The Relationship between Epistemological Beliefs and Motivational Components of Self-Regulated Learning Strategies of Male and Female EFL Learners across Years of Study

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Abstract

The purpose of the present study was to determine the relationship between five dimensions of the epistemological beliefs regarding structure of knowledge, stability of knowledge, source of knowledge, ability to learn and, speed of learning and six measures of the motivational components of self-regulated learning strategies (intrinsic goal orientation, extrinsic goal orientation, task value, self-efficacy, control of learning, and test anxiety) among male and female EFL learners across years of study (freshman and sophomore students). The participants of this study were 101 EFL students studying English literature and English translation in the Islamic Azad University, Rasht Branch, Iran, during the spring semester of 2013. The participants completed Persian version of Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia & McKeachie, 1991) and Persian version of Epistemological Questionnaire (Schommer, 1990). Results showed that, in general, the more naïve the epistemological beliefs of students, the less likely they are to use motivational learning strategies. Moreover, there was no significant relationship between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among male and female students. On the other hand, a statistically significant relationship was found between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies for both freshman and sophomore students.

Keywords: epistemological beliefs; motivation; self-regulated learning; EFL

1. Introduction

Throughout the history of learning and teaching in general, and second/foreign language teaching and learning in particular, different roles have been claimed for the learners in the process of learning based on a given theory or approach. At the very beginning of the scientific era of educational psychology, i.e., behaviorism, learners were considered as passive and dependent individuals. However**,** since the 1960s, the framework for understanding the psychological basis of learning has gradually moved from behaviorism to cognitivism (Anderson, Reder & Simon, 1995; Bredo, 1997). Gradually, learners have been viewed to have more responsibility for their own learning. They are actively involved in organizing and reconstructing their old knowledge with the new knowledge (Perkins, 1992). This "active, constructive process" (Pintrich, 2003, p. 2) is called self-regulated learning (SRL). SRL can be defined in three distinct ways: First, as the learner's ability to use metacognitive strategies or to control cognition. In this regard, Pintrich, Smith, Garcia and McKeachie (1991) referred to the metacognitive strategies of planning, monitoring and regulating. A second view refers to SRL as the learner's ability to use both metacognitive and cognitive learning strategies (Schoenfeld, 1992). According to Pintrich (1999), rehearsal, elaboration, and organizational strategies are seen as key cognitive strategies. Finally, a third view highlights the importance of incorporating motivation, cognitive, and metacognitive components of learning (Tanner & Jones, 2003). Research based on the latter view indicates that SRL is related to motivation and, more specifically, that motivation develops and maintains SRL (Rheinberg, Vollmeyer & Rollett, 2000). In spite of the existing body of research, this study focuses on motivational components of SRL strategies in particular as a few studies have dealt with these components so far.

The present study sought to explore the relationships between five dimensions of the epistemological beliefs (structure of knowledge, stability of knowledge, source of knowledge, ability to learn, and speed of learning) and six measures of the motivational components of self-regulated learning strategies (intrinsic goal orientation, extrinsic goal orientation,

task value, self-efficacy, control of learning, and test anxiety) among male and female EFL learners across years of study (freshman and sophomore levels).

1.1 Motivational Beliefs

Motivation refers to the forces encouraging a person to engage in a task or to pursue a goal; in the school setting, it concerns the reason for which a student works persistently to reach a desirable result (Wolters & Rosenthal, 2000). According to Pintrich et al. (1991), motivation is the most important component of learning in any educational setting. This component consists of three sub-components namely value, expectancy, and affective components.

Value components refer to individuals' goals for taking part in a task as well as their beliefs about the importance, usefulness, or interest of a task. These components are divided into two sub-components which are goal orientation and task value.

Goal orientation refers to students' goals for a specific task (a midterm exam) as well as a general orientation to a course or a field. In current motivation research, goal orientation is divided into two sub-components which are discussed under various names such as target and purpose goals (e.g., Harackiewicz, Barron, & Elliot, 1998; Harackiewicz & Sansone, 1991), or task-specific goals and goal orientations (e.g., Garcia & Pintrich, 1994; Pintrich & Schunk, 2002; Wolters, Yu, & Pintrich, 1996; Zimmerman & Kitsantas, 1997). Target and task-specific goals (extrinsic goal orientation) focus on the specific outcome the individual is attempting to accomplish such as *trying to get an A on a midterm exam* (grades achievement and recognition from others). In contrast, purpose goals or goal orientations (intrinsic goal orientation) focus on more general reasons individuals do a task and are related more to the research on achievement motivation (Elliot, 1997; Urdan, 1997).

Students' task value beliefs are divided into three components as important in achievement dynamics, which are the individual's perception of the importance of the task, his or her personal interest in the task, and his or her perception of the utility value of the task for future goals (Eccles, 1983).

Expectancy components refer to perceptions and beliefs of the students in order to organize and accomplish their academic tasks according to their learning objectives (Bandura, 1986; Hsu, 1997; Lynch, 2006 & Pintrich et al., 1991). If students believe that they have some control over their skills and the task environment and if they are confident in their ability to perform the necessary skills, they are more likely to choose to do the task, be cognitively involved, persist at the task, and achieve at higher levels. This component consists of two sub-components which are control of learning beliefs and perceptions towards self-efficacy for learning (Lynch, 2006; Pintrich & De Groot, 1990).

Individuals' beliefs about the contingency between their behaviors and their performance in a situation are related to student learning and achievement. In a classroom context, this means that students' motivational beliefs about the connection between their studying, self-regulated learning behavior, and achievement will affect their actual studying behavior. In fact, if students believe that their effort in studying can make a difference regardless of their actual aptitude for the material, then they will be more likely to study the material. Accordingly, these beliefs have motivational force because they influence future behavior. In this regard, Bandura (1993) claimed that control of learning beliefs has given a positive effect to the development of academic activities and the amount of effort put in by the students in the learning process.

In contrast to control beliefs, self-efficacy concerns students' beliefs about their ability to do the task, not the connection between their doing it and the outcome. Bandura (1982, 1986) and Schunk (1985) defined self-efficacy as individuals' beliefs about their performance capabilities in a particular area. Although self-efficacy and control beliefs are separate constructs, they are usually positively correlated. In addition, they may combine and interact with each other to influence student's self-regulation and outcomes.

Affective components concern the students' emotional reactions to the task and their performance (i.e., anxiety, pride, and shame) and their more emotional needs for self-worth or self-esteem, affiliation, and self-actualization (Covington & Beery, 1976; Veroff & Veroff, 1980). This component consists of two sub- components, i.e., cognitive and emotional. Cognitive part refers to the students' way of thinking that negatively affects their performance while emotional part refers to the students' affective and psychological aspects that are caused by test anxiety (Pintrich et al., 1991).

1.2 Epistemological Beliefs (EB)

Personal epistemology refers to beliefs and theories that individuals hold about knowledge and the process of knowing (Hofer & Pintrich, 1997). Research on personal epistemology continued Perry's (1970) early effort to identify developmental stages in students' epistemological thinking (Baxter Magolda, 1992; King & Kitchener, 1994). However, those who now study personal epistemology within educational psychology owe much to Marlene Schommer, who was the first person to use quantitative assessments to study how epistemological beliefs are related to academic cognition and performance (Schommer, 1990).

According to Schommer (1990), personal epistemology is defined as a system of independent beliefs. These beliefs are conceptualized as beliefs about the simplicity, certainty, and source of knowledge, as well as beliefs about control and speed of knowledge learning. In Schommer's conceptualization, the three first dimensions fall under the definition of personal epistemology as beliefs about the nature of knowledge (simplicity, certainty) and knowing (source) (Hofer & Pintrich, 1997); however, the two last dimensions have been controversial because they concern beliefs about intelligence (control) and learning (speed). Hofer and Pintrich (1997) suggested that epistemology should be defined

more purely, with two dimensions concerning the nature of knowledge (what one believes knowledge is) and two dimensions concerning the nature or process of knowing (how one comes to know).

In this view, the dimensions of *simplicity of knowledge*, and *certainty of knowledge*, both concerning the nature of knowledge, correspond to the certainty and simplicity dimensions as defined by Schommer (1990). The dimension of simple knowledge ranges from the belief that knowledge consists of more or less isolated facts to the belief that knowledge consists of highly interrelated concepts and the dimension certainty of knowledge ranges from the belief that knowledge is certain and unchanging to the belief that knowledge is tentative and evolving. Within the area of nature of knowing, the dimension source of knowledge ranges from the conception that knowledge originates externally and exists in external authority, from which it may be transmitted, to the conception that knowledge is constructed by a person in interaction with others. This dimension parallels the source dimension as described by Schommer (1990). The final dimension in Hofer and Pintrich's (1997) view, justification for knowing, also concerns the nature of knowing, with this dimension referring to how people justify or evaluate knowledge claims. It seems that justification for knowing seems to have no clear parallel within Schommer's (1990) belief system. Moreover, Hofer and Pintrich (1997) considered both speed and control of knowledge acquisition to fall outside the construct of personal epistemology.

Research on epistemological beliefs, i.e., learner's beliefs about the nature of knowledge and knowing, on learning processes and outcomes has expanded considerably over the recent decades (Bruning, Schraw & Ronning, 1999; Hofer, 1999, 2000; Hofer & Pintrich, 1997; Ryan, 1984). One important theoretical assumption in this field of research is that learners' epistemological beliefs develop from 'naïve' towards 'sophisticated' beliefs (Schommer, 1998). Those who have naïve beliefs think that the knowledge is certain, absolute, and can be transferred by a person with authority, like a teacher; on the other hand, those who have sophisticated beliefs think that knowledge is relative, contextual, flexible and a complex network. They believe that knowledge is uncertain and changeable and can be actively constructed by the individual (Brownlee, Purdie, Boulton & Lewis, 2001). In this regard, researchers found that students with more 'sophisticated' beliefs learned more than students with 'naive' epistemological beliefs (Windschitl & Andre, 1998). Moreover, it was also found that "students who held sophisticated beliefs of knowledge were more motivated by personal interest in the subject matter" (Rozendaal, Brabander & Minnaert, 2001; cited in Phan, 2008, p. 162).

As Hofer (Hofer, 2000, 2002; Hofer & Pintrich, 1997) mentioned, there is a need to examine possible linkage between epistemological beliefs and students' strategic choices and motivation. Based on this assumption, the present study investigates the relationship between five dimensions of the epistemological beliefs and six measures of the motivational components of self-regulated learning strategies among EFL learners.

2. Studies on Motivational Components and Epistemological Beliefs

Several primary studies in this area have indicated that students' epistemological beliefs may be related to their engagement in either motivational cognitive or behavioral aspects of SRL. In this regard, Paulsen and Feldman (1999) investigated student motivation and epistemological beliefs. They found that students' motivation to learn is related to their epistemological beliefs and teachers can promote student motivation by designing learning activities that facilitate student development of more sophisticated epistemological beliefs. Moreover, Paulsen and Feldman (2005) examined the conditional and interactional effects of each of the four dimensions of epistemological beliefs of college students on the six measures of the motivational components of SRL strategies. They found that students with more sophisticated beliefs about the nature of knowledge and learning were more motivated and strategic than their peers in their learning. They also found that beliefs about one's ability to learn and the structure of knowledge had the most important effect on students' use of self-regulated motivational strategies. In another study, Phan (2008) examined the predictive state of learning approaches and epistemological beliefs on students' self-regulatory processes. He found that various dimensions of epistemological beliefs were connected to student's self-efficacy beliefs, mastery goal orientation, and self-regulatory strategy use. Phan concluded that "deep motive to learning related positively with motivational and strategic processes, whereas deep strategies were found to relate with students' self-efficacy beliefs" (p. 158). Valle, Cabanach, Nunez, Gonzalez-Pienda, Rodriguez and Pineiro (2003) also described the relationship between motivational and volitional dimensions of learning. They pointed out that a one-dimensional measure of epistemological beliefs about learning was related to students' use of two types of motivational strategies.

In this regard, most of the research about epistemological beliefs focused on academic performance. Through a series of studies (Schommer-Aikins, 1990, 1993; Schommer-Aikins, Duell, & Hutter, 2005; Schommer-Aikins, Duell, & Barker, 2003; Schommer-Aikins & Hutter, 2002), Schommer and her colleagues found that specific dimensions of epistemological beliefs are related to learning. In these research projects, students who believe in quick learning tend to make oversimplified conclusions, get poor test scores, and have overconfidence on a test (Schommer-Aikins, 1990, 1993). However, students who consider certain knowledge tend to create absolute conclusions (Schommer-Aikins, 1990). In addition, it was mainly revealed that students who believe in tentative knowledge accept multiple perspectives and revise their thinking (Schommer-Aikins & Hutter, 2002); students who believe in quick and fixed beliefs study without strategy and have low grade point averages (Schommer-Aikins, et al., 2005).

In a study, Sadeghi and Zarafshan (2006) explored the effects of attitude, motivation, and years of study on the use of language learning strategies by Iranian EFL university students. Analysis of the results revealed that the participants of the study reported the employment of metacognitive, social, affective, and compensation strategies more frequently than memory and cognitive strategies. Also in this study, attitude proved to influence the use of Language Learning Strategies (LLSs) significantly. That is learners with positive attitude used LLSs more frequently than those with negative attitude. Furthermore, seniors showed greater use of LLSs than freshmen.

There have also been a series of research focusing on gender differences in epistemological beliefs, but their results are inconclusive. In some studies, females showed more advanced beliefs than males (Lodewyk, 2007; Mason et al; 2006; Schommer & Dunnell, 1994; Schommer, 1993a).On the other hand, there are other studies that find almost no gender differences in epistemological thinking of beliefs (Phan, 2008; Buehl et al. 2002; Hofer, 2006; Kuhn et al; 2000; King & Kitchener, 1994). In this regard, Marzooghi, Fouladchang, and Shemshiri (2008) carried out a study to investigate gender and gender level difference in epistemological beliefs of undergraduate students in an Iranian university. Results indicated that males had some more naive epistemological beliefs than females. In addition, first year students viewed learning as quick and knowledge as simple more than last year students.

The purpose of the present study was to examine the relationship between dimensions of the epistemological beliefs and measures of the motivational components of self-regulated learning strategies among male and female EFL learners across year of study. In the following, the problem that provided the impetus for the present study is stated and the purposes and significance of the study are explained.

3. Statement of the Problem, Purpose, and Significance of the Study

In recent years, many of today's college students appear to be less well prepared for the challenge of university education. In many ways, the university environment is less structured than that of most high schools, and therefore demands for high level of independent learning in many students can be overwhelming. These findings perhaps reveal the fact that higher order self-reflective learning skills are rarely taught in the context of the school curriculum (Gall, Jacobsen, & Bullock, 1990). On the other hand, some researchers believe that what students believe about knowledge and learning may influence how they interpret the task, how they interact with text, and ultimately the strategies they select. Thomas and Rohwer (1987) claimed that students' beliefs serve as the 'filter' through which students decipher and interpret other components of learning.

The purpose of this study is to investigate how differences in epistemological beliefs of EFL learners might help explain variation in their motivational component of learning strategies. In particular, five dimensions of the epistemological beliefs consist of structure of knowledge, stability of knowledge, source of knowledge, ability to learn and speed of learning and six motivational components of self-regulated learning include intrinsic goal orientations, extrinsic goal orientation, task value, self-efficacy, control of learning and test anxiety. Furthermore, the study aims at investigating the effect of EFL learners' year of study and gender on the dimensions of their epistemological beliefs and motivational components. The findings from this study may contribute to understanding epistemological beliefs as well as learners' perception of self-directedness.

The significance of this investigation lies in the paramount role of EFL learners' epistemological beliefs and motivational components of self-regulated learning strategies. Therefore, the findings of the present study will hopefully add to an understanding of both epistemological beliefs and motivational components of self-regulated strategies in students. In fact, when teachers are aware of the structure of epistemological beliefs of students, this may facilitate the design of instruction which will develop the students' epistemological beliefs, and thus make it easier to foster educational reforms (Brownlee, 2001; Chai, Khine & Teo, 2006). Meanwhile, they can provide more successful learners and suitable learning environments that consequently enhance their learning with having enough knowledge about learning strategies. To achieve the research goals, the following two research questions were posed:

Q1. Are there any statistically significant relationships between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among male and female EFL learners?

Q2. Are there any statistically significant relationships between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among EFL learners' across year of study (freshman and sophomore levels)?

Based on the aforementioned research questions, two null hypotheses are put forward:

$H_0$1: There are no statistically significant relationships between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among male and female EFL learners.

$H_0$2: There are no statistically significant relationships between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among EFL learners across year of study (freshman and sophomore levels).

4. Methodology

4.1Participants

The randomly-selected participants of this study were 101 EFL students studying English literature and English translation in the Islamic Azad University, Rasht Branch, Iran, during the second half of the spring semester of 2013. Almost half of the participants were freshmen (51) and half of them were sophomores (50). There were 37 male and 63 female participants. The mean age was 21.35. All 101 participants responded to all items of the questionnaires. It should be noted that since the present study dealt with self-regulated learning strategies and epistemological beliefs of the participating EFL learners, their year of study was also taken into consideration. The normality of distribution was also checked to make sure parametric tests could be run.

4.2 Instrumentation and Procedure

4.2.1 Instruments

As mentioned before, two major variables were investigated in this study: five dimensions of EFL learner's epistemological beliefs and six measures of motivational learning strategies. Therefore, two instruments were used to gather the necessary data on these two variables: Persian version of Motivated Strategies for Learning Questionnaire

(MSLQ) (Pintrich, Smith, Garcia & McKeachie, 1991) and Persian version of Epistemological Questionnaire (Schommer, 1990).

4.2.1.1 Motivated Strategies for Learning Questionnaire (MSLQ)

MSLQ is a self-reporting tool with 81items divided into two broad categories: a motivation section and a learning strategies section. The motivation section consists of 31 items that assess students' goals and value beliefs for a course, their beliefs about their skill to succeed in a course, and their anxiety about tests in a course. The learning strategy section includes 31 items regarding students' use of different cognitive and metacognitive strategies. In addition, the learning strategies section includes 19 items concerning students' management of different resources. The MSLQ consists of 15 sub-scales, six within the motivation section and nine within the learning strategies section. The instrument is completely modular, and thus the scales can be used together or individually, depending on the needs of the researcher, instructor, or student. Students rate themselves on a 7-point Likert scale, from 1 (not at all true of me) to 7 (very true of me) with no specific labels for the other response categories. Table 1 lists the six sub-scales that comprise the motivation scales in MSLQ:

Table 1.Items comprising the 6 MSLQ motivation sub-scales

Motivation Scales	No. of Items	Item Comprising the Scale
1. Intrinsic Goal Orientation	4	1, 16, 22, 24
2. Extrinsic Goal Orientation	4	7, 11, 13, 30
3. Task Value	6	4, 10, 17, 23, 26, 27
4. Control of Learning Beliefs	4	2, 9, 18, 25
5. Self-Efficacy for Learning & Performance	8	5, 6, 12, 15, 20, 21, 29, 31
6. Test Anxiety	5	3, 8, 14, 19, 28
Total Number of Items	31	

4.2.1.2 Epistemological Questionnaire (EQ)

Schommer (1990) created the 63-item EQ by developing two or more subsets of items to capture each of the five proposed dimensions of beliefs, for a total of 12 subsets. Students answered each item by rating it on a 5-point Likert scale format in which respondents show their degree of agreement with each item on the instrument. The items on the questionnaire were designed to measure students' epistemological beliefs on five distinct and largely independent dimensions: simple knowledge, certain knowledge, Omniscient authority, innate ability, and quick learning. Table 2 lists the 12 subscales that comprise them in EQ:

Table 2. Items comprising the 12 subscales in EQ

Dimension	Subscales	Items Comprising the Dimensions
Simple knowledge	Seek single answers	11, 16, 17, 19, 22, 23, 30, 33, 56, 58, 59
	Avoid integration	3, 14, 18, 35, 37, 38, 54, 63
Certain knowledge	Avoid ambiguity	9, 41, 42, 44, 61
	Knowledge is certain	2, 12, 21, 27, 34, 48
Omniscient authority	Depend on authority	5, 29, 36, 40
	Don't criticize authority	6, 7, 13, 31, 45, 46
Innate ability	Success is unrelated to hard work	26, 32, 43, 49
	Ability to learn is innate	8, 47, 55, 57
	Can't learn how to learn	4, 15, 25, 28, 62
Quick learning	Learn is quick	1, 10, 39, 50, 60
	Learn first time	20, 24, 52
	Concentrated effort is a waste of time	51, 53
Total number of items		63

4.3 The Pilot Study

To make sure that the participants had no problem in understanding the questionnaires, they were translated from English into Persian by the present researchers. Moreover, in order to avoid the translation task from having any biased effect on the results of the questionnaire, the procedure of back translation was used to validate the Persian questionnaire. In doing so, two MA students studying English translation translated the Persian questionnaire into English and then an expert on translation was asked to validate the translated English version. For the items the translation of which was found to be problematic, some modifications were made to ensure the validity of translation.

Then, a pilot test was administered among 30 participants in order to assess the internal consistency reliability of the items included in the translated questionnaire to see if directions were clear and sufficient, how long it takes to respond to the inventory and if the items are clear and comprehensible to the participants. Half of the participants were freshmen and half of them were sophomores (20 female and 10 male). After the pilot test, the ambiguities and misunderstanding of items were recognized and some of the items were revised to assure a higher reliability. The required time to complete the inventory ranged from 25- 30 minutes.

4.4 Reliability and Validity Issues

MSLQ has been found to be a reliable and valid instrument (Pintrich, Simith, Garcia, & McKeachie, 1993; Pintrich et al., 1991). The questionnaire has been used in numerous studies (Bandalos, Finney, & Geske, 2003; Brookhart & Durkin, 2003; Ommundsen, 2003; Seibert, 2002; Zusho, Pintrich, & Coppola, 2003). Internal reliability coefficient (Cronbach alphas) for the six scales of MSLQ used in the present study was calculated: .76 Intrinsic goal orientation, .62 Extrinsic goal orientation,.87 Task value,.65 Control of learning beliefs, .91 Self-efficacy for learning & performance,.65 Test anxiety. As shown in Table 3, these reliabilities ranged from .62 to .91. It can be concluded that MSLQ has relatively good reliability in terms of internal consistency.

Table 3. Reliability statistics for motivation sub-scales

Motivation Scales	No. of Items	Cronbach's Alpha
Intrinsic Goal Orientation	4	.76
Extrinsic Goal Orientation	4	.62
Task value	6	.87
Control of Learning Beliefs	4	.65
Self-Efficacy for learning & Performance	8	.91
Test Anxiety	5	.65

The validity and reliability of the EQ have been verified previously in a number of ways. The underlying four-factor structure of the questionnaire has been replicated with different samples of university students (Bendixen et al., 1994; Schommer, 1990; Schommer et al ., 1992), adults of high school, faculty, or graduate school levels of education (Schommer, 1998), and high school students (Schommer, 1993; Schommer & Dunnell, 1994). In addition, in this study Cronbach's alpha coefficient was calculated to be.87 for the entire scale of the EQ. Thus, the results show that the internal reliability of the instruments is acceptable.

5. Results and Discussion

In order to describe the data received from administering the MSLQ and EQ, descriptive statistics (mean, medium, mode, and standard deviation) and Pearson's correlation coefficient formula were used. To answer the first and second research questions and check the first and second hypotheses of the study, Box's Test of Equality of Covariance Matrices, the Levene's Test of Equality of Error Variances and a multivariate analysis of variance (MANOVA) were applied.

5.1Results

After administering the questionnaires, 101 students were found to have provided complete answers and as such, they were included in the final data analysis. In order to find answer to the research questions, descriptive statistics were used, and mean score and standard deviation for motivation components and dimensions of epistemological beliefs were calculated (Table 4& Table 5).

According to Nik Mohd Rahimi (2004), category of means for seven Likert scales in motivation is as follows: 1.00 to 3.00 mean score belong to low category; 3.01 to 5.00 mean score belong to moderate category and 5.01 to 7.00 mean score belong to high category. In Table 4, five scales were at the high category of mean score of which the highest is Task value (M=6.0350, SD=.94743) followed by Control of learning belief (M=5.8903, SD=.93697), Self- efficacy (M=5.5091, SD=1.04881), Extrinsic goal orientation (M=5.5050, SD=1.08569) and Intrinsic goal orientation (M=5.4752, SD=1.11271). On the other hand, one scale, i.e., anxiety was at the moderate category of mean score (M=4.1490, SD=1.47482).

Table 4. Descriptive statistics for motivation sub-scales

		Intrinsic-m	Extrinsic-m	Task value	Control	Self-efficacy	Anxiety
N	Valid	101	101	101	101	101	101
Mean		**5.4752**	**5.5050**	**6.0350**	**5.8903**	**5.5091**	**4.1490**
Median		5.5000	5.5000	6.1667	6.0000	5.5000	4.2000
Mode		6.50	7.00	7.00	7.00	5.50	5.60
Std. Deviation		**1.11271**	**1.08569**	**.94743**	**.93697**	**1.04881**	**1.47482**
Skewness		-.774	-.555	-1.146	-.896	-1.040	.069
Std. Error of Skewness		.240	.240	.240	.240	.240	.240
Minimum		2.25	2.25	2.60	3.00	1.50	1.40
Maximum		7.00	7.00	7.00	7.00	7.00	7.00

According to Birisci, Metin and Karkas (2009), categories of means for five Likert scales in epistemological beliefs is as follow: The interval width of 1-1.80 shows very low level (strongly disagree); 1.81-2.60 interval shows low level (disagree); the 2.61-3.40 interval shows medium level (undecided); the 3.41-4.20 interval shows high level (agree) and the 4.21-5.00 interval shows very high level (strongly agree) of agreement with the statement on the survey. Table 5 presents the participants' mean scores and the standard deviations of the five sub scales. Participants scored the lowest on simple knowledge (M=3.4225, SD=.37064), indicating that as such the participants have sophisticated beliefs about simple knowledge. The mean scores of participants beliefs about quick learning, omniscient authority, Innate ability, and certain knowledge sub scales were (M=3.4922, 3.5449, 3.6556 and 3.6664) respectively. The means scores indicated that the participants have a high (agree) belief about simple knowledge, certain knowledge, omniscient authority, innate ability and quick learning. The participants scored highest on the certain knowledge subscale (M=3.6664, SD=.52242); as such, the participants have naïve beliefs about certain knowledge.

Table 5. Descriptive statistics for Epistemological Beliefs sub-scales

		Simple Know.	Certain Know.	Authority	Ability	Quick learning
N	Valid	101	101	101	101	101
Mean		**3.4225**	**3.6664**	**3.5449**	**3.6556**	**3.4922**
Median		3.4737	3.6667	3.5000	3.6923	3.5000
Mode		3.47	3.92	3.30[a]	3.38[a]	3.40[a]
Std. Deviation		**.37064**	**.52242**	**.45543**	**.38565**	**.37511**
SkewnesS		-.095	-.397	.208	-.269	.048
Std. Error of Skewness		.240	.240	.240	.240	.240
Minimum		2.58	2.17	2.20	2.31	2.50
Maximum		4.26	4.83	5.00	4.46	4.50

The One-Sample Kolmogorov-Smirnov Test procedure used in this study compared the observed cumulative distribution function for a variable with a specified theoretical distribution. It may be normal, uniform, Poisson, or exponential. As can be seen in Table 6 and 7, this nonparametric test was used (p > .05), except in task value (p <.05), so most of the components have normal distribution and a parametric test can be used.

Table 6. One-Sample Kolmogorov- Smirnov Test (Motivation sub-scales)

		Intrinsic-m	Extrinsic-m	Task-value	Control	Self-efficacy	Anxiety
N		101	101	101	101	101	101
Normal Parameters	Mean	5.4752	5.5050	6.0350	5.8903	5.5091	4.1490
	Std.Deviation	1.11271	1.08569	.94743	.93697	1.04881	1.47482
Most Extreme	Absolute	.107	.100	.154	.118	.119	.089
Differences	Positive	.085	.084	.154	.118	.078	.089
	Negative	-.107	-.100	-.153	-.115	-.119	-.085
Kolmogorov-Smirnov Z		1.077	1.008	1.550	1.187	1.201	.894
Asymp. Sig. (2-tailed)		.197	.262	**.016**	.119	.112	.401

Table 7. One-Sample Kolmogorov- Smirnov Test (Epistemological Beliefs)

		Simple know.	Certain Know.	Authority	Ability	Quick learning
	N	101	101	101	101	101
Normal Parameters	Mean	3.4225	3.6664	3.5449	3.6556	3.4922
	Std. Deviation	.37064	.52242	.45543	.38565	.37511
Most Extreme Differences	Absolute	.083	.078	.087	.066	.072
	Positive	.067	.054	.084	.066	.072
	Negative	-.083	-.078	-.087	-.055	-.051
Kolmogorov-Smirnov Z		.830	.784	.879	.661	.727
Asymp. Sig. (2-tailed)		.496	.570	.422	.774	.666

Table 8 presents the bivariate correlations between the five dimensions of the epistemological beliefs and all six motivational components of learning strategies, indicating the statistical significance for each of the bivariate correlations estimated. These results provide an introductory perspective on the relationships under study. The statistically significant correlations in Table 8 can be classified as being in the modest range ($r < .20$), the moderate range ($.20 < r < .30$) or the more substantial range ($r > .30$).

Table 8. Epistemological beliefs and motivational self-regulated learning strategies: Bivariate correlation analysis

		Intrinsic-m	Extrinsic-m	Task value	Control	Self-efficacy	Anxiety
Simple Know.	Correlation	-.026	**.379**[**]	-.130	-.107	-.047	**.206**[*]
	Sig. (2-tailed)	.795	.000	.195	.288	.637	.039
	N	101	101	101	101	101	101
Certain Know.	Correlation	-.049	**.291**[**]	.071	.074	-.070	**.360**[**]
	Sig. (2-tailed)	.624	.003	.482	.462	.486	.000
	N	101	101	101	101	101	101
Omniscient authority	Correlation	.107	**.254**[*]	-.019	.124	-.015	**.378**[**]
	Sig. (2-tailed)	.289	.010	.854	.218	.881	.000
	N	101	101	101	101	101	101
Innate ability	Correlation	-.063	.192	-.054	.011	-.011	.178
	Sig. (2-tailed)	.533	.054	.593	.915	.916	.075
	N	101	101	101	101	101	101
Quick learning	Correlation	.040	.170	.111	.114	.071	.116
	Sig. (2-tailed)	.690	.090	.269	.256	.478	.246

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

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

In interpreting negative and positive signs in Table 8, consistent with Schommer's work (1990), the epistemological belief scales yield higher scores for students with more naïve beliefs and lower scores for those with more mature or sophisticated beliefs. This indicates that, in general, the more naïve the epistemological beliefs of students, the less likely they are to use motivational learning strategies that in prior research have been shown to be consistently related to learning outcomes. Moreover, students who are more sophisticated in their beliefs about the nature of knowledge and its acquisition are more likely to use educationally productive motivational learning strategies (Hofer, 1999; Paulsen & Feldman, 1999a 1999b; Schutz, Pintrich &Young, 1993).

The findings of Table 8 indicate that compared to students with sophisticated beliefs that the structure of knowledge is based on complex interrelationships between many concepts and ideas, students with more naïve beliefs that the structure of knowledge is simple i.e., comprised of facts in the form of isolated bits and pieces of information (simple knowledge) are more likely to maintain an extrinsic goal orientation ($r = .379$) and to experience test anxiety ($r = .206$). Compared to students with sophisticated beliefs that the nature and structure of knowledge is tentative and constantly evolving, students with more naïve beliefs that the nature and structure of knowledge is absolute and unchanging or constant over time (certain knowledge) are more likely to maintain an extrinsic goal orientation ($r = .291$) and to experience test anxiety ($r = .360$). Finally, compared to students with sophisticated beliefs that the source of knowledge may be constructed by a person in interaction with others, students with more naïve beliefs, that is, the conception that knowledge originates outside the self and resides in external authority, are more likely to maintain an extrinsic goal orientation ($r = .245$) and to experience test anxiety ($r = .378$). Moreover, these findings show that correlation between simple knowledge and extrinsic motivation is significantly higher than the correlation between certain knowledge and omniscient authority with extrinsic motivation; as such, students in simple knowledge have more naïve beliefs than certain knowledge and omniscient authority in relation to extrinsic motivation. Furthermore, the correlation between omniscient authority and anxiety is higher than the correlation between simple knowledge and certain knowledge with

anxiety; as such, students at omniscient authority have more naïve beliefs than simple knowledge and certain knowledge in relation to anxiety.

5.1.2 Relationships between Epistemological Beliefs and Motivational Components of SRL strategies across Gender (The First Research Question)

In order to answer the first research question which was concerned with relationships between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among male and female EFL learners, different tests were conducted:

Box's Test of Equality of Covariance Matrices checks the assumption of homogeneity of covariance across the groups using $p < .01$ as a criterion. In this study, there is no concern, as Box's M (71.811) was not significant and p (.605) > .01indicating that there is no significant differences between the covariance matrices. Therefore, the assumption is not violated and Wilk's Lambda is an appropriate test to use (Table 9).

Table 9. Box's test of equality of covariance matrices

Box's M	71.811
F	.945
df1	66
df2	18637.393
Sig.	.605

The Levene's Test of Equality of Error Variances tests the null hypothesis that the variances of each variable are equal across the groups (called homogeneity of variance). If the resulting P-value of Levene's test is less than the critical value (typically 0.05), this means that the assumption has been violated and data should be viewed with caution or the data could be transformed so as to equalize the variances. Based on Table 10 (p >.05), the null hypothesis of equal variances is accepted and it is concluded that there is no difference between the variances in the population.

Table 10. Levene's test of equality of error variances

	F	df1	df2	Sig.
Intrinsic m.	.080	1	98	.778
Extrinsic m.	.000	1	98	.998
Task value	1.074	1	98	.303
Control	.819	1	98	.368
Self-efficacy	.618	1	98	.434
Anxiety	.406	1	98	.526
Simple know.	.093	1	98	.761
Certain know.	.191	1	98	.663
Authority	.436	1	98	.510
Innate ability	.003	1	98	.960
Quick learning	.007	1	98	.934

The following is the MANOVA using the Wilk's Lambda test. Wilk's lambda is a test statistics used in multivariate analysis of variance (MANOVA) to test whether there are differences between the means of identified groups of subjects on a combination of dependent variables. Using an alpha level of .05, Table 11 shows that the result is not statistically significant (p >.05). Therefore, there is no significant relationship between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among male and female students.

Table 11. Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.093	.822[a]	11.000	88.000	.619	.093
Wilks' lambda	**.907**	**.822[a]**	**11.000**	**88.000**	**.619**	**.093**
Hotelling's trace	.103	.822[a]	11.000	88.000	.619	.093
Roy's largest root	.103	.822[a]	11.000	88.000	.619	.093

As it can be seen in Table 12, there is a pairwise comparison between male and female for dependent and independent variables. The findings show that there is no significant difference for any of the components between male and female students (p > .05).

Table 12. Pairwise comparison between male and female students

Variable	gender	gender	Mean Difference	Std. Error	Sig.
Intrinsic-m	male	female	.021	.233	.928
Extrinsic-m	male	female	-.319	.221	.152
Task value	male	female	-.144	.197	.467
Control	male	female	-.175	.195	.373
Self-efficacy	male	female	.068	.219	.756
Anxiety	male	female	-.441	.304	.150
Simple know.	male	female	-.061	.077	.431
Certain know.	male	female	-.068	.109	.531
Authority	male	female	-.163	.094	.086
Ability	male	female	-.138	.079	.086
Quick learning	male	female	-.063	.078	.425

5.1.3 Relationships between Epistemological beliefs and Motivational Components of SRL across Year of Study (The Second Research Question)

In order to answer the second research question which was concerned with relationships between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among freshman and sophomore EFL learners, the following tests were run.

Table 13 shows Box's Test of Equality of Covariance Matrices checks the assumption of homogeneity of covariance across the groups using p < .01 as a criterion. This table shows Box's M (67.846) was not significant, [p (.688) >.01], indicating that there is no significant difference between the covariance matrices. Therefore, the assumption is not violated and Wilk's Lambda is an appropriate test to use.

Table 13. Box's test of equality of covariance matrices

Box's M	67.846
F	.907
df1	66
df2	31225.098
Sig.	.688

The Levene's Test of Equality of Error Variances tests the null hypothesis that the variances of each variable are equal across the groups (called homogeneity of variance). Table 14 shows that the null hypothesis of equal variances is accepted and it is concluded that there is no difference between the variances in the population (p > .05).

Table 14. Levene's test of equality of error variances

	F	df1	df2	Sig.
Intrinsic-m	.731	1	99	.395
Extrinsic-m	.687	1	99	.409
Task value	2.532	1	99	.115
Control	.322	1	99	.572
Self-efficacy	3.198	1	99	.077
Anxiety	.314	1	99	.577
Simple know.	.043	1	99	.836
Certain know.	3.984	1	99	.049
Authority	1.620	1	99	.206
Ability	4.508	1	99	.036
Quick learning	.054	1	99	.817

The following is the MANOVA using the Wilk's Lambda test. Table shows that this difference is significant (p < .05). Therefore, there is significant relationship between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among freshman and sophomore students.

Table 15. Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.260	2.846[a]	11.000	89.000	.003	.260
Wilks' lambda	.740	2.846[a]	11.000	89.000	**.003**	.260
Hotelling's trace	.352	2.846[a]	11.000	89.000	.003	.260
Roy's largest root	.352	2.846[a]	11.000	89.000	.003	.260

As it can be seen in Table 16, there is a multiple comparison between motivational components and dimensions of epistemological beliefs among freshman and sophomore students. In terms of intrinsic motivation, extrinsic motivation, control learning beliefs, self-efficacy, anxiety, simple knowledge, certain knowledge, authority, learning ability, the difference between freshman and sophomore student is not significant (p > .05). In terms of task value and quick learning the difference between freshman and sophomore students is found to be significant (p < .05).

Table 16. Pairwise comparison between first and second year students

Dependent Variable	Year	year	Mean Difference	Std. Error	Sig.
Intrinsic-m	First	second	-.108	.222	.627
Extrinsic-m	First	second	-.129	.217	.554
Task value	First	second	**-.465***	.184	**.013**
Control	First	second	-.247	.186	.187
Self-efficacy	First	second	-.092	.210	.661
Anxiety	First	second	-.313	.293	.289
Simple know.	First	second	-.038	.074	.605
Certain know.	first	second	-.199	.103	.056
Authority	first	second	-.160	.090	.077
Innate ability	first	second	-.070	.077	.362
Quick learning	first	second	**-.301***	.069	**.000**

6. Discussion

In this section, the results elicited from the collected data will be explained and interpreted with reference to the previous studies.

Table 8 shows the correlation between epistemological beliefs and motivational components of self-regulated learning strategies. This indicates that students with more naïve beliefs about simple knowledge, certain knowledge, and omniscient authority were more likely to maintain an extrinsic goal orientation and experience test anxiety. This finding of the present study confirms that of Paulsen and Feldman (2005) who investigated student motivation and epistemological beliefs. They found that students' motivation to learn and their epistemological beliefs are linked to each other. In their study, it was found that teachers could enhance students' motivation through designing activities that maximize learners' development of more sophisticated epistemological beliefs. They also examined the conditional and interactional effects of each of the four dimensions of epistemological beliefs of college students on the six measures of the motivational components of SRL strategies. They found that students with more sophisticated beliefs about the nature of knowledge and learning were more motivated and strategic than their peers in their learning. Beliefs about one's ability to learn and the structure of knowledge had the most significant effects on students' use of self-regulated motivational strategies. Bell (2006) also indicated the effect of SRL behaviors and epistemological beliefs on learner outcomes in the online learning environment. However, he did not find epistemological beliefs as a significant predictor of academic achievement; there was reliable evidence to support the association of SRL skills with positive academic achievement among online learners. In another study, Phan (2008) examined the predictive state of learning approaches and epistemological beliefs on students' self-regulatory processes. He found that various dimensions of epistemological beliefs were connected to student's self-efficacy beliefs, mastery goal orientation and self-regulatory strategy use. Phan concluded that "deep motive to learning related positively with motivational and strategic processes, whereas deep strategies were found to relate with students' self-efficacy beliefs" (p. 158). In addition, Valle, Cabanach, Nunez, Gonzalez-Pienda, Rodriguez and Pineiro (2003) described the relationship between motivational and volitional

dimensions of learning. They pointed out that a one-dimensional measure of epistemological beliefs about learning was related to students' use of two types of motivational strategies. The findings of the present study also highlighted the relationship between some sub-scales of epistemological beliefs and motivational components of self-regulated learning strategies. This sheds light on how we can gain further insights into the relationship between these two variables and take it into consideration in order to enhance the quality of instruction. In this regard, Hofer (2001) suggested a general framework of how epistemological beliefs influence learning. According to this framework, learners' epistemological beliefs influence their use of strategies and their motivation. Motivation in turn influences strategy use as well. Finally, motivation and strategy use are connected to other learning processes.

Generally, as illustrated in Table 11, there was no significant relationship between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among male and female students (p >.05).On the other hand, Table 15 shows that there was significant relationships between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among freshman and sophomore students (p < .05). As the findings revealed, gender did not modify the relationship between the variables under investigation. This might be due to the limited number of male and female participants in the study. It is suggested that further studied be conducted to determine the role gender as far SRL and epistemological beliefs are concerned. As it was already mentioned, a series of studies have focused on gender differences in epistemological beliefs the results of which are inconclusive. In some studies, female participants were found to have more advanced beliefs than their male counterparts (Lodewyk, 2007; Mason et al; 2006; Schommer & Dunnell, 1994; Schommer, 1993). However, there are some other studies that did not identifyany gender differences in epistemological beliefs (Phan, 2008; Buehl et al. 2002; Hofer, 2006; Kuhn et al; 2000; King & Kitchener, 1994).The findings of the study are also indicative of the role of year of study as a moderator variable. It is found that the EFL learners' beliefs and motivation change over time. This finding highlights the role of the EFL instructors in influencing the students' epistemological beliefs and SRL. EFL instructors can design learning activities in way that they could positively influence the learners' motivation and beliefs. In terms of task value and quick learning, the difference between freshman and sophomore participants of the study was found to be significant. These differences need to be taken into account to maximize learning opportunities. In a study by Sadeghi and Zarafshan (2006), they explored the effects of attitude, motivation, and years of study on the use of language learning strategies by Iranian EFL university students. seniors showed greater use of LLSs than freshmen. In the following section, the conclusions of the study are explained and some suggestions for further studies are also put forward.

7. Conclusions and Implications

The first question of the study concerned the relationship between dimensions of epistemological beliefs and motivational components of self-regulated learning strategies among male and female EFL learners. The results showed no statistically significant relationship. Gender did not play a moderating role in this study and male and the relationship between motivational components of SRL and epistemological beliefs was not to be statistically different across genders.

The second question of the study dealt the relationship between dimensions of epistemological beliefs and motivational components of SRL strategies across years of study (freshman and sophomore EFL learners). The results showed a statistically significant relationship. In terms of intrinsic motivation, extrinsic motivation, control learning beliefs, self-efficacy, anxiety, simple beliefs, certain knowledge, authority, learning ability, the difference between freshman and sophomore students was not significant (p > .05). In terms of task value and quick learning, the difference between freshman and sophomore students was found to be significant (p < .05). It can be concluded that dimensions of epistemological beliefs and motivational components of SRL strategies are related to each other to some extent. However, due to the inconsistencies of the findings, further studies are required to consolidate the findings of the present study. It might be the case that some other factors such as background knowledge, socioeconomic status, etc. are at work that modify the findings of the present study.

In general, the results of this study have three main implications for language teachers and students. First, the result of this study may be helpful to language teachers to be familiar with college students' beliefs about knowledge, or epistemologies, and how those beliefs influence motivation and how they can be supported by teachers. Second, the findings of this study may contribute to understanding the fact that the effects of students' epistemological beliefs on motivational components are directly related to their academic performance and necessary to improve their learning. Third, epistemological beliefs of students play a significant role in the successful implementation of standards-based curriculum in higher education.

Future studies should include more participants from different universities in order to make better comparisons and arrive at more generalization. It is suggested that researchers compare different years of study such as freshman, sophomore, junior and senior. Researchers can also focus on the relationship between second and third components of MSLQ, the cognitive and metacognitive learning strategies, with epistemological beliefs.

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