



The Role of Motivational Predictors in Academic Achievement of High School Students in Salmas in 2013-2014

*Rasool Jannesar Kohne Shahri**, *Ali Isa Zadeghan***, *Farzane Mikaaili Monii****
*and Zahra Asghari Kalshani*****

**MA in Educational Psychology, Iran*

***Associate Professor, Psychology Department, Urmia University, Iran*

****Associate Professor, Psychology Department, Urmia University, Iran*

*****Graduate student, Educational Psychology, Iran*

(Corresponding author: Rasool Jannesar Kohne Shahri)

(Received 01 October, 2015, Accepted 18 November, 2015)

(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: Using structural equation modeling, this study aimed to investigate the role of motivational (autonomy, competence, communication) factors in using cognitive and meta-cognitive strategies for academic achievement. Using multi-stage cluster sampling method, 285 (male and female) participants were selected as sample. They responded to LaGuardia, Ryan, Couchman, and Deci's basic psychological needs Inventory (2000), Ruchi, Valerand, Deci, and Ryan's academic motivation scale (AMS) (2013), and Peltier, Pintrich, and colleagues' learning strategies questionnaire (1991). The data were analyzed using SPSS version 18 software. The structural equation modeling was used to study the relationship between variables. However, the basic psychological needs explained the motivational orientation of academic achievement. There was a significant and positive relationship between motivational orientation and academic achievement (0.38) at 0.001 level. Therefore, it was confirmed that there was a relationship between autonomy, competence, communication, and meta-cognitive (planning, monitoring, regulation) strategies and academic achievement.

Keywords: motivational orientation, autonomy, competence, communication, academic achievement

INTRODUCTION

As an outcome behavior, the academic achievement has great importance. Today, the students' academic achievement is considered as an important indicator in the assessment of educational systems. In addition, the real academic achievement is also important for teachers, students, parents, and educational theorists and researchers.

As the most important elements in learning, the motivation have always attracted the attention of educationalists and learning researchers (Pintrich & Degroot). According to Pintrich and Shank (2002), it is today agreed that students need cognitive skills and motivational orientation to have a good performance in school (Pintrich & Shank, 2002).

For example, the academic achievement of learners is one of the criteria for evaluating the performance of teachers. The average grade of students also represents the opportunity for entering into the world of work and higher educational levels. Therefore, the identification of factors affecting academic achievement is important, since things will go much more vaguely without addressing cognition, motivation, and their components. As the most important elements in learning, the motivation and cognition have always attracted the

attention of educationalists and learning researchers (Pintrich & Degroot).

There are different types of needs: physiological needs (thirst, hunger, and sexual desire) are related to biological systems, psychological needs (autonomy, competence, communication) are related to human nature and healthy growth, and social needs (achievement, intimacy, power) which have been internalized by emotional history and socialization.

The physiological needs can easily be distinguished from psychological needs. However, the distinction of psychological needs from social needs is more subtle. Psychological needs are in the depths of human existence and are therefore inherent in everyone. Three of these organisms needs are autonomy, competence, and communication (Rio & Marshall, 2013).

The autonomy is formally the need to choose and adjust the behavior. The autonomous person is one who has the desire to determine his/her actions and have choice right (Deci, E. L. & Ryan RM, 1985).

The competence is formally defined as the need for being effective in interaction with environment, the desire to use talents and skills, and seek out optimal challenges and dominate them (Deci and Ryan, 2000).

The satisfaction of need for communication leads to vitality and well-being (Ryan, RM, & Connell, JP, 1989) and reduces loneliness and depression (Pierce, Sarason, 1991; Vynndl, 1992). The intrinsic motivation is desire to address interests, use abilities, and seek out optimal challenges and dominate them (Deci and Ryan, 2000).

The external motivation arises from environmental consequences and incentives such as food or money. The examination of external motivation is based on conditional perspective of actor.

The incentives are environmental events that bring people to start a specific behavior or get away from it. The incentives are always happened before treatment (Rio and Marshall, 2013).

By definition, the academic achievement is mastery on theoretical knowledge in a particular field. The academic achievement means the success level of learners in achieving the objectives of training course (Seif, 2002).

The motivation is the cause of behaviour. It can be defined as enforcer and director of behavior (Gage and Berliner, 1984).

The teachers often see in their classes that some students have necessary cleverness and economic background, but their academic achievement is not worthy. The strategies and motivation of such cases should be examined.

The cognitive ability and motivation factors have been identified as the most important determinants of academic achievement. Bloom (1956) is one of the first theorists who pointed to the role of motivation in school learning.

Bradly considers motivation as a structure or process which impacts on decision-making and target setting. Therefore, the target setting of students and people in living has mutual relationship with motivation. The setting of target (academic achievement for students) and reaching it will not be realized without motivation and motivational orientation.

In general, the academic motivation is the motivations, needs, and factors which guarantee an individual's presence in the education environments (Clark & Shrot, 2010).

In a full analysis of motivation process, three important structures should be taken into account: intrinsic motivation, extrinsic motivation, and lack of motivation (Vallerand, Pliter, and Bliss, 2010).

The intrinsic motivation refers to motivations which drive intrinsically the people to act spontaneously; apart from external rewards, the task itself is valuable and satisfying for individuals (Deci and Ryan, 2000; Li et al., 2010). In research on motivation and academic achievement, MckLind and colleagues (1953) found that those with high achievement motivation surpassed in

their performance from the group with low achievement motivation.

The self determination theory (proposed by Deci and Ryan, 1985) provides a hierarchy of internal and external motivation. This theory assumes that humans have an inherent tendency from birth for stimulation and learning. This inherent desire for learning is supported by environment.

This study aims to answer the questions in this respect: Whether the basic psychological needs and motivational orientation are involved in academic achievement?

What is the role of motivational orientation in academic achievement?

What is the role of autonomy, competence, and communication in academic achievement?

RESEARCH OBJECTIVES

General objective

Investigating the structural relationship between motivational (need for autonomy, competence, communication, and motivational orientation) and student achievement.

Sub-objectives

- Determining the relationship between motivational orientation and academic achievement.
- Determining the relationship between motivational orientation and cognitive strategies.
- Determining the relationship between motivational orientation and meta-cognitive strategies.
- Determining the relationship between the need for autonomy and motivational orientation.
- Determining the relationship between the need to communicate and motivational orientation.
- Determining the relationship between the need for competence and motivational orientation.
- Determining the structural relationship model of motivational (need for autonomy, competence, communication, and motivational orientation) predictors in students' academic achievement.

RESEARCH HYPOTHESES

1. There is a positive and direct relationship between motivational orientation and academic achievement.
2. There is a positive and direct relationship between motivational orientation and cognitive strategies.
3. There is a positive and direct relationship between motivational orientation and meta-cognitive strategies.
4. There is a positive and direct relationship between the need for autonomy and the motivational orientation.
5. There is a positive and direct relationship between the need for competency and motivational orientation.
6. There is a positive and direct relationship between the need to communicate and motivational orientation.

RESEARCH BACKGROUND

There are also research on motivation and academic achievement. For example, MckLind and colleagues (1953) found that those with high achievement motivation surpassed in their performance from the group with low achievement motivation.

In a study on the relationship among perceived teaching style, self-motivation, and creativity, Marzie and colleagues (2013) showed that there is an indirect relationship between autonomous motivation and creativity and it is better that there will be mutual respect among individuals in a classroom and students could ask any questions and participate in discussions without worrying about the risk of being ridiculed or threatened.

In a study on the role of achievement goals, educational motivation, and learning strategies in statistics anxiety, Veisani (2012) showed that achievement goals, educational motivation, and learning strategies affect statistics anxiety.

In a study on the relationship among perceived teaching style, self-motivation, and creativity, Aeggie, Hejazi, and GaaziTabatabai (2013) showed that there is an indirect relationship between autonomous motivation and creativity and it is better that there will be mutual respect among individuals in a classroom and students could ask any questions and participate in discussions without worrying about the risk of being ridiculed or threatened.

In a study entitled (The mediating role of basic psychological needs), Gholipour, AsgariSarom, and Amani (2012) showed that the environments which support independence impact significantly on psychological needs (0.6). Also, the psychological needs satisfaction has direct and significant impact on job involvement (0.54).

In a study entitled (Academic achievement: The role of basic psychological needs and identity styles), Lavassani, khezriAzar, Amani, and Alizadeh (2011) confirmed the role of basic psychological needs and identity styles in academic achievement.

In a study entitled (The central analysis of relationship between culture in school and basic psychological needs of students), Ghalavandi, Amani, and Babayi (2011) concluded that the schools which emphasize on friendly relations, trust, and mutual respect between members and their security and quality of educational services is high, the level of competence, sense of integrity, and self-determination will be more among the students of those schools.

They suggested that principals and teachers give more freedom to students to decide on how to carry out their duties in the school and use their ideas in running a

school and give them the opportunity to comment on this matter.

In another study entitled (Structural model of relationship among teacher's perceived self-autonomy support, basic psychological needs, intrinsic motivation, and effort), Ezhei (2011) showed that teacher's perceived self-autonomy support has positive and significant impact on internal motivation of students. However, the impact of communication on students' intrinsic motivation was not significant. The internal motivation has a positive and direct impact on students' effort level. In general, it can be concluded that the environments which support self-autonomy cause the satisfaction of basic psychological needs and thus increase the students' intrinsic motivation.

In a study entitled (The relationship between parenting styles and academic motivation and academic achievement among high school students), Reshvanloo and Hejazi (2009) surveys showed that the busyness of mother and warmth of father predicts the subscales including intrinsic motivation for learning, intrinsic motivation to experience stimulation, and academic achievement, and the support of mother from autonomy, warmth of mother, and busyness of father predict students' educational motivation.

Pashmine (2007) and Rezai (2006) studied the relationship between working memory, motivation, and academic achievement among high school students and found that there is significant relationship between working memory, progress motivation, and between progress motivation and academic achievement.

The studies which predict academic achievement should use only the anxiety component or cognitive dimension. The students with strong internal motivation to learn and obtain competence use effectively complex cognitive processes such as elaboration or organization (Discoll (2000), Jetton and Alecsander (2001), and Pintrich (2003)).

andHejazi (2009), surveys showed that the busyness of mother and warmth of father predicts the subscales including intrinsic motivation for learning, intrinsic motivation to experience stimulation, and academic achievement, and the support of mother from autonomy, warmth of mother, and busyness of father predict students' educational motivation.

In a study entitled the motivational model of English learning among elementary school students in Japan, Matsu Zaki, Ozaki, and Media (2013) showed that the teachers' perceived autonomy supports the predicted positive and intrinsic motivation.

In a study on the role of achievement goals, educational motivation, and learning strategies in statistics anxiety, Vestiani (2012) showed that achievement goals, educational motivation, and learning strategies affect statistics anxiety.

In a research on the students' perceptions of teacher support from autonomy and self-efficacy: the mediating role of psychological basic needs, Hejazi (2011) showed that there is a positive and significant relationship between the perception of teacher' support from autonomy and students' self-efficacy.

In their study, Assor, A, Kaplan, H. (2002) showed that there is correlation between students' sense of self-determination and positive and negative perceptions and interests of students to learning environment.

METHODOLOGY

This was descriptive (non-experimental) and correlation study. Using structural equation modeling, the relationships between variables were discussed in causal model. The study population consisted of all high school students in Salmas in 2013-2014 (N=5338, female= 2,726 and male= 2,612). In this study, the cluster multi-stage sampling method was used for selecting the sample. However, 12 schools were selected from a total of 23 secondary schools in Salmas; and from each school, one class was selected as sample. Totally, 300 questionnaires were distributed and collected. The Cochran formula was used to select the sample size. This formula showed that 150 participants should be selected as sample. Since it is recommended in path analysis that the sample size should at least be more than 200 people (Homan, 2008), 300 questionnaires were distributed among 100 female and 200 male students. However, fifteen questionnaires were not usable and 285 questionnaires were used in the final analysis.

Research tools

Basic psychological needs Inventory: In the present study, the La Guardia, Ryan, Couchman, and Deci's basic psychological needs scale (2000) was used to measure the basic psychological (autonomy, competence, and communication) needs. This scale consists of 21 items which measure three psychological needs: autonomy (7 items), competence (6 items), and communication (8 items). The items were set based on five-point Likert scale from absolutely wrong= 1 to absolutely right=5. The reliability of this questionnaire in this research was reported to be 0.86.

Motivational orientation Inventory:

The Pelletier, Rocchi, Vallerand, Deci & Ryan's Academic motivation scale (AMS) (2013) was used to measure students' motivational orientations. This scale consists of 18 items which measures the motivational orientation of intrinsic motivation (three items), mixed regulation (three items), self-allowed regulation (three items), internal regulation (three items), external regulation (three items), and lack of motivation (three items). The items were set based on seven-point Likert scale from absolutely irrelevant= 1 to absolutely

relevant =7. The reliability of questionnaire in this research was reported to be 0.76.

Academic Achievement:

The students' average was used to measure the academic achievement.

RESEARCH FINDINGS

The data were analyzed using SPSS version 18 software. The structural equation modeling was used to study the relationship between variables. The presented model in this study included basic psychological (autonomy, competence, communication) needs as exogenous variables and motivational orientations, and academic achievement as endogenous variables. The Amos software version 16 was used to test the theoretical model of research.

Testing theoretical model and research hypotheses:

Due to the fact that the correlation matrix is the basis of causal models' analysis such as path analysis, so the correlation matrix of variables along with correlation coefficients and their significance levels are presented in Table 1 to examine the relationship between variables before moving on to test the theoretical model.

According to Table 1, there is a significant and positive correlation between the need for autonomy ($p < 0.01$, $r = 0.32$), the need for competence ($p < 0.01$, $r = 0.38$), and the need to communicate ($p < 0.01$, $r = 0.29$). There is positive and significant correlation between motivational orientation and academic achievement ($p < 0.01$, $r = 0.38$). Also, there is significant and positive correlation.

The direct effect of motivational orientation in cognitive (0.39) and meta-cognitive (0.43) strategies was positive and significant at 0.001 level. Also, the direct effect of the need for competence in motivational orientation (0.27) was positive and significant at 0.001 and the direct effect of the need for autonomy (0.15) and competence (0.14) in this variable was positive and significant at 0.05.

According to Table 3, the total effect of motivational orientation in academic achievement (0.38) is positive and significant at 0.001 level.

According to Table 4 hypotheses were confirmed.

The evaluation of research hypotheses:

First hypothesis: there is a positive and direct relationship between motivational orientation and academic achievement.

The results confirmed this hypothesis. According to table (4), the direct effect of meta-cognitive strategies (0.29) and t-statistics (4.62) in academic achievement is positive and significant at 0.001. This finding is consistent with research results of Diener and Duke (1980).

Table 1: Correlation matrix of variables.

No.	Variable	1	2	3	4	5	6	1
1	Need for autonomy	1						
2	Need for competence	0.45**	1					
3	Need for communication	0.42**	0.34**	1				
4	Motivational orientation	0.32**	0.38**	0.29**	1			
5	Academic achievement	0.18**	0.24**	0.12**	0.38**	0.23**	0.36**	1

*p<0.05, **p<0.001

Table 2: Estimation of direct effects coefficients.

Variables	Path coefficient	t-statistics	Sig. level
Academic achievement			
Motivational orientation	0.29	4.62	0.001
Cognitive strategies			
Motivational orientation	0.39	7.24	0.001
Meta-cognitive strategies			
Motivational orientation	0.43	8.21	0.001
Motivational orientation			
Need for autonomy	0.15	2.34	0.02
Need for competence	0.27	4.41	0.001
Need for communication	0.14	2.27	0.02

Table 3: Estimation of total effect coefficients.

Variables	Path coefficients	t statistics	Sig. level
Academic achievement			
Motivational orientation	0.38	7.12	0.001

Table 4: Evaluation of research hypotheses.

No.	Hypothesis	Path coefficient	t-statistics	P	Result
1	There is a positive and direct relationship between motivational orientation and academic achievement.	0.29	4.62	0.001	Confirmed
2	There is a positive and direct relationship between motivational orientation and meta-cognitive strategies.	0.43	7.21	0.001	Confirmed
3	There is a positive and direct relationship between the need for autonomy and the motivational orientation.	0.15	2.34	0.02	Confirmed
4	There is a positive and direct relationship between the need for competency and motivational orientation.	0.27	4.41	0.001	Confirmed
5	There is positive and direct relationship between the need to communicate and motivational orientation.	0.14	2.27	0.02	Confirmed

Second hypothesis: there is a positive and direct relationship between motivational orientation and cognitive strategies.

The results confirmed this hypothesis. This finding is consistent with the finding of Mohsenpour (2001), Driscoll (2000), Jetton and Alexander (2001), and Pintrich, Paulsen, and Gentry.

Third hypothesis: there is a positive and direct relationship between motivational orientation and meta-cognitive strategies.

The results confirmed this hypothesis. This finding is consistent with the finding of Paulsen and Gentry.

Fourth hypothesis: there is a positive and direct relationship between the need for autonomy and motivational orientation.

The results confirmed this hypothesis. This finding is consistent with the finding of Deci and Ryan (2012) and Moltafet and Khayyer (2012).

Fifth hypothesis: there is a positive and direct relationship between the need for competence and motivational orientation.

The results confirmed this hypothesis. In their study, Chen and Chang (2010) showed that if basic psychological needs (autonomy, competence, communication) are satisfied, the sense of self-confidence and self-worth (motivational orientation) will be formed in individuals.

Sixth hypothesis: there is a positive and direct relationship between the need for communication and motivational orientation.

The results confirmed this hypothesis. The results showed that if the needs for competence, competence, and belongings are satisfied, people will be self-motivated (Deci and Ryan (2012) and Khayyer (2012)).

RESEARCH SUGGESTIONS

-The consideration of motivation leads to self-regulation, self-casting, self-checkout, self-determination, and self-reliance which result in academic achievement; therefore, the underlying factors which lead to academic achievement should be considered.

In the present study, the relationship among the three components of psychological (competence, communication, autonomy) needs was assessed, while the psychological needs have a wide range. Therefore, it is suggested that the relationship between academic achievement and other psychological components to be studied in future research.

REFERENCES

- Tanha Reshvanloo, F; Hejazi, E. (2009).The relationship between perceived parenting style and academic motivation and academic achievement of high school students, *the monthly Journal, University*, sixteenth year.
- Hejazi, E, KhezriAzar, H, Amani, J. (2012). Student perceptions of teacher support of English self-determination and self-efficacy, the mediating role of psychological needs. *Journal of teaching and learning: the fourth period, the first issue, spring and summer, successive 2/62*.
- Rahmani, Kh. (2001). The relationship between self-regulation strategies and motivational beliefs and academic achievement in history and math lessons among secondary school blind and visually impaired students in Shiraz, Master's thesis.
- Saif, A.A. (2002). Educational psychology, learning Psychology, and Teaching. Tehran: Aghah, Third Edition.
- Saif, A.A. (2005). Educational psychology, learning psychology, and teaching. Tehran: Agah, Fifth Edition.
- Saif, A.A. (2006). The study and learning methods. Tehran: Douran, Fifth Edition.
- Saif, A.A. (2007). Modern educational psychology, learning psychology, and teaching. Tehran: Douran.
- Kavusian, J.; Kadivar, P., Farzad., V. (2012). The relationship between environmental and educational variables and school well-being: the role of psychological needs, self-motivation, and academic emotions. *Journal of Research in (psychological) Health*, sixth Edition, the first issue.
- Kadivar, P. (2004). Educational Psychology.Eighth edition, Samtpublishment, Tehran.
- Lavassani, M.A; khezriAzar, H, Amani, J.; Alizadeh, S. (2011). Academic Achievement: the role of basic psychological needs and identity styles. *Journal of Shahed, eighteenth year, new Edition*.
- Clark, m.h., & Schroth, C.A. (2010) .Examining relationships between academic motination and personality among college *students of learning and individual Differences*, **20**,19-24.
- Deci, E L, & Ryan R.M. (2000). Self -determination theory and the facilitation of intrinsic motivation, social development and well being. *American psychologist*, **55**, 68-78.
- Pintrich, P, R & shank, K. (2003). Multiple goals, multiple pathway: the role of goal orientaior in learning and achivment. *Of Educational Psychology*, **22** (3), 544 - 555.
- Pelletier, LG, Rocchi, MA, Vallerand, RJ, Deci, EL & Ryan, RM (2013). Validation of the revsed sport motivation scale (SMS-II) . *Psychology of sport and Exercise*, **14**, 329 - 341.
- Vallerend, RJ, Pelletier, LG, Blais, MR, Briere, NM, Senecal, C., & Vallieres, EF (2010). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Of Educational and psychological measurement*, **52**, 1003 - 1017.
- Assor, A, Kaplan, H., and Roth, G. (2002). Choice is good, but relevance is excellent: Autonomy enhancing and suppressing teacher behaviors predicting students engagement in schoolwork. *Br.J. Educ .psychol*. **72**: 261-278.
- Bradley, R H (1993). Competence and the over justification effect: A development study, of personality and social psychology, **37**, 1162-1468.

- Chen, K.C & Jang. S.J (2010). Motivation in online learning : testing a model of self- determination theory. *of computers in humam behavior* . **26**:741-752.
- Clark, MH., & Schroth, C.A. (2010). Examining relationships between academic motivation and personality among college students. *of learning and individual Differences*, **20**,19-24.
- Deci, E L & Ryan R.M. (2000). Self -determination theory and the facilitation of intrinsic motivation, social development and well being. *American psychologist* , **55**, 68-78.
- Deci, E. L. & Ryan R.M (1985). Intrinsic motivation and self - determination in human behavior. New York : plenum press 227-268.
- Deci, E.L. & Rany R.M (2012). self - determination theory in P.A.M. vanlange / A .W / Kruglanski. & E.T. Higgins (Eds). *Handbook of theories of social psychology* : VOI .1 (pp.416-437). thousand oaks , CA: sage.
- Diner, D. & Douck, J. (1980) History thinking in: Rosenberg E, editor. *The psychology of human thought*. UK: Cambering University Press;1981.
- Discoll, M.P (2000). *Psychology of learning for instruction* (2nd end) Boston . Allyn & bacon 108-110.
- Gage, J. C Berliner. R. (1984). Academic goals and learning quality in higher education student. *Spanish of psychology* , **12**(1), 96-105.
- Jetton, T.L & Alexander, P.A (2001). Intrest assessment and the content area literascyenvirement :challenges forresearch and practice. *Educational psychology review*, **13**(3).303-318.
- La Guardia, W. Couchman, S.R. Deci, E.L.,Rayan, Gagne, Leone, D.R., Udunov & Kornazheya. B. P. (2000).Need satisfaction, motivation , and wellbeing in the work organization of a former estern bloc country :> A cross cultural study of self-determination .*Society for Personality and Social Psychology*, **27**,930-942.
- Lee , M.A & Albert, R.S. Teo, T. & Noyes, J (2010).creativity research : Ahistorical view . in J.C. Kaufman ,& R . J . Sternberg (Eds) the cambidge handbook of creativity (pp. 3-20). New York : Cambridge university press.
- Matsozaki, R. Ozaki, Sh. Midia, L. B (2013) .Social support from teachersc and peers as predictors, of academic and social motivation, *contemporary Educational psychology*, **35** , 193 - 202 .
- Paulsen M .B &gentry J.A. (1995). Motivational , learning strategies and academic performance :A Study of the college finance classroom. *Financial practice and education* **95**(5): 778-89.
- Pelletier, L. G., Rocchi, M. A., Vallerand , R. J., Deci, E. L. & Ryan, R.M.(2013). Validation of the revsed sport motivation scale (SMS-II). *Psychology of sport and Exercise*, **14**, 329 - 341.
- Pintrich P.R . degroot. A. (2001). A manual for the use of the motivated strategies for learning questionnaire (MSLQ): national center for research to improve postsecondary teaching and learning. Ann Arbor : university of Michigan.79-87.
- Pintrich, P.R (2003).A motivational science perspective on the role of student motivation in leraning and teaching context , *of educational psychology*, **95**, 667-686.
- Pintrich, P, R., & Shank.K. (2003). Multiple goals , multiple pathway : the role of goal orientaior in learning and achivment . *of Educational Psychology*, **22**(3), 544 - 555.
- Piress, M. Sarason, JG. (1991). cognitive strategies: good strategy user coordinate metacognition and knowledge . *ann child DEV*89-129.
- Ryan, R.M., & Connell , J.P (1989).Perceived locus of causality and intermalisation: Examining reasons for acting in two domains . *of personality social psychology* , **57**, 749 - 761.
- Vallerend, R.J., Pelletier, L.G., Blais, M.R., Briere, N.M., Senecal, C., & Vallieres, E.F.(2010). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and a motivation in education. *of Educational and psychological measurement*, **52**, 1003 - 1017.
- Weintzel, C. E. (2010).Learning strategies of *International Encyclopedia of Education*, 323-329.
- Windell, B. (1992). The brnefits of metacognitive strategies for learning . *Child development* , **55**(3), 2183-2190.