

Multiple Relationships between Successful Intelligence and Self-Regulated Learning Dimensions: Comparing Gifted and Ordinary Students in Mashhad

Fariba Ghalenovy,

Corresponding author: master student in Educational Psychology, Faculty of Education and Psychology, Ferdowsi University of Mashhad

Email: fghalenovy2310@gmail.com

Hossein Kareshki

Faculty Member in Department of Education, Faculty of Education and Psychology, Ferdowsi University of Mashhad

Abstract

Identifying the factors providing the conditions for formation and strengthening of self-regulation strategies and skills as one of the most basic skills in improving academic performance and resolving students' learning defects is very important. The objective of this study was to investigate the multiple relationships and the role of successful intelligence on self-regulated learning of female gifted and ordinary students studying at high school. The present study is regression type of descriptive correlational study. The study population included all female gifted and ordinary students studying at high school in the city of Mashhad in the academic year 2016. The sample of study consisted of 400 high school gifted and ordinary students (200 gifted students and 200 ordinary students) in high school, who were selected by multistage cluster sampling. Tools used in this study were successful intelligence questionnaire (SII) and academic self-regulation questionnaire (ASRQ). Data were analyzed using SPSS software. The findings suggest positive and significant correlation between successful intelligence and learning self-regulation skills in high school gifted and ordinary students that this correlation was higher in gifted students compared to ordinary students ($P < 0.05$). The results of this study revealed significant role of successful intelligence in self-regulated learning of high school students. In addition, results indicated that the predicting self-regulation skills learning based on the successful intelligence in ordinary students was somewhat stronger than that in gifted students. Therefore, these results can be used to develop and use educational, prevention, and treatment programs to form and strengthen students' self-regulation strategies, with the aim of improving their academic performance in educational and health centers.

Keywords: successful intelligence, self-regulation, gifted and ordinary students

Introduction

Adolescence is one of the most important periods of life, associated with a wide range of physical, psychological and social changes that influence development in the performance of young people in different intrapersonal and interpersonal dimensions greatly (Flamm and Glornick, 2013 Travers, Bohnert and Randall, 2013 Ghobadizadeh 2016). Each period of life includes a set of developmental tasks at intrapersonal, interpersonal and environmental dimensions and adolescence as a period of transition includes different developmental tasks that one of these most fundamental tasks is the personal performance in the field of education (English, Kitsantas, 2013). Academic success of teenagers and performing tasks well in this area have impact on the health of personal performance in various areas of life and it is affected by multidimensional and various factors such as intrapersonal and interpersonal and environment factors, which one of the most important factors is the mastery of the person in using self-regulated skills (Row and Raffery, 2013). Self-regulated learning is the acquired skill of learner in understanding and controlling cognitive, emotional and behavior function during the learning process,

proposed for the first time by cognitive socio-psychologists such as Albert Bandura and Zimmerman (Nazareth Jahromy, Marzoughi and Jahromy, 2015; Picho, Cleary, Durning, Leppink, Artino, 2015). In other words, self-regulated learning is a structure and functional process that enable learner for precise planning and controlling cognitive, motivational and behavioral process during learning and its presence indicates that the learner can control and monitor his performance in the process of learning and organize his learning environment to increase his academic performance (Cleary, Durning, Artinojr 2015, Chavesbarboza, Trujillotorres, Lopeznunes 2015). Self-regulated skills are multi-dimensional. It includes three main groups of metacognitive strategies (functional methods and strategies that include optimal and effective methods, monitoring usefulness of these methods and identifying new and innovative strategies), cognitive strategies (any behavior , thought, or action that its aim is to help for acquisition, organization, storage and facilitating the use of knowledge in the future) and resource management strategies (represents obtaining desired skills such as skills in scheduling for efficient use of available resources the learning process) (Rool, Winne, 2015, Effeney, Carroll, Bahr, 2013). Various clinical studies and experiences have confirmed significant role and effectiveness of self-regulated skills on improving the academic performance of students and resolving their problems in different areas of education (Kitsantas, 2011). Cleary, Dong, and Artino (2015) also emphasized on the influencing role of self-regulated skills in improving the learning of students and in different areas of education. Chavez-Barbvza et al (2015), Becker (2011) reported that self-regulated skills is one of the most fundamental strategic skills that provide rich learning at various academic learning periods and increase the probability of academic success. Research conducted by Yidizli and Saban (2016) and Yichoung (2015) is another study that reported the significant impact of self-regulation strategies and skills in solving educational problems and increasing the learning level of students in different educational periods. Self-regulated skills and strategies and acquisition of them in improving academic performance are affected by many factors, that one of the most important of them is the interpersonal capabilities (Zbainos, Karoumpali, Kentouri, 2013). Intelligence as an internal capability influenced by environmental factors has different types and different researchers and scholars have provided different theoretical views and classifications of internal capability that one of the most important theoretical views and classifications making the understanding the internal capability (intelligence) possible is the Sternberg's theoretical view known as three-dimensional successful intelligence (Fernandez, Ferrandiz, Llor, Sainz). Successful intelligence is combination of analytical, creative and practical capabilities helping people to adapt, choose, and change the environment in order to achieve multiple goals of his life, taking into account the cultural and social context (Baaei, Maktabi, Behruzi, and Atashafruz, 2015). The nature and content base of successful intelligence concept is that intelligent people are those who have deep insights about themselves and their capabilities and shortcomings and by developing practical plans appropriate to the situation, they can strengthen the capabilities and resolve the identified shortcomings of themselves (Azadmard, Kajbaf, Faramarzi, and Talebi 2013). In other words, people with successful intelligence can double their performance especially in the academic area with a focus on analytical (process of evaluation and comparison), practical (using acquired insights in the real world) and creative capabilities (divergence thinking and creating new and innovative approaches and methods) (and Sternberg and Grigorenko, 2000; quoted in the Negahban Salami, 2013). Various clinical experiences and studies have reported the effect of successful intelligence and its three dimensions (analytical, practical and creative capability) in improving academic performance and reducing problems in this area as well as forming and strengthening the capabilities affecting academic performance, such as self-efficacy and faith in the own internal capabilities (Azadmard and Talebi, 2015, Negaban Salami, 2013). Sternberg and Grigorenko (2010) also believe that academic success of students is affected by many factors, which one of the most important of them is the successful intelligence. In fact, they emphasized on the point that having successful intelligence increases the likelihood of academic success of students through facilitating the acquisition of skills affecting the influential skills in academic success such as power of assessment and analysis (such as self-regulated skills) in different periods of education. Zabinu et al (2013) emphasized in the importance of successful intelligence and self-regulated skills in the academic success of students and reported the mutual influence of these two variables on each other.

They also showed that successful intelligence predict largely the mastery of students in self-regulated skills and strategies and students who have high level of successful intelligence compared to other students have greater capabilities in using self-regulated skills. Negahban Salami (2013) reported that successful intelligence has a significant influence in forming and strengthening the power of self-organization and self-evaluation and critical thinking. In fact, self-evaluation and self-organization as sub-component of critical thinking is one of the sub-scales of self-regulated learning that this reality can be emphasized as the effect of successful intelligence in self-regulated learning. Although research conducted in the field of successful intelligence and self-regulated strategies is very high and various studies have emphasized on the effects of these two variables in improving the academic performance of students (Azadmard and Talebi, 2013; Azadmard et al., 2015; Zabinu et al., 2013 Negahban Salami, 2013), research conducted on the role of successful intelligence and strengthening the self-regulated skills as one of the most important skills influencing academic performance of students is very limited. In general, previous studies revealed the influence of academic achievement in performance health of adolescents in different aspects of life, the importance of skills and self-regulated strategies in adolescents' academic achievement, which it largely confirms the necessity and importance of identifying factors affecting the formation, strengthening and sustaining self-regulated skills, as an one of the most influential variables in academic performance of students. Therefore, this study was conducted to examine the role of successful intelligence in learning self-regulation skills of students in Mashhad. As Sternberg in the theory of successful intelligence believes that the ability to create a balance between successful intelligence components is type of smart and emphasizes on the importance of interaction in more than one component in the successful intelligence (Aljugaimen and Ayub, 2012), this study examines and compares the successful intelligence among ordinary and gifted high school students in the city of Mashhad.

Methodology

This study was regression type of descriptive-correlation study. The study population consisted of all female gifted and ordinary high school students in the city of Mashhad in the academic year of 2016, that 2 districts were selected among districts of Mashhad city using multi-stage cluster sampling. Then, 2 schools from ordinary schools and 2 schools from gifted schools were selected. In general, 400 students were selected as sample. The collected data were analyzed using SPSS software.

Research tool

To collect data, two questionnaires of successful intelligence and self-regulated learning were used. A) Successful Intelligence questionnaire (SII). This questionnaire was developed by Sternberg and Grigorenko in 2002 to assess successful intelligence and it was translated and normalized in Iran by Negahban Salami, Farzad, and Sarami (2013). This 36-item questionnaire includes 3 subscales of analytical intelligence (questions 1 to 12), creative intelligence (questions 13 to 24) and practical intelligence (questions 25 to 36). Responding to questions is done based on 5-point scale from 1 to 5 (1 = poor, 5 = excellent). Sternberg and Grigorenko (2002) reported the reliability of total questionnaire 0.74 and they reported the sub-scales of analytical intelligence, creative intelligence, and practical intelligence 0.82, 0.68, and 0.71, respectively. They also confirmed its content validity. Negahban Salami et al (1392) reported the reliability of questionnaire using internal consistency coefficient between 0.74 and 0.81, and they reported construct validity acceptable using confirmatory factor analysis. b) Academic self-regulated questionnaire (ASRQ): this questionnaire was developed by Savari and Arabzadeh in the year 2013 to assess and measure students' academic self-regulation. This 30-item questionnaire includes 6 subscales of memory strategy (question 1 to 5), goal setting (question 6 to 8), self-assessment (questions 9 to 14), help-seeking (questions 15 to 20), accountability (questions 21 to 24) and organization (questions 25 and 30). Savari and Arabzadeh (2013) reported the reliability of the questionnaire using Cronbach's alpha for the total questionnaire and subscales of memory strategies, goal setting, self-assessment, help-seeking, accountability, and organization 0.74, 0.75, 0.71, 0.72, and 0.76, respectively.

Procedure

In order to collect data from seven districts of the city of Mashhad using multistage cluster sampling, two districts were selected. All schools in these districts were identified and then among these schools, 2 gifted schools and 2 ordinary schools were selected. In total, 400 students were selected randomly as sample. Inclusion criteria of the study included studying in high school and desire to participate in the study. Coordinated with Education Organization of Mashhad, researcher referred to considered schools and the questionnaires were distributed among the students.

Data and analysis of data

After collecting the questionnaires and entering data to spss software to examine the regression presumptions, Kolmogorov-Smirnov test, p-plot chart, standardized residuals distribution were used. In order to determine the role of successful intelligence in predicting the self-regulated learning, simple regression was used. In addition, to investigate the relationship between the components of successful intelligence and self-regulated learning dimensions, canonical correlation was used.

Findings

For the implementation of statistical methods and calculating the test statistic and logical reasoning on the research hypotheses, the most important step before any action is the selection of appropriate statistical methods for research. For this purpose, being aware of the data distribution has priority. In the present study, to evaluate the normality of the research variables, Kolmogorov-Smirnov test was used. Given that a significance level of all the variables is above 0.05, the normality of variables is accepted. Another presumption of regression is normality of residuals. To examine the normality of residuals, p-p plot was used. As points placed acceptably on the diametric line from left end to right end, it could be stated that residuals are normal. Another presumption of regression is to investigate homogeneity of variances of residuals. For this purpose, standardized residuals distribution against standardized predictions was used. Lack of trend in the mentioned chart indicates homogeneity in variance of residuals.

- *First hypothesis: successful intelligence has a significant impact on self-regulated learning of ordinary students*

To examine the role of successful intelligence on self-regulated learning of ordinary students, simple regression was used. According to obtained result, determination coefficient of model is 0.210, which indicates that 21% of changes in self-regulated learning of ordinary students are predicted by successful intelligence. In addition, Durbin-Watson statistic is between 1.5 and 2.5, so the independence of residuals will be accepted.

Table 1- Variance analysis of successful intelligence and self-regulated learning of ordinary students

Source of changes	Sum of squares	df	Mean squares	Statistic f	p-value
regression	10/97	1	10/97	626/25	0/0000
Residuals	41/29	198	/209		
Sum	52/26	199			

According to the results obtained from the analysis of the variance, it is observed that test statistic is equal to 52.626 and significance level is $p < 0/000$, so model is significant. Therefore, significant model between successful intelligence and self-regulated learning of ordinary student can be obtained. The result of investigating the independent variable is shown in the following model. Based on the results of the investigating successful intelligence on self-regulated learning of ordinary students, regression model between successful intelligence and self-regulated learning of ordinary students is as follows
 Self-regulated learning = $2.205 + 0.465$ (successful intelligence)

Based on the regression mode, it can be said that per one unit increase in successful intelligence, self-regulated learning in ordinary students by 0.465. (Regression estimate coefficients successful intelligence : 0.46

Regression estimate coefficients Fixed coefficients : 2.20 ($p < 0/000$)

- *The second hypothesis: successful intelligence has a significant impact on self-regulated learning of gifted students*

To investigate the role of successful intelligence in self-regulated learning of gifted students, simple regression was used. According to the results obtained, coefficient of determination of model is 0.144 that indicates that 14.4% of self-regulated learning changes of gifted students is predicted by successful intelligence. In addition, Durbin-Watson statistic is between 1.5 and 2.5, so the independence of residuals will be accepted. The results also showed that 0/379% of self-regulated learning gifted students by successful intelligence Explained. (Correlation coefficient (R) = 0/379)

Table 2- Analysis of variance of successful intelligence and self-regulated learning of gifted students

Source of changes	Sum of squares	df	Mean squares	Statistic f	p-value
Regression	5.80	1	5.80	200.33	0.0000
Residuals	34.60	198	0.17		
Sum	40.40	199			

According to the results obtained from the analysis of the variance, it is observed that test statistic is equal to 33.200 and the significance level is 0.000 that is less than 0.05. Therefore, the model is significant and the significant model between successful intelligence and self-regulated learning of gifted students can be obtained. Based on the regression model, it can be said that per one unit increase in successful intelligence, self-regulated learning of gifted students will increase by 0.335. According to the regression coefficients calculated in two groups of gifted and ordinary students (0.465 and 0.335, respectively), comparison between the two groups indicates that while there is a significant relationship between components of successful intelligence and self-regulated learning dimensions in both groups, there is stronger relationship between successful intelligence components and dimensions of self-regulated learning in ordinary students compared to gifted students. However, to investigate the multiple relationships among successful intelligences and self-regulation components, canonical correlation analysis was used, which examines the relationship between two sets of multiple variables using several statistical techniques. For this purpose, the tests of *Pilaei* effect, Roy and Wilkes and Hetlineng were used. Results of correlation among successful intelligence dimensions and self-regulated learning dimensions are shown in the following table.

Table 3- Correlation results among research variables

Coefficients		Memory Strategy	Goal Setting	Self-Assessment	Help-Seeking	Accountability	Organization
Analytical Intelligence	Correlation Coefficient	0.25	0/19	0/36	0/30	0/18	0/26
	P-Value	0.00	0/00	0/00	0/000	0/000	0/000
Creative Intelligence	Correlation Coefficient	0.16	1220/	0/13	0/19	2130/	7820/
	P-Value	0.001	1200/	30/00	0/000	0000/	0000/
Practical Intelligence	Correlation Coefficient	0.35	0/25	0/42	0/44	0/28	0/32
	P-Value	0.000	0.000	0.000	0.000	0.000	0.000

Results of *Pilaei* effect test for the entire model show that according to the significance of above test ($p = 0/0000$) and the *Pilaei* effect value (0.4030), variables of the study have at least one significant relationship.

Table 4- Canonical correlation results

Canonical functions	Canonical coefficients	Wilks' Lambda coefficients	Chi-square statistic	F test statistic	1 df	df 2	(P-value)
1	0/55	0/66	155/24	9/20	18	1078/11	0/000
2	0/18	0/95	17/01	1/71	10	764	0/074
3	0/09	0/99	3/54	0/88	4	383	0/472

The first canonical correlation ($F = 9.203 / 0.000$) was statistically significant and it represents two sets of interdependent variables. The results of canonical correlation in Table 4 show significance of one

function of three functions extracted at level of 5%. Canonical correlation coefficient in the first function was obtained 0.550. Redundancy coefficients resulting from square of canonical correlation ($0.550^2=0.303$) indicate that 30% of changes in self-regulated is predicted by successful intelligence.

Table 5-Standard canonical coefficients for the variables in the first canonical function

Variables		Canonical Coefficients
Independent Variables	Analytical Intelligence	-0/31
	Creative Intelligence	0/15
	Practical Intelligence	-0/84
Dependent Variables	Memory Strategies	-0/18
	Goal Setting	-0/08
	Self-Assessment	-0/40
	Help-Seeking	-0/41
	Accountability	-0/02
	Organization	-0/23

Coefficients Contained In The Function Indicate That How Much Each Variable Played Role In the formation of function. Among dependent variables, practical intelligence followed by analytical intelligence had the greatest impact and among independent variables, self-assessment and help-seeking had the greatest impact on creation of canonical function. As the second and third canonical functions are not significant statistically, they are ignored and their functions are not examined.

Discussion and conclusion

This study was conducted to investigate the role of successful intelligence on self-regulated learning of gifted and ordinary female students studying at high schools. Findings (shown in tables 2 and 5) showed that successful intelligence has a significant relationship with self-regulated learning of high school gifted and ordinary students and largely predicts it. In addition, results of the study showed that the predictive power of self-regulated learning based on successful intelligence in ordinary school is somewhat more than that in gifted students. Zabinu et al (2013) in their study reported that the successful intelligence and its three dimensions (analytical, creative and practical intelligence) have a significant effect on learning and using self-regulation skills. In other words, these researchers emphasizing on the direct role of successful intelligence in improving academic performance reported that successful intelligence facilitates the acquisition and using self-regulation skills greatly in students, so that it indirectly and through self-regulation skills provides the conditions for increasing the learning level of students. Negahban Salami in a study in 2013 reported that successful intelligence increases the self-assessment, organization, and critical thinking in students. Self-assessment and organizing power are self-regulation skills and this study suggests significant impact of successful intelligence on learning skills and self-regulation strategies. People with successful intelligence use a set of analytical and innovative capabilities in dealing with the external and internal world that these capabilities provide the condition for adjusting to changing social and cultural circumstances. They also cause that they can regulate their multiple goals in life in a logical and objective process (Babaei et al., 2015). Therefore, it can be said that successful intelligence plays effective role in goal setting skill as one of self-regulation skills and it facilitates the acquisition and use of it. Azadmard et al (2013) in this study emphasized that successful intelligence increases the power of self-assessment largely (as one of the self-regulation skills), so that people with high levels of successful intelligence assess themselves continuously and after gaining of their capabilities and shortcomings, they take step to strengthen their capabilities and overcome their shortcomings. Sternberg and Grigorenko (2010) emphasized on intelligence successful as one of the most influential elements on the academic performance of people at various academic periods, providing the conditions to gain and use functional skills such as self-assessment and the analysis power that has great impact in improving academic performance. Accordingly, it increases the learning level of students and the likelihood of achieving to developments and academic successes. Experimental studies in line with the results of the present study showed the influential impact of successful intelligence in learning self-regulation skills and consequently improving the academic performance of high school gifted and ordinary students. In theoretical explanation of them, it could be

stated that people with successful intelligence has higher analytical power and their ability to analyze problems and deep investigation of them is higher compared to people whose successful intelligence is not at desired level, which this facilitates the learning self-regulation skills especially self-assessment and organizing. In fact, successful intelligence as an internal capability causes that the person to have regulatory and self-assessment view to himself and assess always different aspects of his life, and after gaining insight of existential dimensions of himself, he can take step to improve and strengthen the functions of each of these dimensions. In general, this study examines the role of successful intelligence in self-regulated learning among female gifted and ordinary students studying at high school, and the findings revealed a significant correlation between successful intelligence and self-regulated learning in high school gifted and ordinary students. In addition, these findings indicated that the predictive power of self-regulated learning based on successful intelligence in gifted students is somewhat higher than that in ordinary students. These findings reveal the necessity of paying more attention to self-regulation skills as a set of effective strategies in improving academic performance and students' educational accomplishment. On the other hand, by identifying successful intelligence as an influential factor in facilitating the self-regulation skills learning, the conditions are provided to develop and use educational, preventive, and curative programs to form and strengthen self-regulation strategies of students with the aim of improving their educational accomplishment. Limiting the sample members to high school students and the female gender were some of the limitations of the present study making the generalizability of research findings to considered population somewhat limited. Therefore, it is recommended that future studies to be conducted in order to investigate this issue among both male and female genders and their findings to be compared.

References

- Aljughaiman, A. M., & Ayoub, A. E. (2012). The effect of an enrichment program on developing analytical creative, and practical abilities of elementary gifted students. *Journal for the Education of the Gifted*, 35(2): 153–174.
- Azadmard, Shm; Kajbaf, MB; Faramarzi, S, Talebi, H (2013). Comparing the effectiveness of education based on successful intelligence and traditional education method on the cognitive and affective efficiency of student and teachers. *Journal of Educational Studies* 2 (6), 80 -98.
- Babaei, A., Maktabi, GH, behruzi, N, Atashafruz, A (2015). The impact of intelligence education on students' critical thinking and tolerance of ambiguity. *Journal of Mental Health*, 18 (75), 381-387.
- Becker, L. L. (2011). Self-Regulated learning in an introductory undergraduate accounting course. a dissertation degree for accepted doctor of education in educational leadership, east tennessee state university.
- Chavesbarboza, E., Trujillortorres, J. M., & Lopeznunes, J. A. (2015). Accomplishments in Learning Self-Regulation in Personal Environments. *Journal of Creative Education*, 6(11): 1108-1120.
- Cleary, T. J., Dong, T., & Artino, A. R. Jr. (2015). Examining shifts in medical students' microanalytic motivation beliefs and regulatory processes during a diagnostic reasoning task. *Adv Health Sci Educ Theory Pract*, 20(3): 611–626.
- Cleary, T. J., Durning, S. J., & Artinojr, A. R. (2015). Microanalytic Assessment of Self-Regulated Learning During Clinical Reasoning Tasks: Recent Developments and Next Steps. *Academic Medicine*.
- Effenev, G., Carroll, A., & Bahr, N. (2013). Self-Regulated Learning: Key strategies and their sources in a sample of adolescent males. *Australian Journal of Educational & Developmental Psychology*, 13(1): 58-74.
- Engel de Abreu, P. (2011). Working memory in multilingual children: Is there a bilingual effect? *Memory*, 19(5): 529–537.
- English, M. C., & Kitsantas, A. (2013). Supporting Student Self-Regulated Learning in Problem- and Project-Based Learning. *Interdisciplinary Journal of Problem-Based Learning*, 7(2): 128-150.
- Fernandez, M., Ferrandiz, C., Llor, L., & Sainz, M. (2016). Successful intelligence and giftedness: an empirical study. *anales de psicología*, 32(3): 672_682.
- Flamm, E. S., & Glornick, W. S. (2013). Adolescent adjustment in the context of life change: The supportive role of parental structure provision. *Journal of Adolescence*, 36 (5): 899–912.
- Ghobadizadeh, Sh (2016). Investigating structural relationships between regulatory functions and critical thinking of parents and adaptability and self-sufficiency of high school students. Master's thesis, Family Counseling, University of Kurdistan, unpublished.
- Kitsantas, A. (2011). Fostering college student Self-Regulated learning with learning technologies. *Hellenic Journal of Psychology*, 10(3): 235_252.
- Naseri Jahromy, R; Marzughy, R, Rasekh Jahromy, A (2015). The mediating role of self-regulated learning strategies on the relationship between motivational beliefs and academic values of medical doctoral students: case study in Jahrom University of Medical Sciences. *Journal of Medical Education*, 8 (17), 102-112.
- Negahban Salami, M (2013). The impact of successful intelligence education on critical thinking, self-efficacy and academic performance of students. Educational Psychology PhD thesis, Kharazmi University, unpublished.

- Negahban Salami, MFarzad, V, Sarami, Gh. (2013). Examining the factor structure, reliability and validity of successful intelligence. *Journal of Educational Measurement*, 5 (15), 2-15.
- Picho, K., Cleary, T. J., Durning, S. J., Leppink, J., & Artino, A. R. (2015). Assessing self-regulated learning and clinical reasoning in a virtual-patient case. Paper presented at. Annual Meeting of the Association for Medical Education in Europe, Glasgow, UK.
- Rool, I., & Winne, Ph. H. (2015). Understanding, evaluating, and supporting self-regulated learning using learning analytics. *Journal of Learning Analytics*, 2(1): 7–12.
- Row, F. N., & Raffery, J. A. (2013). Instructional Design Interventions for supporting self-regulated learning: enhancing academic outcomes in postsecondary e-learning environments. *MERLOT Journal of Online Learning and Teaching*, 9(4): 590-600.
- Savari, K, Arabzadeh, Sh (2013). Construction and determination of psychometric characteristics of academic self-regulation questionnaire. *Journal of School Psychology*, 2 (2), 92 -75.
- Strenberg, R., & Grigorenko, E. (2010). Successful intelligence in the classroom. *Theory into practice*, 43(4): 274_280.
- Travers, L. V., Bohnert, A. M., & Randall, E. T. (2013). Brief report: Adolescent adjustment in affluent communities: The role of motivational climate and goal orientation. *Journal of Adolescence*, 36 (2): 423–428.
- Yichoung, L. (2015). Exploring the Effectiveness of Self-Regulated Learning in Massive Open Online Courses on Non-Native English Speakers. *International Journal of distance education technologies*, 13(3): 63_73.
- Yidizli, H., & Saban, A. (2016). The effect of self-regulated learning on sixth-grade Turkish students' mathematics achievements and motivational beliefs. *Cogent Education*, 3(1): 1_17.
- Zbainos, D., Karoumpali, G., & Kentouri, D. (2013). Development of Successful Intelligence Through Movie Making: The Role of the Forethought Phase of Self-Regulation. *Journal of cognitive education and psychology*, 12(2): 215_229.
- Zimmerman, B. J. (1986). Becoming self- regulated learned: which are the subprocesses? *Contemporary. Journal of Educational psychology*, 11(4): 307-313.