The Relationship of Intelligence Beliefs, Self-Regulation, and Metacognition with School Refusal Behavior in Secondary High School Girl Students

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Abstract

This study aimed to determine the relationship of intelligence beliefs, academic selfregulation, and metacognition with school refusal behavior in female secondary high school students in Amol. This study was a descriptive one with correlational design. The statistical population consisted of all the female secondary high school students of which 214 students were selected using multistage random cluster sampling method from second and third grade of secondary school and were asked to fill in the questionnaires of intelligence beliefs (Babaei), self-regulation (Buffard), metacognition (Trier & Rich) and school refusal behavior (Kearney). In order to analyze the collected data, Pearson's correlation coefficient was used. The results of the study showed that there is a negative significant relationship between selfregulation, metacognition, and school refusal behavior. The findings of multiple regression analyses also showed that among the predictor variables, only selfregulation with the highest amount of Beta (0.17) was the best predictor of school refusal behavior.

Keywords: Intelligence beliefs, Academic self-regulation, Metacognition, Refusal behavior.

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1. Introduction

One of the relatively common problems faced by many educational psychologists is student absenteeism and school refusal behavior. Absence from school is related to a student's absence from school on justified and unjustified grounds. Contrary to justified absenteeism, refusal behavior relates to student avoiding school-related stimuli or having difficulty staying in class throughout school hours (Kearney, 2006). The most common disorders in which school refusal behavior is observed are separation anxiety, specific phobia or social phobia and major depression. Due to the heterogeneity of school refusal and the range of behavioral problems associated with it, it is difficult to categorize it as unit-specific conditions. Long-term absenteeism is often associated with dropout, an event that can lead to immediate disconnection with health and mental health programs, economic deprivation, marital, social, and psychiatric problems in adulthood (Kogan, Luo, Murray & Brody, 2005).

In one study, Haight, Kearney, Hendron, and Schafer (2011) reported the prevalence of school refusal among students at a rate of 8.2%. Psychological variables such as intelligence beliefs, self-regulation, and metacognition may play a role in driving school refusal behavior. Intelligence beliefs are a variable associated with learners' performance. Intelligence beliefs are semantic systems that guide one's behaviors and make it possible for others to predict one's behavior. In other words, intelligence beliefs are the basis of one's judgment about oneself (Pour Atashi, Movahed Mohammadi & Rezvanfar Hosseini, 2014), and self-regulation is organized and regulated by the main learning processes and activities related to it. Strong self-regulatory learning indices including self-assessment, goal orientation and seeking help for environmental structures and memory strategies are associated with academic achievement. Self-regulated learning by students enables them to actively organize and organize their learning (Mango, 2010). One type of metacognition related to learning and memory is called metacognition. Metacognition is the pervasive knowledge of awareness of strategic behavior and the memory system. Metacognition refers to a person's review of their memory system. The review

process stems from a cross-level component that recognizes that the subject is intertwined at the cognitive level and that these review processes and their components determine the progress of the individual (Schneider, 2008).

Rastegar, Jahromi, and Mazloumian (2011) in a study on the relationship between intelligence beliefs, developmental goals, and cognitive involvement in high school students showed that the type of cognitive involvement students' face in their homework is influenced by intelligence beliefs and developmental goals. Performance has a direct and negative effect on the use of deep and high level cognitive strategies, while goals directly and positively affect deep and high level cognitive strategies. Boufard-Bouchard, Parent, & Lavery (2002) in a study of self-regulation and concept formation among gifted and normal students showed that normal students often used cognitive strategies and reported less experience of using metacognitive strategies, but gifted students made more effort to solve the task and considered it a challenge and used it as an opportunity to learn. Numerous studies focused on the role of metacognition processes in understanding the human memory process. Most research in this area focused on the role of metacognitive processes and human learning judgments, and accordingly considerable progress has been made in understanding the role of future judgments in human performance (Brewer, Sampayo & Barlow, 2005). In studying the relationship between intelligence and metacognitive awareness with academic performance, Yousefi (2013; quoted by Abdolhosseini, 2014) concluded that considering the role and importance of metacognitive knowledge and teaching metacognitive strategies in academic and social development, it is necessary to study it at different ages and levels with attention to the level of intelligence and mental training of learners.

The results of Pourtaheri, Zandevanian Naeeni and Rahimi's (2014) study on the relationship of metacognition with qualitative and quantitative academic performance of 414 students (256 females and 158 males) of Yazd University showed that among the dimensions of metacognition, satisfaction and use of strategy, performance predict qualitative academic performance positively, but none of the dimensions predicts quantitative academic performance. Ahmadi (2014) in a study on comparison academic self-efficacy and self-regulation of students with school refusal behavior and normal students showed that students with school refusal behavior had lower scores in terms of academic self-efficacy and self-regulation. Findings also indicated that there was a simple and multiple statistical significant relationship between academic self-efficacy, self-regulation, and academic performance of high school students. Gilani Nia (2016) and Haji Yaghchali, Morovati and Fathi (2014) in their study showed that intelligence beliefs and self-regulation beliefs have positive and significant relationship with students' academic performance. Rabiei (2014) and Abdolhosseini (2014) also found a significant relationship between academic self-regulation and academic procrastination.

Regarding metacognitive performance, intelligence beliefs and selfregulation as factors that can influence school refusal behavior, and by identifying students with disabilities in these areas, we can assist education administrators by conducting special education classes to raise self-regulation and build intelligence beliefs. It leads to positive outcomes in education and upgrading to higher education. Therefore, in the light of what is mentioned above, the present study seeks to answer the following general questions.

- Is there a relationship between intelligence beliefs, self-regulation, and metacognition with school refusal behavior? Is the contribution of intelligence beliefs, self-regulation, and metacognition different in predicting school refusal behavior? In other words, what is the best predictor of school refusal behavior?

2. Materials and Methods

The present study is a descriptive study with correlation design in which time relationships and predictors of variables are investigated.

The statistical population in this study is 1700 secondary school girl students in Amol.

The sample size of the present study was 214 based on Krejcie and Morgan's table (1972) using multistage random cluster sampling method. Initially, four out of 10 state-run girls' schools were randomly selected, and one class in the second and third grade was selected from each school (8 classes in total) and was considered the sample of the study (It should be noted that the number of students in each class varied from 20 to 32).

2.1. Instruments

2.1.1. School Refusal Behavior Scale

This scale was developed by Kearney (2002) to assess school refusal behavior for children and adolescents between the ages of 7 and 17 years old. This questionnaire includes 16 items and is scored on a 7 point Likert scale from 0(never) to 6 (always). The reliability of the test using the test-retest method on 24 students in the initial assessment within 7 to 14 days was reported as 0.56 to 0.78 (Kerney, 2002). In Iran, Ahmadi (2014) also tested the reliability of the test through 30 students at 28 days interval and obtained a reliability coefficient of 0.74.

2.1.2. Intelligence Beliefs Questionnaire

A questionnaire designed by Babaei (1997) was used to measure intelligence beliefs. The questionnaire consists of 14 five-point Likert-type items from strongly disagree (1) to strongly agree(5). People who scored higher on the questionnaire had higher intelligence beliefs. The reliability coefficient of the test was 0.72 in Babaei's study using Cronbach's alpha and 0.86 in Achak's study (2003).

2.1.3. Self-Regulation Questionnaire

The self-regulation questionnaire contains 14 items and was designed by Boufard et al., (1995) and validated by Kadivar (2001) in Iran. This questionnaire assesses the amount of self-regulation in individuals. The items are scored on a five-point Likert scale from 1(strongly disagree) to 5 (strongly agree). The overall validity coefficient of the questionnaire based on Cronbach's alpha was 0.71. The validity of the cognitive strategies subscale was 0.70 and the metacognitive subscale was 0.68. The validity of the questionnaire in a study by Nickdell (2006) was reported to 0.69. For the construct validity of the self-regulatory questionnaire, the results of the factorial analysis showed that the correlation coefficient between the questions was appropriate and the instrument consisted of two factors. The value load associated with the factor of this study was acceptable (Zamani, Saeedi, and Abedi, 2011).

2.1.4. Multi-Factor Memory Questionnaire

The MMQ-Memory Questionnaire was designed by Troyer and Rich (2002) to measure metacognition. This questionnaire was first translated and validated in Iran by Abazarian Tehrani and Zare. The questionnaire measures three dimensions of self-reported memory. These three dimensions include memory satisfaction (MMQ satisfaction), perception of daily memory ability (MMQ memory ability), and use of memory strategies and aids (MMQ memory strategy). Responses are determined by the frequency of each item using the five-point Likert scale from always to never. The reliability of the questionnaire was assessed by calculating Cronbach's alpha coefficient. Cronbach's alpha coefficient for the components of memory satisfaction, perceived memory ability, and strategy use were 0.84, 0.89 and 0.84, respectively (Quoted by Pourtahari et al., 2014).

3. Findings

In the present study, Pearson's correlation coefficient and multiple regression analysis were used to analyze the collected data using SPSS-24 software.

The results showed that the mean and standard deviation of school refusal behaviors were 19.89 ± 9.98 , intelligence beliefs 44.64 ± 4.69 , self-regulation 49.28 ± 6.20 , and metacognition 135.94 ± 16.43 , respectively.

16	ibici. Correlation	i matrix among the	e variables of the st	luuy
Variables	1	2	3	4
School refusal	1	-0.034	-0.209	-0.180
behavior		P=0.616	P=0.000	P=0.004
Intelligence beliefs		1	0.128	0.055
			P=0.0062	P=0.420
Self-regulation			1	0.31
				P=0.000
Metacognition				1

Table1.	Correlation	matrix	among the	variables	of the	study
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As it can be seen in Table 1, the Pearson correlation coefficient between IQ and school refusal behavior was (-0.034), which was not statistically significant

(p <0.05). The correlation coefficient between academic self-regulation and metacognition with school refusal behavior was -0.209 and -0.18, respectively, which showed a statistically significant and negative relationship (p < 0.001).

Multiple regression analysis was used to determine the contribution of predictor variables in explaining criterion variable variance (school refusal behavior). Before performing the multiple regression analysis, its assumptions are presented in order.

Variables	Tolerance	VIF	Durbin-Watson
Intelligence beliefs	0.983	1.017	
Self-regulation	0.892	1.12	1.903
Metacognition	0.904	1.107	

Table 2. Co-linearity detection and random independence of the errors

As it can be seen in Table 2, given that the value of the Durbin-Watson statistic (1.903) is between 1.5 and 2.5, the random independence of the errors is confirmed by the difference between the observed and predicted error values. Also, since the values of the variance inflation factor (VIF) are less than 10 and the tolerance value is greater than 0.1 and close to 1; multiple discrepancies between the predictor variables were also confirmed.

Multiple regression analysis was used to determine multiple correlations between variables. For this purpose, the variables of intelligence beliefs, selfregulation and metacognition as predictor variables and school refusal behavior as the criterion variables were entered into the regression equation simultaneously.

Table3. Summary of regression variables predicting school refusal behavior
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Model	R	\mathbb{R}^2	F ratio	Df	Sig
1	0.242	0.058	4.3	3,210	0.005

As it can be seen in Table 3, the multiple correlation coefficients between the variables were 0.224 and the coefficient of determination was equal to 0.058, indicating that 5.8% of the variance in school refusal behavior was jointly explained by the predictor variables. Similarly, the obtained f indicated that the multiple correlation coefficient between the variables and the regression of the predictor variables on school refusal behavior were statistically significant (F = 4.35 > p < 0.01).

Model	Unstandardized coefficient		Standardized	T value	Sig
			coefficient		
	В	Standard Error	Beta		
Constant	44.362	8.80		5.04	0.000
Intelligence	-0.012	0.144	-0.006	-0.087	0.931
beliefs					
Self-regulation	-0.272	0.144	0.169	-2.38	0.018
Metacognition	-0.077	0.043	0.127	-1.807	0.072

Table 4. Summary of regression coefficients

Table 4 presents the regression coefficients based on the contribution of each of the predictor variables in explaining the criterion variable. Self-regulation with the highest beta is the best predictor of school refusal behavior ($\beta = 0.169 \text{ t} = 2.38 \text{ P} < 0.05$), but the contribution of intelligence beliefs and metacognition variables in explaining school refusal behavior was not statistically significant. In other words, self-regulation explained 16.9%, metacognition 12.7% and intelligence beliefs accounted for only 0.6% of the variance in school refusal behavior.

4. Discussion

As observed in the results, Pearson's correlation coefficient between intelligence beliefs and school refusal behavior was not statistically significant (Table 1). This finding is inconsistent with the results of previous similar research (e.g., Gilani Nia, 2016; Chen & Pajars, 2010) and does not confirm the relationship between intelligence beliefs and school refusal behavior.

One possible reason for the inconsistency of the results of the study with previous research findings is that in none of the previous studies the relationship between these two variables was directly studied and more emphasis was placed on the relationship between intelligence beliefs and academic achievement. The best explanation in this regard, namely the lack of relationship between intelligence beliefs and school refusal behavior or school phobia, can be explained by Albert Bandura's social learning theory. Bandura believed that neither external amplifiers nor external punishers would control human behavior, and if so, humans would be suspended like kites in the air. Rather, human behavior is largely self-regulated. That is to say, by observing one's behavior, one evaluates it and evaluation occurs in two ways: (a) above the criterion and (b) below the desired criteria. If his behavior is equal to or above the standard, he feels proud; otherwise he will feel inferior and blame himself. Thus, internal reinforcement or punishment can be said to play a major role in controlling behavior. Self-efficacy is one of the factors contributing to behavioral self-efficacy, which is the belief in one's ability to perform or not perform a task (Hergnahan & Olson, 2005). According to Bandura, people with high self-efficacy perform better than those with lower levels of selfefficacy in the academic, occupational, and occupational fields. Therefore, according to the theory, people with high intelligence beliefs should perform better than their counterparts, be more enthusiastic about education, more attentive and attend school and end up in school. In the present study, there was no significant relationship between intelligence beliefs and school refusal behavior; that is, intelligence beliefs accounted for only a very small percentage of the variance in school refusal behavior. Perhaps the reason for this lack of relevance can be justified by the difference between one's perceived self-efficacy and one's actual self-efficacy. In fact, a person's perceived selfefficacy may not be in line with their actual self-efficacy. One may think that their self-efficacy is low, while it may be high, and vice versa. It is best to match one's wishes with one's abilities. Therefore, if a student's beliefs about his/her IQ are low, but his / her IQ is actually above average, this inconsistency will cause the student to avoid choosing his /her favorite subject, and if he/she chooses with suspicion, face with anxiety and fear. On the other hand, one may overestimate his or her intelligence ability, as a result of lacking intelligence potential when dealing with medium- and high-difficulty assignments or disciplines that require great challenge due to lack of intelligence potential has lower than average performance. Consequently, it cannot be said that high intelligence beliefs are necessarily associated with school refusal or refusal behavior.

On the other hand, Pearson's correlation coefficient showed a statistically significant negative relationship between academic self-regulation and school refusal behavior (Table 1). In other words, the negative correlation between the variables indicated that an increase in the students' self-regulation is associated with a decline in school refusal behavior and vice versa. This finding is in line with the results of previous similar research (eg, Abdolhosseini, 2016; Rabiei, 2014; Azizi Tas Ahmadi, 2014; and Cheng, 2011) and confirmed the role of self-regulation in academic achievement and academic affairs.

School dropout behavior is a behavioral problem, and naturally students who lack the self-regulatory skills necessary to control behavior and self-restraint are more likely to exhibit behavioral problems such as disobedience, tiredness, and rebellion, which can occur in the form of refusing to go to school, leaving the schools, or school dropout. Prashing (1994) found that self-regulated learning strategies in students who failed to complete their degree were significantly different from those who had successfully completed the course (Mohammad Amini, 2008).

There was also a significant negative correlation between metacognition and school refusal behavior (Table 1). In other words, the negative correlation between the variables indicated that an increase metacognition in students is associated with a decline in school refusal behavior, and vice versa. This finding is in part consistent with the results of previous studies (for example, Pourtaheri et al., 2014) and confirms the role of meta-memory in explaining school refusal behavior.

Bryant (2012) found that metacognition played a mediating role in the theory of self- intelligence and effort beliefs and motivation to progress among students. The ultimate goal of training children is to help them become self-sufficient learners. According to theorists and researchers, successful, self-regulating, and spontaneous learners have a wide range of knowledge and skills and feel ownership in learning situations (Bulter & Winnie, 1995). These students not only find learning to be a reinforcement to ask the question and look for new information, but they are also able to monitor their cognitive functions and determine whether or not they have acquired the new information. This ability to review or monitor, control, and evaluate one's own

thinking is called metacognition (Falwell, 1979; quoted by Karabley & Zabrucky, 2009). One of the components of metacognition in children is their metacognitive knowledge. Metacognitive knowledge includes knowledge that children have about cognitive role, task, and strategic variables, is relatively stable in content, and is part of the development of children's declarative knowledge (Effklides, 2008, 2009). Teachers can help students to enhance their ability to learn by becoming aware of the person, the task, and the strategic variables that affect cognition. Another metacognitive component of children is their metacognitive experiences, which include their ability to evaluate their progress in cognitive assignments, as well as their ability to use strategies to adjust progress in a systematic way. Teachers can enhance their ability to learn by helping students understand the importance of progressively assessing cognitive processes at work. One of the main limitations of this study is the lack of necessary research review on the relationship between variables both directly in Iran and outside of Iran, which makes the present findings not directly applicable to previous studies. It is suggested that workshops be held in schools to promote students' self-regulation behaviors, given the greater role of self-regulation in school refusal behavior.

References

- Aghababaei, N., & Arji, A. (2014). Well-being and the HEXACO model of personality. *Personality and Individual Differences*, 56, 139–142.
- Aluja, A., Garcia, O., Rossier, J., &Garca, L. F. (2005).Comparison of the NEO-FFI, the NEO- FFI-R and an alternative short version of the NEO-PI-R (NEO-60) in Swiss and Spanish samples. *Personality and Individual Differences*, 38, 591– 604.
- Anisi, J., Majdian, M., Joshanloo, M., & Gohari-kamel, Z. (2012). Validity and reliability of NEO five-factor inventory (NEO-FFI) on university students. *Journal* of Behavioral Sciences, 5(4), 351-5
- Ashton, M. C., & Lee, K. (2004). Psychometric properties of the HEXACO personality inventory. *Multivariate Behavioral Research*, *39*(2), 329-358
- Ashton, M. C., & Lee, K. (2005). Honesty-Humility, the Big Five and the Five-Factor model. *Journal of Personality*, 73, 1321–1353.

- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of HEXACO model of personality structure. *Personality and Social Psychology Review*, 11, 150–166.
- Ashton, M. C., & Lee, K. (2008). The prediction of Honesty-Humility-related criteria by the HEXACO and Five-Factor models of personality. *Journal of Research in Personality*, *42*,1216–1228.
- Ashton, M. C., Lee, K., & Son, C. (2000). Honesty as the sixth factor of personality: Correlations with Machiavellianism, primary psychopathy, and social adroitness. *European Journal of Personality*, 14,359–368.
- Azkhosh, M., & Asgari, A. (2014). Five Factor Model in Iranian Culture: A Psychometrics Analysis of NEO-Five Factor Inventory (NEO-FFI). *The International Journal of Indian Psychology*, 4 (2), 78-101.
- Bachman, L.F. (1999). *Fundamental considerations in language testing*. Oxford: Oxford University Press.
- Becker, G. (2006). NEO-FFI scores in college men and women: A view from McDonald's unified treatment of test theory. *Journal of Research in Personality*, 40, 911–941.
- Block, J. (2010). The five-factor framing of personality and beyond: Some rumination. *Psychological Inquiry*, *21*(1), 2- 25.
- Brown, J. D. (2005). *Testing in language programs: A comprehensive guide to English language assessment.* New York: McGraw-Hill.
- Costa, P. T., Jr., & McCrae, R. R. (1992). NEO Personality Inventory-Revised (NEO-

PI–R) and NEO Five-Factor Inventory (NEO–FFI) professional manual. Odessa, FL: Psychological Assessment Resources.

- Dörnyei, Z. (2005). The psychology of the language learner: Individual differences in second language acquisition. Mahwah, NJ: Erlbaum.
- Dörnyei, Z. (2006). Individual differences in second language acquisition. AILA Review, 19, 42-68.
- Egan, V., Deary, I., & Austin, E. (2000). The NEO-FFI: emerging British norms and an item-level analysis suggests N, A, and C are more reliable than O and E. *Personality and Individual Differences*, 29, 907–920.
- Fiske, D.W. (1949). Consistency of the factorial structures of personality ratings from different sources. *Journal of Abnormal Social Psychology*, *44*, 329-344.
- Friday, A.S. (2004). *Criterion-related validity of big five adolescent personality traits*. Unpublished thesis.

- Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. In Wheeler (Ed.). *Review of Personality and* social psychology, 1, 141–165.
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, 48(1), 26-34.
- Horwitz, E., Horwitz, M., & Cope, J. (1986). Foreign language classroom anxiety. *Modern Language Journal*, 26, 125-132.
- Kajonius, P., & Dådermana, A. M. (2014). Exploring the Relationship between Honesty-Humility, the Big Five, and liberal values in Swedish students. *Europe's Journal of Psychology*, 10(1), 104-117.
- Khani Pour, A. (2012). *Psychometric properties of the short form of NEO-FFI*. Unpublished M.A thesis.
- McCrae, R.R., & Costa, P.T. (1987). Validation of the five-factor model of personality across Instruments and Observers. *Journal of Personality and Social Psychology*, 52(1),81-90.
- McCrae, R.R., & Costa, P.T. (2004). A contemplated revision of the NEO Five-Factor Inventory. *Personality and Individual Differences*, 36: 587-596
- Messick, S. (1989). *Validity. In R. L. Linn* (Ed.), Educational measurement (3rd ed.). New York: Macmillan.
- Messick, S. (1996a). Standards-based score interpretation: Establishing valid grounds for valid inferences. Proceedings of the joint conference on standard setting for large scale assessments, Sponsored by National Assessment Governing Board and The National Center for Education Statistics. Washington, DC: Government Printing Office.
- Messick, S. (1996b). *Validity of performance assessment*. In Philips, G. (1996). Technical Issues in large-scale performance assessment. Washington, DC: National Center for Educational Statistics.
- Moghaddas, L., Gol, M., & Haqshenas, S. (2013). The effect of personality traits on speaking ability across gender: A case of Iranian EFL learners. *International Researcher*, 2(4), 45-54.
- Oxford, R.L. (2003). Language learning styles and strategies: an overview. Learning Styles & Strategies.
- Panayiotou, G., Kokkinos, M. K., & Spanoudis, S. (2004). Searching for the Big Five in a Greek context: the NEO-FFI under the microscope. *Personality and Individual Differences*, 36, 1841-1854.

- Paunonen, S.V., Haddock, G., Forsterling, F., & Keinonen, M. (2003). Broad versus narrow personality measures and the prediction of behavior across cultures. *European Journal of Personality*, 17(6), 413-433.
- Roshan Chesli, R., Shaeeri, M., Atrifar, M., Nikkhah, A., Ghaem Maghami, B., & Rahimirad, A. (2006). Assessing psychometric properties of Neo personality inventory five factors (NEO-FFI). *Raftar*, 13(16), 27-36.
- Schultz, D. P., & Schultz, S.E. (2013). Theories of personality. Belmont: Wadsworth.
- Sneed, C.D., Gullone, E., & Moore, S. (2002). Reliability and factor structure of the NEO-five- factor inventory for Australian adolescents. *Behavior Change*, 19, 121–126.
- Yoshimura, K., Ono, Y., Nakamura, K., Nathan, J. H., & Suzuki, K. (2001). Validation of the Japanese version of the NEO-five factor inventory in a large community sample. *Psychological Reports*, 88, 443–449.
- Zamorano, E.R., Carrillo, C.A., Silva, A.P., Sandoval, A.M., & Rebolledo Pastrana. E.M. (2014). Psychometric properties of the big five inventory in a Mexican sample. *Salud Mental*, 37, 491-497.