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The Mediation Role of Intrinsic and Extrinsic Motivation in the Relationship between Creative Educational Environment and Metacognitive Self-Regulation

Farnaz Mehdipour Maralani[1]

[1] Faculty of Education and Psychology, University of Tehran, Tehran, Iran

Correspondence: Farnaz Mehdipour Maralani, Faculty of Education and Psychology, University of Tehran, Tehran, Iran. Tel: 98-021-6111-7400. E-mail: fmehdipourm@ut.ac.ir

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Abstract

This study investigated the mediation role of intrinsic and extrinsic motivation in the relationship between creative educational environment and metacognitive self-regulation. Participants were 300 girls, selected randomly from the girl hostel in university of Tehran. Participants completed Akoal's creative educational environment questionnaire, AMS academic motivation questionnaire and self-regulated learning strategies questionnaire MSLQ. To examine reliability of measures, Cronbach alpha coefficient and to determine validity factor analysis were used. The path diagram of hypothetical model was tested. Findings revealed the relationship between the models variables. So, teachers who want their students have a high intrinsic motivation in addition to create a conditions for free choice, should be confide the students, support ideas and give time to the idea, consider duties that are challengeable, teach debate, conflict and risk to their students and also with regard to the vitality, joy, dynamism and humor, create education environment for the development of their creativity. By creating such an environment, intrinsic motivation and using meta-cognitive self regulation becomes more. Implications and suggestions for future studies are discussed.

Keywords: creative education environment, intrinsic motivation, self-regulated learning strategies, structural equation modeling

1. Introduction

Some of the students do not have enough motivation to do academic tasks, Self-regulated learning is recognized as an important predictor of student academic motivation. Self-regulation is a person ability to control thought and action to access targets (Vrugt & Oort, 2008). Pekrun, Frenzel, Goetz, and Perry (2007) found that self-regulation needs meta-cognitive, meta-motivational and meta-emotional strategies to reform individual behaviors in order to achieve the objectives. In this sense, meta-cognition can be considered as a complex structure involving cognitive knowledge and cognitive self-regulation. Cognitive knowledge includes declarative, procedures and conditions knowledge and different types of self-regulation (planning, monitoring or evaluation). Meta-cognitive knowledge on the beliefs, practices, learning strategies of student to reach goals is very impressive. Self-regulation through monitoring the thinking process, diagnosis steps to reach the goal and identify cognitive setting (Al-Harthy, Was, & Isaacson, 2010).

Many of our meta-cognitive functions in non-taught, grows with the environment by interaction induces classroom and school environment in the students different perceptions, and this effect is different depending on the classroom environment is master-centered or performance-centered and can affect the goal orientation of individuals and their meta-cognitive awareness of them (Erdan, 2004; Walters, 2004, quoted by Parsons et al., 1964; translated by Asadzadeh & Eskandari, 1386). As well as Erdan and Walters (2004) quoted by Delavarpour (2007) found that classroom and school environment affect meta-cognitive awareness of the learner.

It seems that environments including education facilities with different teachers have different effects in the development of meta-cognitive knowledge of students. In a classroom which is based on the ideas, skills and expertise (creative education environment) most students choose the area for his work, and these choices will cause students to have self-knowledge and use cognitive self-regulation strategies to achieve their goals. Selected operating play important role to help increase motivation. One of the issues of interest to educators today is how

the relationship between motivation and its dimensions (intrinsic and extrinsic motivation) with creativity. Intrinsic motivation is a motivation based on the personal factors such as the needs, interests, curiosity and a sense of joy, and external factors that are based on access the external factors such as rewards and verification others or avoiding punishment (Volfok, 1993).

One of the key points of enhancing intrinsic motivation to learn is that the quality of education does not affect in a person's sense of control. If students are motivated to learn as internally, it is necessary to be given the opportunity to students to choose and set a goal of learning.

Teachers who want their students have a high intrinsic motivation in addition to create a conditions for free choice, should be confide the students, support ideas and give time to the idea, consider duties that are challengeable, teach debate, conflict and risk to their students and also with regard to the vitality, joy, dynamism and humor, create education environment for the development of their creativity. By creating such an environment, intrinsic motivation becomes more. Creativity can not be concluded with a specific agenda, but it is necessary students be aware of the creative process and work in the potential creative platform to create (Hosseini, 2011). So existence of creative education environment to increase intrinsic motivation and thus the use of metacognitive self-regulation strategies is effective. Pintrich (2000) has referred the relationship between self-regulated learning strategies and motivational factors.

In a creative learning environment, supporting ideas and right of choice is seen as a reward for students and thereby increase the extrinsic motivation.

Selart, Nordstorm, Kuvaas, and Takemura (2008) by investigating the effect of two types of rewards on self-regulating, motivation and creativity found the control group and the group that had received reward in exchange for performance is more creativity than the group that have reward without any reason. Research of Eisenberg and Rhodes (2001) indicated that the reward for creativity performance adds the creativity.

In the research of Abdo Razzaq, Ahmed Ali, Mohd Mahzan, and Fadzila (2015), among 68 persons who had low academic achievement, 34 persons in the experimental group and 34 persons in the control group were categorized. Also paired T-test was used for groups. The results showed that the use of teaching methods based on multiple intelligences, with influencing the perceptions of students about historical issues, leading to increased student motivation in the course of history.

In the study of Razi, Vahidian, and Hashemi (2015) including Larestan city high school students, the results showed that there is a significant relationship between self-regulation and motivation. The results of T-test showed that there is no significant difference between male and female students. In the research of Ahmad, Semen, Awang, and Sulaiman (2015) by reviewing the increase of motivation in the low- taught students on history course with a using multiple intelligences that the low-taught students with 68 students, 34 of them in the experimental group and 34 were in the control group. These results were obtained: the use of multiple intelligences in teaching methods has significant impact to increase students' motivation to learn the history course, and it was not observed any difference between the control and experimental groups. So, the diversity of teaching methods can be effective in increasing student motivation.

The aim and main question in this study was to examine whether internal or external motivation can play the mediating role in the relationship between creative and education environment and meta-cognitive self-regulation. The relationship have been confirmed in terms of theatrical (including by Wolters, 1998; Bruce et al., 2007; Nokhosting Goldoust & Moeini Kia, 2009; Arizi, Abedi, & Taji, 2007).

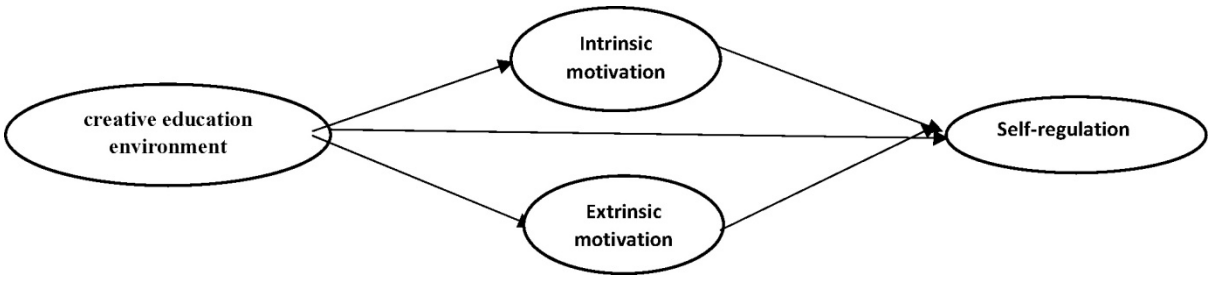

Figure 1. The relationship between creative education environment, motivation and self-regulated learning

2. Method

2.1 Samples

The study sample was the girl students' hostel of university of tehran, of which 300 were selected randomly, and after excluding incomplete questionnaires, 247 of them were assess for analysis using structural equation modeling.

2.2 Research Tools

- **Akoal's environment creative questionnaire**

Akoal's main items of the questionnaire in order to assess the creative environment. The final version of the questionnaire consists of 10 items and 55 questions. Challenge component has (8 items), freedom (6 items), supporting ideas (6 items), confidence (11 questions), discussion (6 items), contrast (5 items), risk (4 items), giving the time to ideas (4 items), vitality and dynamism (3 items), element of happiness and humor (2 questions). Questionnaire scoring scale on the Likert scale was in the fivefold range of (strongly disagree, disagree, no opinion, agree, and strongly agree), respectively. Cronbach's alpha calculating method was used to assess the reliability of the questionnaire alpha and its coefficient alpha (0.85) was obtained (adapted from research of Mohebi Amin, 2013). In this study, Cronbach's alpha 0.9 has been obtained.

- **AMS academic motivation questionnaire**

AMS is derived from Academic motivation scale. This scale has been made based on the theory of self-determination and has 28 seven option questions that measures three dimensions of internal motivation, external motivation and incentive. Studies conducted by Robert Vallerand and his colleagues suggest that the validity and reliability of English instance of academic motivation scale, AMS, have been approved based on high school students as well as Canadian students. Validity of the academic motivation questionnaire was assess by faculty members of Education Sciences school of Shiraz University, its reliability was assessed using retest method and calculating Cronbach's alpha. In the retest during two weeks coefficient of 0.73 was obtained. Moreover, the calculated alpha coefficient for the entire questionnaire was 28 questions equal to 0.88. In the present study, Cronbach's alpha was 0.83.

- **Self-regulated learning strategies questionnaire MSLQ**

The full version of spontaneous strategies questionnaire for learning (MSLQ) that has been developed by Pintrich et al. (1990) in the "America's national research center for improving teaching and learning in education courses higher than secondary school level", with 80 articles and includes three components of motivation, learning strategies and resource management strategies and each components has been composed of several sub-scales. As the mother questionnaire has been designed to measure several different variables, many of the researchers don't use the original questionnaire in their study and according to its goal chooses some of the subscales to study particular areas. So many forms of MSLQ questionnaire have been provided, but in this report, MSLQ rapid scale has been used. In this study, Cronbach's alpha for the 12-MSLQ scale questions, 0.67 was obtained.

3. Findings

In the Table 1 descriptive statistics such as mean, standard deviation, criterion and variance error have been given for the research variables.

Table 1. The mean and standard deviation of variables

Variables	Creative education environment	Intrinsic motivation	External motivation	Meta-cognitive self-regulation
The standard error	0.05	0.05	0.05	0.06
Average	3.10	3.98	3.86	3.08
Standard deviation	0.81	0.82	0.84	1.02

To evaluate the relationship between the variables of the study, their correlation were compared. The results have come in Table 2.

Table 2. Variable correlation matrix of the study

Variables	Creative education environment	Intrinsic motivation	External motivation	Meta-cognitive self-regulation
Creative education environment	1			
Intrinsic motivation	0.24**	1		
Extrinsic motivation	0.23**	0.45**	1	
Metacognitive self-regulation	0.21**	0.24**	0.20**	1

** P <0.01.

Lisrel software (version 8.8) was used for assessing fitness of research model. The aim of this study was to investigate the relationship between creative learning environment, internal motivation, external motivation and metacognitive self-regulation.

Factors of creative education environment, internal and external motivation and meta-cognitive self-regulation are the present structures in the proposed model of latent structures.

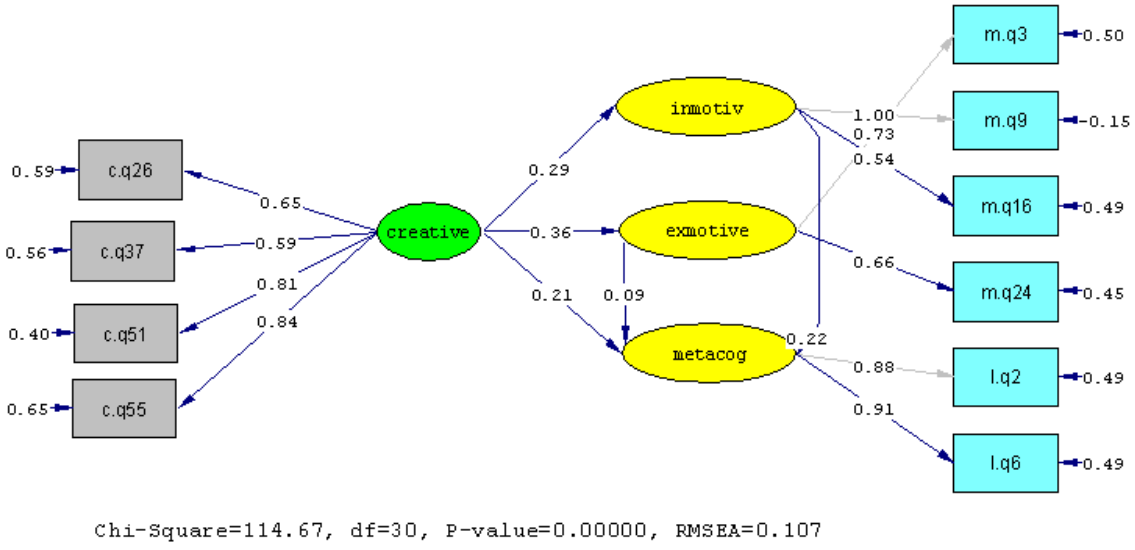

Figure 2. structural model of the relationship between creative education environment, motivation and self-regulated learning

Each of the indicators alone cannot be considered as proof of fitness, but these indicators should be interpreted together. Therefore, some of the most important indicators of goodness of fit, at the bottom of the chart shows the model has good fitness with the data. After estimating the parameters, the model fitness will be examined. From sum of fit statistics, five measuring statistics GFI, AGFI, SRMR, chi-2 and the ratio of chi-square proportion to the degree of freedom is more important.

Table 3. Indicators of goodness of fit

AGFI	GFI	SRMR	χ^2/df	Df	χ^2
0.84	0.91	0.09	3.8	30	114.67

Two indices GFI, AGFI show perfect fitness of the model whatever closer to 1. Being low of index SRMR = 0. 09 show a utility of model fitness. Among indicators of fitness can be concluded that data are set with the assumed model.

Education environment creative direct effect on meta-cognitive self-regulation is (0.21) and on intrinsic motivation (0.29) and direct effect of intrinsic motivation on meta-cognitive self-regulation (0.22). Also, indirect effect of creative education environment on self-regulated learning ($0.29 \times 0.22 = 0.063$) and total effect ($0.063 + 0.21 = 0.27$).

Direct effect of creative education environment on meta-cognitive self-regulation is obtained (0.21) and on extrinsic motivation (0.36) and the direct effect of extrinsic motivation on meta-cognitive self-regulation (0.09). Also, an indirect effect of creative education environment on self-regulated learning ($0.09 \times 0.36 = 0.032$) and total effect is obtained ($0.032 + 0.21 = 0.24$).

4. Discussion

In this study the effect of creative education environment and intrinsic motivation and extrinsic motivation on meta-cognitive self-regulation was evaluated. This study confirmed structural equations model analysis of the study hypothesis based on the direct relationship between creative education environment and meta-cognitive self-regulation as well as the indirect relationship between creative education environment and intrinsic and external motivation and meta-cognitive self-regulation by internal and external motivation variable. Totally, creative education environment and motivation are able to explain meta-cognitive self-cognitive variable. Also, the direct effect of creative education environment on extrinsic motivation is more than on intrinsic motivation but, the indirect effect of intrinsic motivation on meta-cognitive self-regulation is more than extrinsic motivation on meta-cognitive self-regulation. Thus we see that by creating a creative education environment can play an important role in the use of meta-cognitive self-regulation, specially by the mediator role of intrinsic motivation.

So, according to the importance of meta-cognitive self-regulation and internal and external motivation in the academic achievement, it is suggested that conditions be created for students to enhance the internal and external motivation, use of meta-cognitive self-regulation strategies increases. One of these mechanisms is to create creative education environment and one of the components of creative education environment is joy and vitality. In other words, the teacher that provides his content dynamically and with a passion, changes the environment of the class. Support the independence of students as another component of the creative education environment, after passion teachers have the greatest impact on students' intrinsic motivation.

Since the study sample group was female student dorm, so the generalizability of the results should be considered. It is recommended that in the future research, the model of study repeated by male students until the results become more interoperability.

References

Ahmad, A. R., Seman, A. A., Awang, M. M., & Sulaiman, F. (2015). Application of Multiple Intelligence Theory to Increase Studen-tMotivation in Learning History. *Asian Culture and History*, *1*(7), 210-219.

Al-Harthy, I., & Was, C. (2010). Goals, efficacy and metacognitive self-A path analysis. Regulation. *International Journal of Education*, *2*(1), 1-20. http://dx.doi.org/10.5296/ije.v2i1.357

Arizi, H. R., Abedi, A., & Taji, M. (2007). The relationship between teacher behaviors and vitality and internal motivation of high school students in Isfahan. *Education innovations*, 13-28.

Bruce, W. T., Dennis, A. A., & Dennis, R. S. (2007). *Learning and Motivation strategies: Your Guide to success*. Pearson Education.

Delavarpour, M. A. (2007). *Predict meta-cognitive awareness and academic achievement based on achievement goal orientation* (master's thesis). Faculty of Psychology and Education Sciences, Shiraz University.

Eisenberger, R., & Rhoades, L. (2001). Incremental effects of reward on creativity. *Journal of Personality and Social Psychology*, *81*(4), 728-741. http://dx.doi.org/10.1037/0022-3514.81.4.728

Hosseini, A. S. (2011). *Creative learning, the creative class*. Tehran, Madreseh publications.

Mousavi, S. M. (2004). *Education Psychology*. Tehran, Savalan publication.

Nokhostin Goldoust, A., & Moeini Kia, M. (2009). The relationship between self-regulated learning strategies and motivational strategies for learning and academic performance of students of Islamic Azad University of Ardabil. *Knowledge and research in education science-curriculum*, 85-100.

Parsons, R. et al. (1964). *Education Psychology* (1st printing). Tehran: Abed.

Pekrun, R., Frenzel, A., Goetz, T., & Perry, P. (2007). The control-value theory of achievement emotions: An integrative approach to emotions in education. In P. Schutz, & R. Pekrun (Eds.), *Emotions in education* (pp. 13-36). Amsterdam: Academic Press. http://dx.doi.org/10.1016/B978-012372545-5/50003-4

Pintrich, P. R. (2000). Intraindiyidual differences in student motivational and self-regulated learning. In *Handbook of self-regulation* (pp. 451-502). San Diego, Academic Press. http://dx.doi.org/10.1016/B978-012109890-2/50043-3

Razi, H. R.,Vahidiyan, Z., & Hashemi, S. (2015). Studing the Relationship between Self-Regulation and High School Students Academic Motivation of the Second Course in County of Larestan. *Indian Journal of Fundamental and Applied Life Sciences*, *5*, 455-467. Retrieved from http://www.cibtech.org/sp.ed/jls/2015/01/jls.htm

Selart, M., Nordstrom, T., Kuvaas, B., & Takemura, K. (2008). Effects of reward on self-regulation, intrinsic motivation and creativity. *Scandinavian Journal of Educational Research*, *52*(5), 439-458. http://dx.doi.org/10.1080/00313830802346314

Vrugt, A., & Oort, F. J. (2008). Metacognition, achievement goals, study strategies and academic achievement. *Metacognition and Learning*, *30*, 123-146. http://dx.doi.org/10.1007/s11409-008-9022-4

Wolters, G. A. (1998). Self-regulated learning and college students regulation of motivation. *Journal of Educational Psychology*, *90*, 224-235. http://dx.doi.org/10.1037/0022-0663.90.2.224

Woolffolk, A. E. (1993). *Educational psychology* (5th ed.). Allyyn & Baco.

Zimmerman, B. J. (1986). Becoming self-regulated learned: Which are the Sub processes? Contemporary. *Journal of Educational psychology*, *11*, 307-313.

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