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## The Mediating Role of Academic Possible Selves in the Relationship of Self-regulated Learning with Metacognition and Sense of Agency

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### Abstract

**Aim:** The purpose of this study was to investigate the mediating role of academic possible selves in the relationship of self-regulated learning with metacognition and sense of agency. The statistical population of the present study was all high school students of Bukan city, 591 of whom were selected using convenience sampling method. The research data was analyzed through standard questionnaires in SPSS and AMOS software. The results showed that the direct effects of sense of agency on possible selves, metacognition on possible selves, sense of agency on self-regulated learning, metacognition on self-regulated learning, and possible selves on self-regulated learning are significant. Furthermore, the indirect effects of the sense of agency and metacognition with the mediation of possible selves on self-regulation learning were not significant. Therefore, providing educational programs based on metacognition, sense of agency and possible academic selves can help improve self-regulation learning in students.

**Keywords:** *Sense of agency, Academic possible selves, Metacognition, Self-regulation learning.*

### Introduction

Self-regulated learning is currently a key component in the educational system. Self-regulated learning is a dynamic and active process in which learners set goals for themselves and try to take the necessary actions by controlling cognitive, behavioral and motivational processes in order to regulate, control and evaluate according to the goals and environmental conditions (Salamanson, et al., 2016). Several cognitive factors are able to predict self-regulated learning and possibly influence it. For example, research has shown that metacognitive skills and strategies can strengthen self-regulated learning (Schuster, et al., 2020). Metacognition is any knowledge or cognitive activity whose subject is any aspect of cognitive, supervisory and regulatory actions (Flavel, 1988). Learning control and adjustment activities are important and one of the main elements in both self-regulated learning and metacognition for students. Therefore, the sense of agency, which indicates a person's control over situations and circumstances, can affect both of them (Brady, et al., 2019). The sense of agency is defined as the registration that I am the initiator of my actions (Adam, et al., 2017). A sense of agency is related to possible selves. Without having a strong sense of agency, even the clearly imagined future itself may be considered impossible to achieve, and excellent metacognitive strategies may be lost (Frazier, et al., 2020). Possible selves are possibilities for the self that a person hopes for or fears from. (Frazier, 2009).

### Methodology

This descriptive applied research used structural equation model (SEM). The statistical population of the current study was all the students of senior high schools in Bukan city, 591 of whom (405 girls and 186 boys) were selected by convenience sampling method and their data was analyzed. The following questionnaires

were used to collect data: Bouffard's (1995) Self-regulation Scale, Schrau and Denison's Metacognitive Awareness Inventory (1994), Shapiro's Control Inventory (1994) and Kadley's Academic Possible Selves Scale (2011). The data was analyzed in SPSS and AMOS software, and the fit indices of the extracted model and the research model were confirmed.

## Results

In this research, 591 students of senior high schools of Bukan city in the academic year (2018-2019) were recruited, including 405 girls (68.5%) and 186 boys (31.5%). The mean  $\pm$  standard deviation was  $45.57 \pm 5.92$  for self-regulated learning,  $63.22 \pm 10.22$  for sense of agency,  $24.97 \pm 4.575$  for possible selves and  $4.282 \pm 1.58$  for metacognitive awareness.

**Table 1.** Pearson's correlation coefficient between research variables

Variable	Self-regulated learning	Sense of agency	Possible selves	Metacognitive awareness
Self-regulated learning	1	0.651	0.397	0.622
Sense of agency	0.651	1	0.497	0.635
Possible selves	0.397	0.497	1	0.405
Metacognitive awareness	0.622	0.635	0.405	1

As seen in Table 1, there is a positive and significant relationship among all research variables at 99% confidence level. The correlation coefficient between the sense of agency and self-regulated learning is positive and significant, that is, with an increase in the sense of agency, self-regulated learning increases. Furthermore, the correlation coefficient between metacognition and self-regulation learning is positive and significant, that is, with an increase in metacognition, self-regulation learning increases. The correlation coefficient between possible selves and self-regulation learning is positive and significant, that is, with an increase in possible selves, self-regulated learning increases. Structural equation model (SEM) was used to investigate the mediating role of possible selves in the relationship of self-regulated learning with sense of agency and metacognition. In the structural model of the research, the variables of sense of agency and metacognition were considered as independent variables, self-regulation learning variable as dependent variable and academic possible selves variable as mediating variable. The results showed that the direct effects of sense of agency on academic possible selves, metacognition on academic possible selves, sense of agency on self-regulation, metacognition on self-regulation and academic possible selves on self-regulation are significant. However, the indirect effect of the sense of agency and metacognition through the mediation of academic possible selves on self-regulation learning was not significant.

## Discussion and conclusion

As previously stated, the present study aimed to investigate the structural relationships of self-regulated learning with metacognition and sense of agency with the mediating role of academic possible selves in junior high school students. Self-regulated learning in psychology is a construct that can be explained and related to a set of factors. Considering that self-regulated learning plays an important role in students' academic progress, identifying the factors that play a vital role in improving students' self-regulated learning and can boost students' educational and academic progress. These factors include individual capabilities such as a sense of agency, metacognitive awareness and even possible selves, which can help improve students' self-regulated learning. In the present study, three important factors affecting self-regulated learning were investigated, namely, metacognitive awareness, sense of agency, and academic possible selves. The results revealed their direct effect on self-regulated learning, but no indirect effect.

Finally, the current research had some limitations. The sample was from high school students in Bukan city, and was non-randomly selected, therefore, the results should be generalized with caution to other students and

other cities. It is suggested that school officials and parents pay attention to the sense of agency, metacognition and academic possible selves, as well as their underlying factors in order to effectively improve students' self-regulated learning.

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