Self-Regulated Learning Strategies: The Role of Personal Factors (Motivational Beliefs and Personality)

Malek Mirhashemi and Hossnieh Goodarzi*

Psychology Department, Roudehen Branch, Islamic Azad University, Roudehen, Iran

* Corresponding author's Email: Hossnieh2002@Yahoo.com

ABSTRACT: The aim of the paper was to determine the causal model of personality traits, motivational beliefs and self-regulated learning strategies. It was hypothesized that There were meaningful relationships between personality traits and motivational beliefs with students' use of self-regulated learning strategies. Some personality traits such as Conscientiousness and motivation beliefs like self-efficacy predict students' use of self-regulated learning strategies. Motivational beliefs have a mediating role between personality traits and self-regulated learning strategies. Participants were 460 Iranian second grade high-school students, from Gonbad e Kavvoos city (243 girls and 217 boys) who educate in mathematics, experimental, and humanistic major, selected by clustered sampling. The Measures were the Motivated Strategies for Learning Questionnaire and NEO five factors Inventory. Results showed that some personality traits such as conscientiousness, openness and agreeableness affect intrinsic goal orientation as motivational beliefs and in turn self-regulated learning strategies in general. There was a causal model for intrinsic goal orientation, self-efficacy and task value.
Key words: Conscientiousness, Openness, Agreeableness, Intrinsic Goal Orientation, Self-Efficacy

INTRODUCTION

According to Hoyle (2006) Self-regulation is the processes by which people control their thoughts, feelings, and behaviors, and people who succeed at self-regulation, They effectively manage their perceptions of themselves and their social surroundings, their behaviors are consistent with their goals and standards of behavior, conversely, people who struggle or fail at Self-regulation, they lose control of their personal and social experience, their behavior does not contribute to the fulfillment of important goals or correspond to standards of behavior to which they subscribe.

Self-regulation is not a trait that some students have and others do not. Rather, it involves the selective use of specific processes that must be personally adapted to each learning task. It's about setting goals, selecting strategies to attain those goals, monitoring progress, restructuring if the goals are not being met, using time efficiently, self-evaluating the methods selected, and adapting future methods based on what was learned this time through (Weimer, 2010).

Many researchers agree that an essential aspect of self-regulated learning is its goal directedness. Other personal attributes that emphasize self-regulated learning have been identified, including a sense of self-efficacy, willingness to practice, commitment, time management, metacognition awareness, and efficacy strategy use. In contrast, personal attributes that have been associated with poor self-regulated learning and underachievement are impulsiveness, low academic goals, low self-efficacy, low control, and avoidance behavior (Borkowski and Thorpe, 1994).

One of the characteristics of students that self-regulate their learning is the control of their motivation and emotions. Numerous studies indicated that motivational beliefs predict self-regulated learning (Berger, 2012; Hong and Peng, 2008; Metallidou and Vlachou, 2007). Within the multiplicity of motivational beliefs, self-efficacy was specially targeted for examination in relation to self-regulated learning. Especially research highlights the role of perceptions of self-efficacy and goals on self-regulated learning (Montalvo, 2004). Weimer (2010) said; "There is a relationship between self-regulation and perceived efficacy and intrinsic interest. Learners have to believe that they can learn, whatever the task before them, and they need to be motivated".

Self-efficacy is conceptualized as the perceived capability to execute a task or to succeed in a specific topic (Bandura, 1997).

Considerable evidence documented the relationship between expectancy for success (typically assessed as self-efficacy) and the adaptive use of cognitive and metacognitive strategies. Students who have more confidence in their abilities to learn are better at monitoring their work time and modifying their learning strategy when necessary (Pajares, 2008), higher self-efficacy is related to an increased use of deep-processing strategies over time (Berger and Karabenick, 2011), and self-efficacy beliefs are positively predictive of the quantity of effort students will exert on a task (Schunk and Pajares, 2005). In this way Borkowski et al. (2000) assume reciprocal effects of motivational beliefs and cognitive and metacognitive

strategy use so that, self-efficacy beliefs lead to the efficient use of cognitive learning strategies and the increased use of metacognitive strategies. According to this information, self-efficacy relates to self-regulated learning but, there are more motivational beliefs in literature such as intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, and test anxiety (Pintrich, 1991), it is not clear the extent those beliefs relate to self-regulated learning. So the aim of this study is determination of these relationships.

In other hand, stable tendencies to self-regulate are reflected in personality traits. These traits can be divided into precursors to personality that manifest as childhood temperament and personality traits (Hoyle, 2006). Two temperaments construct with clear implications for self-regulation are effortful control and behavioral inhibition. Effortful control is "ability to inhibit a dominant response to perform a subdominant response, to detect errors, and to engage in planning" and behavioral inhibition is about children's reactions to unfamiliar or unexpected stimuli (2006). These and other temperaments constructs influence the emergence and development of self-regulation and underlie personality traits relevant to adult self-regulation. Although a large number of personality traits have some relevance to adult self-regulation, those that follow most clearly from temperament and are most likely to appear in major models of personality can be grouped under the heading of conscientiousness and impulsivity (Hoyle, 2006).

Conscientiousness concerns the ways in which people characteristically manage their behavior. People who are high on conscientiousness are confident, disciplined, orderly, and planful, whereas people who are low on conscientiousness are not confident in their ability to control their behavior and are spontaneous, distractible, and prone to procrastinate (cited in Hoyle, 2006). The facets emphasized in research are competence/ self-efficacy, orderliness, dutifulness, achievement striving, self-discipline, and deliberation / cautiousness that reflect different behavioral tendencies characteristic of successful self-regulation (Roberts et al. 2005).

Impulsivity is the tendency to act without thought or planning, and impulsive behaviors typically are quick, inappropriate, and risky (Hoyle et al., 2000). Impulsivity appears as a constituent of broader traits and domain of personality such as extraversion and psychoticism in Eysenck's model (Eysenck, 1990), conscientiousness in the Five-Factor Model (Costa and McCrae, 1992).

There were two studies that show the relationship of personality traits and self-regulated learning. Khormayi and Khayyer (2007) studied the causal model of personality traits, motivational orientations (learning and performance orientation) and cognitive learning strategies through path analysis that, the results showed conscientiousness has direct and indirect effects on cognitive learning strategies, and motivational orientations intermediate the link between conscientiousness and cognitive learning strategies. In these studies, it has been revealed that some motivational orientations mediate the effect of personality traits on cognitive learning strategies. But, it has not examined the role of other motivational beliefs such as self-efficacy, intrinsic goal orientation, extrinsic goal orientation, task value, test anxiety and control of learning beliefs, on self-regulated learning.

Self-efficacy is one's belief in one's ability to succeed in specific situations. One's sense of self-efficacy can play a major role in how one approaches goals, tasks, and challenges (Bandura, 1997).

Intrinsic goal orientation is associated with curiosity, exploration, spontaneity, and interest that is internal.

Extrinsic goal orientation is associated with undertaken to attain an end state that is separate from the actual behavior, determined by some external contingency such as good marks or the avoidance of negative consequences (Müller and Louw, 2004).

Test anxiety is a combination of the extent that one worries about test performance and the extent of emotional impact of tests (Douglas, 2008).

Task value is determined both by the characteristic of the task and by the needs, goals and values of the person, and it is defined as the beliefs students have about the reasons to engage in the task (schunk et al., 2008).

In addition, self-regulated learning has been defined as different strategies use such as metacognition, environment management, effort regulation, peer learning, help seeking and cognitive learning strategies (Pintrich, 2000) that has been not considered.

However, there has been relatively little study of self-regulation as a feature of personality or how personality is reflected in self-regulation therefor it must be considered the role of certain intra-and inter-personal variables on self-regulation (Montalvo, 2004). Therefore, the aim of this study is examination of direct and indirect relationships between personality, motivational beliefs and self-regulated learning strategies.

Time/study environment management is regulation one's physical, and social environment and time of study, seeking information and structuring environment for learning (pintrich, 2000).

Effort regulation is one's ability to deal with failure and building resiliency to setbacks and the

tendency to maintain focus and effort toward goals despite potential distractions (corno, 1994).

Peer learning essentially refers to students learning with and from each other as fellow learners without any implied authority to any individual, based on the tenet that "Students learn a great deal by explaining their ideas to others and by participating in activities in which they can learn from their peers" (Boud, 2001).

Help seeking is being able to seek help when necessary, which supports the perspective that seeking academic assistance, reflects an appropriate, strategic response to learning (Karabenick, 2004)

Metacognitive strategies are sequential processes that one uses to control cognitive activities, and to ensure that a cognitive goal (e.g., understanding a text) has been met. These processes help to regulate and oversee learning, and consist of planning and monitoring cognitive activities, as well as checking the outcomes of those activities (Metcalfe and Shimamura, 1994).

Cognitive learning strategies are the learning strategies that learners use in order to learn more successfully. These include repetition, organizing new language, summarizing meaning, guessing meaning from context, using imagery for memorization. All of these strategies involve deliberate manipulation of language to improve learning.

Research in this field can help us better understand factors involved in the teaching-learning process, and develop intervention proposals directed toward reducing students' difficulties in learning that is due to their lack of awareness and control over learning, and toward optimizing their academic performance. Development of more complete models (Montalvo, 2004) which incorporates concepts referring to dynamic forces that affect the self-regulation process, is another research direction. So, this study considers the role of personality in self-regulation as well as motivational beliefs by path analysis. There is not any research about personality and motivational beliefs in literature. So, it is important to determine direct and indirect paths to self-regulated learning, that is, how personality affects motivational beliefs and in turn self-regulated learning.

 It is hypothesized that: **1-** There is meaningful relationship between personality traits and motivational beliefs with students' use of self-regulated learning strategies.

2-Some personality traits such as Conscientiousness and motivation beliefs like self-efficacy predict students' use of self-regulated learning strategies.

3-Motivational beliefs have a mediating role between personality traits and self-regulated learning strategies.

MATERIALS AND METHODS

Participants were 460 Iranian second grade high-school students, from Gonbad e Kavvoos city (243 girls and 217 boys) who educate in mathematics, experimental, and humanistic major, selected by clustered sampling. Most of the students were middle class in terms of socioeconomic status and were registered in public schools.

Measures

1) The Motivated Strategies for Learning Questionnaire (MSLQ) is an instrument for measuring motivation and learning strategies in general education that provided by Pintrich et al. (1991). The Persian form's validity has been confirmed (Hossayni Nasab and Ramshe, 2000; Kharrazi and Karshki, 2010). This questionnaire consists of 81 items divided into two broad sections. Section1 assess self-regulated learning strategies including, metacognition, time/study environment management, effort regulation, peer learning and help seeking and section2 assess motivational strategies including, intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy and test anxiety.

2) The NEO five factors Inventory (NEO-FFI)

This is a shortened (60 items) version, 5-factor measure of personality: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. It is a self-report, quick, reliable, and accurate measure of the 5 domains, administered to adults with a 6th grade reading level. The administration time is 10-15 minutes. Scoring can be done by hand, software, or mail-in-scoring. It correlates with the NEO PI-R domain scales at .77-.92 and has a .68-.86 internal consistency values (Costa and McCra, 1992).

Openness to experience is appreciation for art, emotion, adventure, unusual ideas, curiosity, and variety of experience. Openness reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety a person has. It is also described as the extent to which a person is imaginative or independent, and depicts a personal preference for a variety of activities over a strict routine. Some disagreement remains about how to interpret the openness factor, which is sometimes called "intellect" rather than openness to experience.

Conscientiousness is the tendency to show self-discipline, act dutifully, and aim for achievement; planned rather than spontaneous behavior; organized, and dependable.

Extraversion is defined as possessing energy, positive emotions, urgency, assertiveness, sociability and the tendency to seek stimulation in the company of others, and talkativeness.

Agreeableness is a tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. It is also a measure of ones' trusting and helpful nature, and whether a person is generally well tempered or not.

Neuroticism is the tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, or vulnerability. Neuroticism also refers to the degree of emotional stability and impulse control, and is sometimes referred by its low pole – "emotional stability" (Atkinson et al., 2000).

RESULTS

The data were described and analyzed by SPSS 18. Description information was presented in table1.

The correlation of conscientiousness with all self-regulated learning strategies was moderate but significant except effort regulation. Agreeableness was related to effort regulation, peer learning and cognitive strategies lowly but significantly. Openness was related to all self-regulated learning strategies significantly except effort regulation and time/study environment management. Extraversion was related lowly but significantly to cognitive, help seeking and peer learning strategies. Neuroticism was correlated lowly but significantly to effort regulation and environment management.

Intrinsic goal orientation, self-efficacy and task value were correlated significantly to all self-regulated learning strategies. Test anxiety was correlated lowly but significantly to self-regulated learning strategies except environment management and effort regulation. Extrinsic goal orientation correlated lowly but significantly to self-regulated learning strategies except peer learning, help seeking and effort regulation. Maximum correlation was related to task value and cognitive strategies.

In order to examine second and third hypothesizes, it was calculated path analysis for each self-regulated learning strategies, predictive and mediating variables with Amos 21. Result showed all paths from personality traits and motivational beliefs to self-regulated learning strategies fitted (the minimum indexes were: $\chi2 = 3/1$, $\frac{\chi2}{df} = 1/55$, GFI= 0/998, AGFI= 0/973). Among personality traits, conscientiousness, agreeableness and openness affect self-regulated learning strategies directly or indirectly or both. Other personality traits have not any effect on self-regulated learning strategies. Among motivational beliefs, intrinsic goal orientation, self-efficacy and task value affect self-regulated learning strategies directly and indirectly. There are some significant paths between these motivational beliefs. Standardized direct, indirect and total effects of these variables presented in next tables.

Table1. Descriptive statistics for all variables

Variables	Minimum	Maximum	Mean	Std. Deviation
Conscientiousness	12	41	28.28	4.35
Agreeableness	13	45	32.37	5.09
Openness	12	46	31.44	4.70
Extraversion	13	45	29.34	4.83
Neuroticism	13	56	35.69	7.29
Intrinsic goal orientation	4	24	9.38	4.06
extrinsic goal orientation	4	28	6.77	3.53
Task value	6	33	12.57	5.24
Control beliefs	4	22	9.92	2.66
Self-efficacy	8	46	18.43	7.20
Test anxiety	5	33	16.40	5.92
Metacognition	12	73	35.09	10.26
Environment management	8	56	25.40	7.63
Effort regulation	4	28	13.30	4.39
Peer learning	3	21	11.62	4.70
Help seeking	4	27	12.61	4.38
Cognitive strategies	19.00	125.00	56.95	19.27

Table2. Correlations

Variable	Metacognition	Environment management	Effort regulation	Peer learning	Help seeking	Cognitive strategies
Conscientiousness	0.311**	0.175**	0.057	0.218**	0.230**	0.352**
Agreeableness	0.036	-0.045	-0.159**	0.139**	0.013	0.124*
Openness	0.181**	-0.008	-0.024	0.263**	0.134**	0.301**
Extraversion	0.089	0.063	0.017	0.226**	0.132**	0.196**
Neuroticism	-0.026	-0.183**	-0.191**	0.008	-0.003	-0.009
Intrinsic goal orientation	0.399**	0.105*	0.135**	0.309**	0.213**	0.533**
Extrinsic goal orientation	0.193**	0.137**	0.042	0.064	0.077	0.230**
Task value	0.536**	0.429**	0.265**	0.390**	0.342**	0.559**
Self-efficacy	0.433**	0.293**	0.209**	0.289**	0.183**	0.475**
Test anxiety	0.145**	0.019	-0.021	0.134**	0.100*	0.145**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table3. Significant Standardized direct, indirect and total effects for the diagram of personality traits and motivational beliefs to Cognitive strategies

Predictive variables	Direct effect	Predicted variables	Indirect effect	Total effect
Conscientiousness	0.217	Intrinsic goal orientation	0.000	0.217
Conscientiousness	0.181	Self-efficacy	0.085	0.266
Conscientiousness	0.164	Task value	0.181	0.345
Conscientiousness	0.095	Cognitive strategies	0.183	0.278
Agreeableness	-0.107	Intrinsic goal orientation	-	-0.107
Openness	0.243	Intrinsic goal orientation	-	0.243
Openness	-	Task value	0.114	0.144
Openness	0.113	Cognitive strategies	0.105	0.218
Intrinsic goal orientation	0.393	Self-efficacy	-	0.393
Intrinsic goal orientation	0.295	Task value	0.172	0.467
Intrinsic goal orientation	0.253	Cognitive strategies	0.178	0.431
Self-efficacy	0.438	Task value	-	0.438
Self-efficacy	0.140	Cognitive strategies	0.115	0.255
Task value	0.263	Cognitive strategies	-	0.263

According to this table, conscientiousness affects indirectly cognitive strategies, agreeableness directly and openness both directly and indirectly affect cognitive strategies. Intrinsic goal orientation and self-efficacy affect cognitive strategies directly and indirectly, and task value has directly effect. Intrinsic goal orientation has the highest effect on cognitive strategies and openness the lowest effect.

Table4. Significant Standardized direct, indirect and total effects for the diagram of personality traits and motivational beliefs to metacognitive strategies

Predictive variables	Direct effect	Predicted variables	Indirect effect	Total effect
Conscientiousness	0.217	Intrinsic goal orientation	-	0.217
Conscientiousness	0.181	Self-efficacy	0.085	0.266
Conscientiousness	0.164	Task value	0.181	0.345
Conscientiousness	0.131	metacognitive strategies	0.179	0.310
Agreeableness	-0.107	Intrinsic goal orientation	-	-0.107
Openness	0.243	Intrinsic goal orientation	-	0.243
Openness	0.000	Task value	0.114	0.114
Openness	0.041	metacognitive strategies	0.080	0.121
Intrinsic goal orientation	0.393	Self-efficacy	-	0.393
Intrinsic goal orientation	0.295	Task value	0.172	0.467
Intrinsic goal orientation	0.116	metacognitive strategies	0.212	0.328
Self-efficacy	0.438	Task value	-	0.438
Self-efficacy	0.116	metacognitive strategies	0.156	0.272
Task value	0.356	metacognitive strategies	-	0.356

According to this table, conscientiousness affects directly metacognitive strategies, direct and indirect effects of agreeableness and openness are not significant but total effect of these variables is significant. The point is that agreeableness affects metacognitive strategies negatively. Intrinsic goal orientation and self-efficacy affect metacognitive strategies directly and indirectly, and task value has directly effect. Intrinsic goal orientation has the highest effect on metacognitive strategies and openness the lowest total effect.

According to table 5, conscientiousness affects both directly and indirectly help seeking strategies, agreeableness has negative direct effect and direct and indirect effects of openness are not significant but total effect of this variable is significant.

Intrinsic goal orientation and self-efficacy affect metacognitive strategies indirectly, and task value has directly effect. Task value has the highest total effect on metacognitive strategies and self-efficacy the lowest total effect.

Table 5. Significant Standardized direct, indirect and total effects for the diagram of personality traits and motivational beliefs to help seeking strategies

Predictive variables	Direct effect	Predicted variables	Indirect effect	Total effect
Conscientiousness	0.217	Intrinsic goal orientation	-	0.217
Conscientiousness	0.181	Self-efficacy	0.085	0.266
Conscientiousness	0.164	Task value	0.181	0.345
Conscientiousness	0.155	Help seeking	0.100	0.255
Agreeableness	0.107	Intrinsic goal orientation	-	-0.107
Agreeableness	-0.121	Help seeking	-0.015	-0.136
Openness	0.243	Intrinsic goal orientation	-	0.243
Openness	-	Task value	0.114	0.114
Intrinsic goal orientation	0.393	Self-efficacy	-	0.393
Intrinsic goal orientation	0.295	Task value	0.172	0.467
Intrinsic goal orientation	0.020	Help seeking	0.127	0.147
Self-efficacy	0.438	Task value	-	0.438
Self-efficacy	-0.054	Help seeking	0.139	0.085
Task value	0.318	Help seeking	-	0.318

Table 6. Significant Standardized direct, indirect and total effects for the diagram of personality traits and motivational beliefs to resource management strategies

Predictive variables	Direct effect	Predicted variables	Indirect effect	Total effect
Conscientiousness	0.217	intrinsic goal orientation	-	0.217
Conscientiousness	0.181	self-efficacy	0.085	0.266
Conscientiousness	0.164	task value	0.181	0.345
Conscientiousness	0.101	management strategies	0.140	0.241
Agreeableness	-0.107	intrinsic goal orientation	-	-0.107
Agreeableness	-0.112	management strategies	-0.014	-0.125
Openness	0.243	intrinsic goal orientation	-	0.243
Openness	-	task value	0.114	0.114
Intrinsic goal orientation	0.393	self-efficacy	-	0.393
Intrinsic goal orientation	0.295	task value	0.172	0.467
Intrinsic goal orientation	-0.179	management strategies	0.244	0.065
Self-efficacy	0.438	task value	-	0.438
Self-efficacy	0.052	management strategies	0.210	0.262
Task value	0.479	management strategies	-	0.479

According to this table, conscientiousness affects directly and indirectly management strategies, agreeableness has negative direct effect on management strategies.

Intrinsic goal orientation has negative direct effect and positive indirect effect so, that's total effect is not significant. Self-efficacy affects management

strategies indirectly, and task value has direct effect. Task value has highest total effect on management strategies and intrinsic goal orientation the lowest total effect. According to this table, conscientiousness affects indirectly peer learning strategies and openness directly.

Intrinsic goal orientation and self-efficacy affect peer learning strategies indirectly and task value has directly effect. Task value has the highest effect on peer learning strategies and conscientiousness the lowest effect. According to this table, direct and indirect effect of conscientiousness on effort strategies are not significant but, total effects of that is significant.

Agreeableness has negative direct effect. Intrinsic goal orientation and self-efficacy affect effort strategies indirectly, and task value has directly effect. Task value has the highest effect on effort strategies and conscientiousness the lowest effect.

Table7. Significant Standardized direct, indirect and total effects for the diagram of personality traits and motivational beliefs to peer learning strategies

Predictive variables	Direct effect	Predicted variables	Indirect effect	Total effect
Conscientiousness	0.217	Intrinsic goal orientation	-	0.217
Conscientiousness	0.181	Self-efficacy	0.085	0.266
Conscientiousness	0.164	Task value	0.181	0.345
Conscientiousness	0.013	peer learning	0.132	0.145
Agreeableness	-0.107	Intrinsic goal orientation	-	-0.107
Openness	0.243	Intrinsic goal orientation	-	0.243
Openness	-	Task value	0.114	0.114
Openness	0.160	peer learning	0.059	0.219
Intrinsic goal orientation	0.393	Self-efficacy	-	0.393
Intrinsic goal orientation	0.295	Task value	0.172	0.467
Intrinsic goal orientation	0.087	peer learning	0.156	0.243
Self-efficacy	0.438	Task value	-	0.438
Self-efficacy	0.070	peer learning	0.121	0.191
Task value	0.276	peer learning	-	0.276

Table 7. Significant Standardized direct, indirect and total effects for the diagram of personality traits and motivational beliefs to effort strategies

Predictive variables	Direct effect	Predicted variables	Indirect effect	Total effect
Conscientiousness	0.217	Intrinsic goal orientation	-	0.217
Conscientiousness	0.181	Self-efficacy	0.085	0.266
Conscientiousness	0.164	Task value	0.181	0.345
Conscientiousness	0.033	effort strategies	0.099	-0.132
Agreeableness	-0.107	Intrinsic goal orientation	-	-0.107
Agreeableness	-0.186	effort strategies	-0.019	-0.205
Openness	0.243	Intrinsic goal orientation	-	0.243
Openness	-	Task value	0.114	0.114
Intrinsic goal orientation	0.393	Self-efficacy	-	0.393
Intrinsic goal orientation	0.295	Task value	0.172	0.467
Intrinsic goal orientation	-0.013	effort strategies	0.140	0.127
Self-efficacy	0.438	Task value	-	0.438
Self-efficacy	0.059	effort strategies	0.109	0.168
Task value	0.249	effort strategies	-	0.249

## DISCUSSION

Results showed that personality traits affect motivational beliefs and in turn self-regulated learning strategies in general. Conscientiousness affects intrinsic goal orientation; self-efficacy and task value while agreeableness and openness affect just intrinsic goal orientation as motivational beliefs. Intrinsic goal orientation affects just cognitive and metacognitive strategies directly and management strategies negatively and directly. Self-efficacy affects just cognitive and metacognitive strategies directly. The below figure shows these common relationships of six possible path diagrams of all variables graphically. When each self-regulated learning strategy was considered separately some relationships were added that are: when cognitive strategies were considered as dependent variable, openness, intrinsic goal orientation and self-efficacy have direct effect and

conscientiousness and openness have indirect effect; when metacognitive strategies were considered as dependent variable, conscientiousness, intrinsic goal orientation and self-efficacy have a direct effect; when environment management strategies were considered as dependent variable, conscientiousness (positive), agreeableness and intrinsic goal orientation (negative) have a direct effect; when help seeking strategies were

considered as dependent variable, conscientiousness (positive) and agreeableness (negative) have a direct effect; when peer learning strategies were considered as dependent variable, openness, has a direct effect; when effort regulation strategies were considered as dependent variable, agreeableness has a negative direct effect.
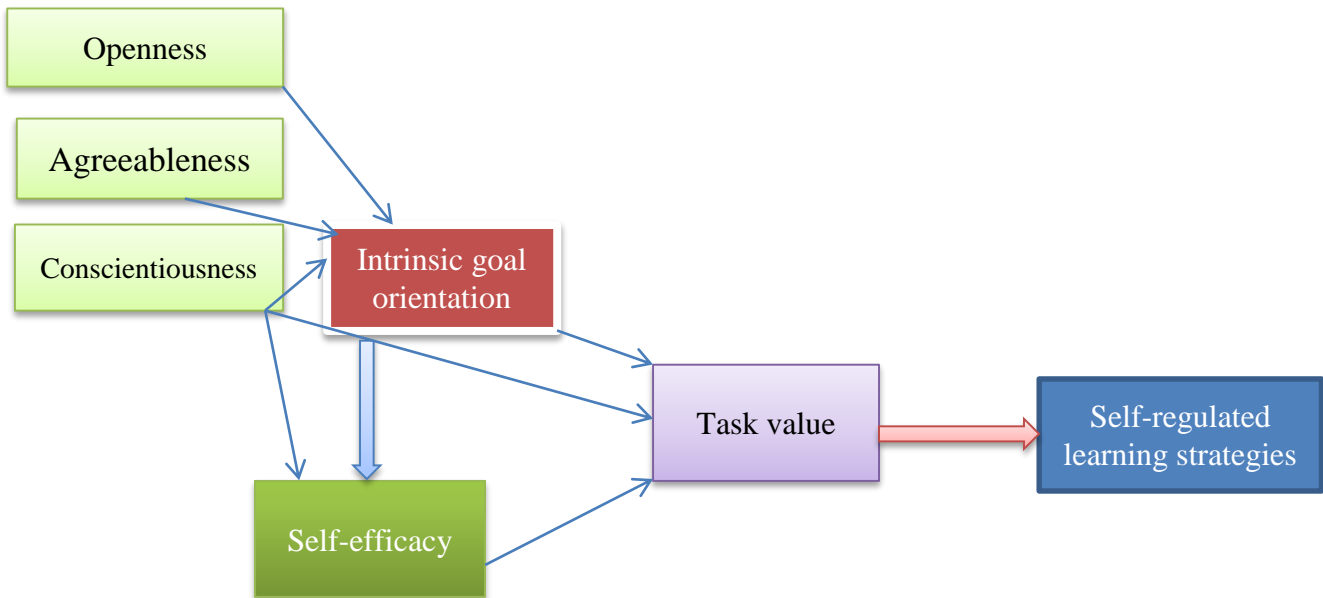
Figure1. Causal relationships of motivational beliefs and self-regulated learning strategies in general

The common paths from conscientiousness to cognitive learning strategies as self- regulated learning strategies is consistent with Khormayi and Khayyer (2007). This research showed conscientiousness has direct and indirect effects on cognitive learning strategies, and learning and performance orientation as motivational orientations intermediate the link between conscientiousness and cognitive learning strategies but there is a difference. The result showed there is no direct meaningful effect of conscientiousness to cognitive learning strategies. It seems this difference is due to existence of several basic motivational beliefs such as intrinsic goal orientation, self-efficacy and task value in the equation. Conscientiousness explains the variance of these motivational beliefs and in turn the variance of cognitive learning strategies. Conscientiousness is a tendency to show self-discipline, act dutifully, and aim for achievement, the conscientious people focus on multiple goals, try hard to attain the goals, are interested in the subject and are well-known as disciplined, hardiness, responsive and serious. These attributes play important role on intrinsic goal orientation and self-efficacy that need people rely on

themselves, determine their own goal independently, don't need to other's reinforcement and believe in their ability. These all make people view the task as a valuable one. When someone deals with a valuable task, try to solve or finish it. Therefore, he/she uses cognitive learning strategies that require organization, elaboration, rehearsal and critical thinking. The next common paths of all diagrams are the path from openness and agreeableness to intrinsic goal orientation and in turn cognitive learning strategies. Openness reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety a person has. It is also described as the extent to which a person is imaginative or independent, and depicts a personal preference for a variety of activities over a strict routine. Curiosity, exploration, spontaneity, and interest of intrinsic goal orientation are due to the traits of openness. Motivation of these people is internal and they want to understand the lessen material. The point is that openness is influential in use of cognitive learning strategies in adults but in children conscientiousness.

Agreeableness is a tendency to be compassionate and cooperative rather than suspicious

and antagonistic towards others. It is also a measure of ones' trusting and helpful nature. It means the agreeable people trust themselves and determine their goals intrinsically. Therefore, the relationship of agreeableness and intrinsic goal orientation is justified.

It is obvious that there is an overlap and a causal relationship between these personality variables and intrinsic goal orientation.

The most common path is the path from task value to all self-regulated learning strategies. It means if someone think the task is important so he/she try hard and use different strategies to solve or finish it.

In following discussion, it was considered why three personality traits as well as intrinsic goal orientation and self-efficacy have relationship with different self-regulated learning strategies.

Conscientiousness has significant effect on metacognitive, help seeking and resource management strategies. The disciplinary and dutifulness of this trait make the people try hard, plan and schedule, seek help and information, manage time and place of study, monitor and evaluation the progress of plans.

Openness has significant effect on cognitive and peer learning strategies. Openness to experience is along with questions and analytical reasoning about the things. Critical evaluation, seeking information and create a connection between these information are the characteristic of openness. So it is rational that these people use cognitive strategies and help each other to understand the material by explaining.

Agreeableness has significant negative effect on help seeking and resource management and effort regulation. Agreeableness is along with flexibility, cooperative and empathy. Therefore these people use these two self-regulated learning strategies.

Intrinsic goal orientation has significant effect on cognitive and metacognitive strategies and negative effect on resource management strategies.

Self-efficacy has significant effect on cognitive and metacognitive strategies. The people with high self- efficacy believe on their ability to succeed in specific situations. Use of

These self-regulated learning strategies require that the people believe and rely on their selves.

The indirect paths in these diagrams also are justified.

It means that some motivational orientations mediate the effect of personality traits on cognitive learning strategies.

The indirect effects of personality traits are more intensive and important than direct effects, because they cause the intrinsic goal orientation, self-efficacy and task value as motivational beliefs and in turn self-regulated learning strategies in these paths so the goals

is determined internally, trust on own ability and valuable task lead to internal satisfaction.

The most limitation of this research was limitation of all survey research that requires people anticipate and answer questionnaires, people must trust on researcher and spend time and energy to answer the questionnaires that is boring. It is tried to explain importance of the goals of study to the students and encourage them to answer truly.

Missing and outlier data was another limitation because the new soft wares such as AMOS do not work if there is missing and outlier data.

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