect of computer-based learning on distance learners' self-regulated leaning strategies. Findings showed that the rate of self-regulated learning strategies within computer-based group was higher than the rate of self-regulated learning strategies within print-based group.

Zarei and Hatami (2012) investigated the relationship between self-regulated learning components and L2 vocabulary knowledge and reading comprehension. Self-regulated components included self-checking, effort, planning, and self-efficacy. The results indicated that there were no significant relationships between self-regulatory processes, vocabulary knowledge and reading comprehension in Iranian EFL context.

To conclude, although there are a number of studies exploring the relationship between MI and language strategies and learning styles, there seems to be a gap in the relationship between MI and cognitive and metacognitive self-regulated learning. To fill part of this gap, this study aims to investigate the types of MI as predictors of cognitive and metacognitive self-regulated learning components.

Materials and Methods

Participants

In the present study, a sample of 150 intermediate level college students (male and female) majoring in TEFL at Imam Khomeini International University and Islamic Azad University in Takestan were selected. The participants were all adult learners of English ranging in age from 20 to 35.

Instruments

The first instrument used to assess the participants' intelligence profile was Mckenzie's (1999) MI inventory questionnaire, which consists of 90 Likert- type scale statements related to the nine intelligences proposed by Gardner (1999). This questionnaire includes 10 statements related to each of the nine intelligences. Learners were required to complete the questionnaire by placing 0 or 1 next to each statement. A validated sample of the test is available at http://surfaquarium.com/MI/MI Invent.htm .

The second instrument was "Motivated Strategies for Learning Questionnaire-MSLQ" developed by Pintrich, Smith, Garcia, and Mckeachie (1993). It included 81 items of which only 31 items were used. The MSLQ consists of a motivation section (31 items) and a learning strategies section (50 items). The learning strategy section contains 31 items regarding students' use of different cognitive and metacognitive strategies. The cognitive strategy use scale consists of 19 items pertaining to the use of rehearsal strategies, elaboration strategies, organizational strategies, and critical thinking. The metacognitive strategy consists of 12 items pertaining to the use of planning, monitoring, and regulating. A validated sample of the test is available at http://epm.sagepub.com/content/53/3/801.

Procedures

To achieve the purpose of the study, the following procedures were followed. Initially, the McKenzie questionnaire was used to identify learners' intelligence profiles. Each learner was required to complete the questionnaire by placing either 0 or 1 next to each statement. 1 meant that it corresponded to the learner and 0 showed that it did not. The allocated time for this part was 15 minutes.

Then the "Motivated Strategies for Learning Questionnaire-MSLQ" developed by Pintrich, et al. (1993) was administered to determine the participants' use of different learning strategies. It consisted of 81 items of which only 31 items were used. In this questionnaire, the Likert scale was used and the participants had to choose from five alternatives:1) almost never 2) seldom 3) sometimes 4) often 5) almost always. The allocated time for this part was 15 minutes.

To answer the research questions, two stepwise multiple regression analyses were run to evaluate nine independent variables influencing the dependent variables of the study, self-regulated components.

Results and Discussion

Investigation of the first research question

The first question attempted to see which types of multiple intelligences are predictors of cognitive self-regulated learning. To this end, a stepwise multiple regression was used. Table 1 shows that verbal and existential intelligences entered into the regression equation (stepwise criteria: $p < 0.05$).Verbal intelligence was the single best predictor (step 1), and existential intelligence was the next best predictor (step 2).

Table 1. Variables Entered/ Removed [a]

Model	Variables Entered	Variables Removed	Method
1	Verbal		Stepwise (Criteria: Probability-of- F-to-enter <= .050, Probability-of- F-to-remove >= .100).
2	Existential		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of- F-to-remove >= .100).

a. Dependent Variable: cognitive self- regulated learning

Model summary (Table 2) shows that the verbal intelligence and cognitive self-regulated learning share over 10% of variance. Verbal and existential intelligences together share just above 12% of variance with cognitive self-regulated learning.

Table 2. Model Summary [c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.327[a]	.107	.101	11.77
2	.369[b]	.136	.124	11.62

a. Predictors: (Constant), verbal
b. Predictors: (Constant), verbal, existential
c. Dependent Variable: cognitive self-regulated learning

Table 3 gives the results of the ANOVA performed on the model. The F-value and the significance level ($F_{(1,148)} = 17.68$, $p < 0.05$) indicate that both models are significant.

Table 3. ANOVA [c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2453.360	1	2453.360	17.684	.000[a]
	Residual	20532.133	148	138.731		
	Total	22985.493	149			
2	Regression	3123.755	2	1561.877	11.560	.000[b]
	Residual	19861.739	147	135.114		
	Total	22985.493	149			

a. Predictors: (Constant), verbal
b. Predictors: (Constant), verbal, existential
c. Dependent Variable: cognitive self-regulated learning

To see how much of the variance in cognitive self-regulated learning is accounted for by each of the nine predictors, the standardized coefficients and the significance of the observed t-value for each predictor were checked. As Table 4 shows, of the nine predictors, only verbal and existential intelligences account for a statistically significant portion of the variance in cognitive self-regulated learning. For every one standard deviation of change in one's verbal intelligence, there will be about .21 of a standard deviation change in one's cognitive self-regulated learning. This is closely followed by existential intelligence; for every one standard deviation of change in one's verbal intelligence, there will be about .20 of a standard deviation change in one's cognitive self-regulated learning.

Table 4. Coefficients[a]

	Unstandardized Coefficients		Standardized		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	51.328	2.827		18.157	.000
verbal	1.950	46.4	.327	4.205	.000
2 (Constant)	47.109	3.372		13.971	.000
Verbal	1.261	.552	.211	2.282	.024
Existen	1.180	.530	.206	2.227	.027

a. Dependent Variable: cognitive self-regulated

Investigation of the second research question

The second question attempted to see which types of multiple intelligences are predictors of metacognitive self-regulated learning. To this end, another stepwise multiple regression was used. Table 5 shows that only visual and verbal intelligences entered into the regression equation (stepwise criteria: $p < 0.05$).

Table 5. Variables Entered/ Removed [a]

Model	Variables Entered	Variables Removed	Method
1	visual		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	verbal		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove>=.100).

a. Dependent Variable: metacognitive self-regulated learning

Model summary (Table 6) shows that the visual intelligence and metacognitive self-regulated learning share about 4% of variance. Visual and verbal intelligences together share 7.6% of variance with metacognitive self-regulated learning.

Table 6. Model Summary [c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.213[a]	.045	.039	8.39518
2	.297[b]	.088	.076	8.23355

a. Predictors: (Constant), visual

Table 7 gives the results of the ANOVA performed on the model. The F-value and the significance level ($F_{(1,148)} = 7.02$, $p < 0.05$) indicate that both models are significant.

Table 7. ANOVA[c]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	495.077	1	495.077	7.024	.009[a]
	Residual	10430.896	148	70.47		
	Total	10925.973	149			
2	Regression	960.647	2	480.32	7.085	.001[b]
	Residual	9965.327	147	67.79		
	Total	10925.973	149			

a. Predictors: (Constant), visual
b. Predictors: (Constant), visual, verbal
c. Dependent Variable: metacognitive self-regulated learning

To see how much of the variance in metacognitive self-regulated learning is accounted for by each of the nine predictors, the standardized coefficients and the significance of the observed t-value for each predictor were checked. As Table 8 shows, of the nine predictors, only visual and verbal intelligences account for a statistically significant portion of the variance in metacognitive self-regulated learning. For every one standard deviation of change in one's verbal intelligence, there will be about .32 of a standard deviation change in one's metacognitive self-regulated learning. This is closely followed by verbal intelligence, accounting for around 23% of the variance in metacognitive self-regulated learning. At the same time, the relationship between the two variables is negative. This means that as learners visual intelligence increases, their metacognitive self-regulated learning decreases.

Table 8. Coefficients[a]

		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	45.722	2.032		22.505	.000
	visual	-.833	.314	-.213	-2.650	.009
2	(Constant)	42.876	2.269		18.893	.000
	visual	-1.279	.352	-.327	-3.633	.000
	verbal	.971	.370	.236	2.621	.010

a. Dependent Variable: metacognitive self-regulated learning

Some of the findings of the present study are partially in line with a number of previous studies (eg. Akbari and Hosseini, 2008; Zarei and Shokri Afshar, 2012), which investigated MI as predictors of language learning and strategies. Although they did not investigate the relationship between multiple intelligences and self-regulated learning specifically, their findings indicate that there is positive and significant relationship between MI and language learning strategies. However, the findings are not in accordance with some other studies (eg. Akbari and Talebinezhad, 2003; Baran and Maskan, 2011), which have not emphasized MI types as predictors of language learning and strategy use. The important point is that self-regulated learning components (cognitive and metacognitive) are two major language learning strategies. Therefore, we can conclude that if there is a positive relationship between MI types and language learning strategy, MI can also have a direct relationship with self-regulated learning components.

Based on Akbari and Hosseini's (2008) study, linguistic intelligence made significant contribution to predicting language proficiency. Therefore, the present study is in accordance with their study.

The results of the present study are different from a number of studies that were reviewed in chapter two. Hajhashemi, Parasteh, and Yazdi Amirkhiz (2011) concluded from their study that there is no correlation between interpersonal intelligence and any aspect of strategy use; while in the present study, there was a significant relationship between interpersonal intelligence and resource management strategy. In addition, the findings of this study are different from the findings reported by Akbari and Talebinezhad (2003), who found that there was no significant relationship between participants' strategy use and their IQ score.

This study revealed that kinesthetic intelligence is the best predictor of resource management self-

regulated learning; this finding is different from that of Baran and Maskan (2011), who concluded that there was a negative correlation between kinesthetic intelligence and physics achievement.

One of the possible reasons for such differences may be partially attributable to the proficiency level of the participants. In this study, the participants were intermediate level students while in studies such as Hajhashemi, et al. (2011), the participants were young adolescents.

Another possible reason could be gender differences in participants. In this study, gender was not considered. However, studies such as Nasser, Singhal, and Abouchedid (2008) emphasized the prominent role of gender differences in MI area.

Another factor which makes this study different from other studies is that this study was conducted in the context of EFL, while most of the mentioned studies were carried out in ESL contexts. These areas of conflicts are probably indicative of the need for further research.

The findings of the present study showed that verbal and existential intelligences were predictors of cognitive self-regulated learning, and that visual and verbal intelligences made significant contributions to predicting metacognitive self-regulated learning.

Based on these results, it may be concluded that MI types can be significant predictors of cognitive and metacognitive self-regulated learning components. It can be concluded that not all learners have the same level of intelligences. Some students are stronger in one or more intelligences than others. Moreover, they use various types of self-regulated learning strategies. Since learners are equipped with different levels of various types of intelligence, and since they employ various types of self-regulated learning strategies, the logical conclusion to be drawn is that learners experience learning in different ways.

It is hoped that this research will provide implications for teachers, learners and material developers. The present study can help teachers of English to develop a clear understanding of MI theory to be implemented in a pedagogical context. Taking the findings of the study into consideration, teachers would be able to understand the significance of multiple intelligences and make informed choices in terms of methods and techniques to apply in their teaching in order to develop students' intelligences. When teachers know about the MI profile and learning strategies of learners, they can plan activities and provide learners with the best possible instruction.

The present study may also have implications for learners. As Arnold and Fonseca (2004) state, framework of MI theory is a helpful and beneficial tool for planning language learning tasks by which students can face different challenges. When students know about their potentiality and ability, it increases their self-esteem and motivation and also can help them to enhance their success in language learning. Moreover, by applying strategies of self-regulation, learners become responsible for their own learning and also learn how to solve problems, make decisions, manage and monitor their own learning.

Moreover, the present study may have implications for material developers. Materials developers should consider the impact of MI types and self-regulated learning and their relationship in language learning. They need to consider some helpful strategies like critical thinking and planning, responding to the communication needs of the learners and increase their responsibility for learning.

References

Akbari R, Hosseini K, 2008. Multiple intelligence and language learning strategies: Investigating possible relations. An International Journal of Educational Technology and Applied Linguistics. 36 (2): 141-155.

Akbari R, Talebinezhad MR, 2003. The relationship between the use of language learning strategies by Iranian learners of English, their foreign language proficiency, and the learners' IQ scores. Iranian Journal of Applied Linguistic. 6(1): 1-20.

Arnold J, Fonseca MC, 2004. Multiple Intelligence theory and foreign language learning: A brain-based perspective. International Journal of English Studies. 4 (1): 119-136.

Azevedo R, 2007. Understanding the complex nature of self-regulatory processes in learning with computer-based learning environments: An introduction. Metacognition Learning.2: 57-65.

Bandura A, 1997. Self-efficacy: The exercise of control. New York. Freeman.

Baran M, Maskan AK, 2011. Investigation Multiple Intelligence fields of 11th grade students with respect to some variables and physics achievement. Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education. 5(2): 146-177.

Boekaerts M, 1996. Self-regulated learning at the junction of cognition and motivation. European Psychologist.1(2): 100-112.

Boekaerts M, 1997. Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. Learning and Instruction. 7(2): 11–186.

Boekaerts M, 1999. Self-regulated learning: where we are today. International Journal of Educational Research. 31: 445-457.
Boekaerts M, Corno L, 2005. Self-regulation in the classroom: A perspective on assessment and intervention. Applied Psychology: An International Review. 54(2): 199-231.
Chen CS, 2002. Self- regulated learning strategies and achievement in an introduction to information systems course. Information Technology, Learning, and Performance Journal. 20(1): 11-25.
Christison MA, 1998. Applying multiple intelligences theory in pre-service and in service TEFL education programs. English Teaching Forum. 36 (2): 2-13.
Farajollahi M, Moenikia M, 2011. The effect of computer-based learning on distance learners' self-regulated learning strategies. World Journal on Educational technology. 3(1): 28-38.
Gardner H, 1983. Frames of Mind: The theory of multiple intelligences. New York .Basic Books.
Gardner H, 1993. Multiple intelligences: The theory in practice. New York. Basic Books.
Hajhashemi K, Parasteh Ghombavani F, Yazdi Amirkhiz S Y, 2011. The relationship between Iranian EFL high school students' Multiple Intelligence scores and their use of learning strategies. English Language Teaching. 4(3): 214-222.
Heikkila A, Lonka K, 2006. Studying in higher education: Students' approaches to learning, self-regulation, and cognitive strategies. Studies in Higher Education. 31(1): 99-117.
Isik D, Tarim K, 2009. The effects of the cooperative learning method supported by multiple intelligence theory on Turkish elementary students' mathematic achievement. Asia Pacific Educ. Rev. 10: 465-474.
Kezar A, 2001. Theory of Multiple Intelligences: implication for higher education. Innovative Higher Education. 26(2): 141-154.
McKenzie W, 1999. Multiple Intelligences Survey [Electronic version].Retrieved October 9, 2012, from: http://surfaquarium.com/ MI/MIInvent.htm.
Mih C, Mih V, 2010. Components of self-regulated learning: Implications for school performance. Acta Didactica Napocensia. 3(1): 39-48.
Nasser R, Singhal S, Abouchedid K, 2008. Gender differences on self-estimates of Multiple Intelligences: a comparison between Indian and Lebanese Youth. J. Soc. Sci. 16(3): 235-243.
Nikolova K, Taneva Shopova S, 2007. Multiple Intelligences theory and educational practice, Annual Assen Zlatarov. 36(2): 105-109.
Pintrich PR, 2004. A conceptual framework for assessing motivation and self-regulated learning in college students. Educational Psychology Review. 16(4): 385-407.
Pintrich PR, De Groot E, 1990. Motivational and self-regulated learning components of classroom academic performance. Journal of Educational psychology. 82(1): 33-40.
Pintrich PR, Smith D, Garcia, T, Mckeachie W, 1993. Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ). Educational and Psychological Measurement. 53(3): 801-813.
Richards J, Rodgers T, 2001. Approaches and methods in language teaching. Cambridge. Cambridge University Press.
Samadi M, 2004. Students self-regulated learning and their parents' self-regulation: the role of gender and performance achievement. Journal of Psychology and Education. 34(1):157-175.
Schraw G, Crippen K, Hartley K, 2006. Promoting self-regulation in science education: metacognition as part of a broader perspective on learning. Research in Science Education. 36: 111-139.
Soleimani H, Moinnzadeh A, Kassaian Z, Ketabi S, 2012. The Effect of instruction based on multiple intelligences theory on the attitude and learning of general English. English Language Teaching Journal. 5(9): 45-53.
Temiz N, Kiraz E, 2007. The implications of Multiple Intelligence theory on literacy education at first grade. Eurasian Journal of Educational Research. 27: 111-126.
Zarei AA, Hatami G, 2012. On the relationship between self-regulated learning components and L2 vocabulary knowledge and reading comprehension. Theory and Practice in Language Studies. 2(9): 1939-1944.
Zarei AA, Shokri Afshar N, 2012. Multiple Intelligences as Predictors of L2 Reading and Vocabulary Knowledge. Deutschland, LAP LAMBERT Academic Publishing Gmblt and Co. KG.
Zimmerman BJ, 1990. Self-regulated learning and academic achievement: An overview. Educational Psychologist. 25(1): 3-17.
Zimmerman BJ, 1998. Academic studying and the development of personal skill: a self-regulatory perspective. Educational Psychologist. 33(2/3): 73-86.
Zimmerman BJ, 2008. Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. American Educational Research Journal. 45(1): 166-183.

Zimmerman BJ, Bandura A, 1994. Impact of self-regulatory influences on writing course attainment. American Educational research Journal. 31(4): 845-862.