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# The Study of Learning Styles, Thinking Styles, and English Language Academic Self-efficacy among the Students of Islamic Azad University of Behbahan Considering Their Field of Study and Gender

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**Abstract**—The purpose of the present paper was the study of learning styles, thinking styles, and English language academic self-efficacy among the students of Islamic Azad University of Behbahan considering their field of study and gender. The method of the study was 'surveying' in nature. The statistical population pool of the study included all the students of the Islamic Azad University of Behbahan (7941). The sample (367 students) was determined based on Morgan and Jesri table and was selected via stratified sampling technique. To collect data, Kolb's learning styles questionnaire, Sternberg's thinking styles questionnaire and the researcher-made questionnaire on the English lesson academic self-efficacy of students were used. In order to analyze the data, different statistical techniques which included mean, standard deviation, t-test, and chi square were utilized for examining the difference between the variables of gender and field of study. The results showed that the engineering students had more academic self-efficacy than humanities students. The rate of academic self-efficacy among male students was greater than that among female students. Male students had more assimilate learning style but female students had more divergent learning style. Humanities students had more divergent accommodate learning styles, but engineering students had more convergent and assimilate learning styles. The results also showed that the prevailing thinking style among male students was the judicial thinking style, but the prevailing thinking style among female students was the executive thinking style. Humanities students had more executive thinking style, but engineering students had more legislative thinking style.

**Index Terms**—academic self-efficacy, learning styles, thinking styles, gender, field of study

## I. INTRODUCTION

Self-efficacy beliefs are part of the beliefs system that have a unique and fundamental role in the quality of human life and in creating a balance among its different dimensions. In Bandura's viewpoint, self-efficacy, which is the capacity to do a desired action or adapting to a specific situation, is the most central mechanism from among humans' psychological mechanisms (Bagheri and Yousefi, 2010). Self-efficacy and its related studies have been investigated widely in different fields of study including medicine, social studies, mass media, commerce and politics, psychology, and education (Hosseinchary and Kiani, 2008; cited in Veschio et al, 2007).

Self-efficacy, which is one aspect of motivational approaches, is the judgment of individuals about their abilities to organize and execute an array of works for achieving a variety of determined targets (Bandura, 1997). Self-efficacy beliefs are the basis for important processes including motivation, psychological well-being, and individual interests (Hosseinchary and Kiani, 2008). Self-efficacy is an essential variable in learning, social-psychological functions, motor skills, and the selection of approaches and behaviors (Pintrich and Schunck, 2005). Self-efficacy is divided into a variety of public self-efficacy, social self-efficacy, physical self-efficacy, academic self-efficacy, researching self-efficacy, Internet self-efficacy, etc.

Academic self-efficacy is a kind of personal judgment that determines the amount of individual effort and persistence for achieving success in an educational field of study such as mathematics and sciences (Seif and Marzooghi, 2008). Academic self-efficacy beliefs surface in different educational situations (Shokri et al, 2007), and they are related to

self-regulating approaches, efficient learning, educational performance, and the skill of social interactions with classmates (Khajeh and Hosseinchari, 2011). Social and psychological experts point out that individuals' self-efficacy beliefs are not the same in different fields of study. For example, it is possible for a student to have strong self-efficacy in mathematics but weak self-efficacy in a foreign language. Thus, self-efficacy should be examined based on assignment level in different activities and under different situations (Hosseinchari and Kiani, 2008).

Students have many differences that are essentially effective in education. They are different in terms of learning, self-efficacy ability and logical thinking ability, and they deal with problems and challenges in different ways.

Every student has his own specific learning style. These styles affect the amount of our learning under specific conditions. Some students learn better via listening, but some other students learn better through reading. Different learning styles theories have been offered that describe the preferential styles of students in learning. One of the most efficient and widely applied approaches in studying the learning of individuals is Kolb's learning styles.

According to Kolb's theory, learning is a four-level process that includes concrete experience, reflective observation, abstract conceptualization, and active experimentation. This situation is indicative of two dimensions including (a) concrete experience versus abstract thinking (b) reflective observation versus active experimentation. These dimensions constitute four learning styles of divergent, convergent, assimilate, and accommodate (Izadi & Mohammadzadeh Edmolae 2007).

Convergent individuals are characterized by manipulating objects, logically analyzing beliefs, planning and learning thoughtfully; divergent individuals by reflective observation, cognitive learning considering different aspects of the subject; assimilate individuals by abstract conceptualization, interest in science and applied science; accommodate individuals by concrete experience, group discussion, interest in being with friends of the same age, and interest in humanities and art (Homayuni, Kadivar, and Abdollahi, 2007).

Studies on learning styles have shown that students will have higher academic achievement if they are taught according to their learning and processing styles. The learning style of an individual is examined, and then a suitable teaching style is adopted. Researchers have shown that learning styles can change over time. Students may also have more than one learning style (Rahmanpour, Palizban and Eshrat-Zamani, 2009).

Thinking styles have been considered by researchers as one of the effective behavioral variables today. Different studies have shown that thinking styles have relationship with problem-solving, decision-making, academic achievement, etc., and variables such as culture, gender, age, field of study, record of service, parents' styles, etc. affect individuals thinking styles (Emamipour and Seif, 2003). According to Sternberg's self-government theory (1997), humans have preferences in dealing with environmental affairs and in thinking about them which are known as thinking styles. Of course, thinking styles are not by themselves good or bad, but they are the way of thinking that humans are comfortable with (Nazarifar et al, 2011). Considering the role of aspects of human life and can be an effective factor in the processes of decision-making and problem-solving (Gheisarzadeh and Hosseinpour, 2011).

Sternberg (1997) has considered three thinking styles of legislative, executive, and judicial in the functioning dimension. Familiarity with individuals' thinking styles and knowing their relationship with personal abilities is especially important. For example, an individual with legislative thinking style can have high self-efficacy in innovation and invention, or a conscientious office worker with the prevailing judicial thinking style can be successful and self-efficient in assessment and judgment if they are put in a suitable cultural and situational context. Another aspect of the issue is that nowadays thinking has been especially considered to be important in educational theories. Successes and failures attributed to abilities often stem from styles. A teacher should know that the weak performance of a student is not always due to the lack of ability but because of the lack of proportion between thinking styles of students and expectations of teachers (Sternberg, 1997).

The main aim of this study is to know the type of learning styles and thinking styles of students, following that it is possible to choose suitable teaching and motivational methods for students. The other aims of this study are to examine the amount of academic self-efficacy of students in English lesson. Considering the important role of self-efficacy in different aspects of behavior, such knowing can help teachers develop this important behavioral variable of students.

## II. REVIEW OF THE LITERATURE

Hosseini Largaani (1999) concluded that learning styles of students of three fields of study- medicine, engineering, and humanities- are different. Rezai (2010) conducted a study to measure field-dependence and field-independence styles of high-school students. The results showed that students of mathematics tended towards field-independence style and students of humanities tended towards field-dependence style. The results of a study conducted by Salehi et al (1380) showed that the prevailing style among the students of nursing at Medicine Sciences University of Isfahan was the divergent style, and convergent, assimilate, and accommodate styles were ranked behind it. Azizi, Khanzadeh and Hosseini (2003) conducted a study to investigate learning styles among the students of Medicine Sciences University of Qazvin based on Kolb's theory. They showed that the distribution of learning styles among the students of medicine was generally as follows: assimilate (43.1%); convergent (38.1%); divergent (9.6%); accommodate (9.2%). According to Sarchami and Hosseini (1383), the assimilate style was the prevailing learning style among the students of nursing at Medical Sciences University of Qazvin. According to Khaksar beldaji (2006), the amount of self-efficacy is different in terms of age and gender. Self-efficacy is enhanced with the increase of age, and males have higher self-efficacy.

Physics and mathematics students took more advantage of the divergent style, the students of sciences used the assimilate style more, and humanities students enjoyed the accommodate style more. The students of physics and mathematics had the highest level of self-efficacy. Homayuni, Kadivar and Abdollahi (2007) concluded that students with divergent and accommodate learning styles chose fields of mathematics and sciences. But students with convergent and assimilate learning styles chose humanities more.

Najafi Kelyani, Karimi and Jamshidi (2009) concluded that the learning style of most students at the Medical Sciences University of Fasa was convergent (38.3%) and the assimilate style was ranked behind it (29.9%). Rahmanpour, Palizban and Eshrat-Zamani (2009) concluded that there was a significant difference between the styles of engineering students and those of humanities students. There was also a significant difference among the styles of different academic statuses. Panahi, Kazemi and Rezai (2011) pointed out that students with divergent and assimilate learning styles had a better academic performance than students with accommodate and convergent learning styles. Males enjoyed divergent learning style more, and the prevailing learning style of females was the assimilate one. Gheibi, Arefi and Danesh (2012) showed that students of humanities had the accommodate learning style, the engineering students had the convergent learning style, and the sciences students had the assimilate learning style at Shahid Beheshti University. The relationship between field of study and gender was significant. The academic self-efficacy in engineering students in comparison with the students of humanities and sciences and for the females compared with males was higher. There was no significant difference between the learning styles of males and females.

Emamipour and Seif (2003) pointed out that there was a significant difference among the thinking styles of students in different academic statuses. There was also a significant difference between the thinking styles of males and females. The rate of thinking styles of legislative, executive, and judicial in females was higher than that of males, and there was a significant relationship between thinking styles and academic achievement.

Razavi and Shiri (2005) found that there was not a significant relationship between the general thinking style and academic achievement and age, but there was a significant relationship between the general thinking style and gender. In another study, Akbarzadeh (2006) concluded that personal (age and gender) and educational (field of study and academic status) characteristics have relationship with thinking styles and academic achievement.

Sarveghad, Rezai and Masoumi (2010) showed that there was a positively significant relationship between the self-efficacy variable and all thinking styles except for introversion and general thinking styles in male and female high-school students in Shiraz at  $p=0.01$  level. Nazarifar et al (2011) investigated the function of thinking styles and its relationship with academic achievement among the students of engineering, psychology and educational sciences at Tehran University and concluded that the students of psychology and educational sciences were higher in the executive thinking style, the students of engineering were higher in the legislative thinking style, and there was no difference among the students in the judicial thinking style. Also the executive thinking style among engineering students and the legislative thinking style among the students of psychology and educational sciences had the most predictive power for academic achievement. It was also shown that there was no significant difference between male and female engineering students in the executive thinking style. Females were higher in the executive thinking style and males were higher in the judicial thinking style. The male educational sciences and psychology students were higher than females in the legislative thinking style. Khosravi (2010) pointed out that the gender variable significantly predicts legislative, executive, and judicial thinking styles. Kolb and Wolf (1981) found that the students of commerce had the accommodate learning style, and the students of history, English language, political sciences, psychology, economics, and social sciences often had the assimilate learning style. The students of natural sciences had assimilate and convergent learning styles (Homayuni, Kadivar and Abdollahi, 2007).

Chang (1991) concluded that self-efficacy is different considering age and gender. He found out that males higher self-efficacy than females. Kelly (1997) showed that the familiarity of English teachers with the learning styles of students can help them present materials in the classroom better in such a way that it would help the learning and cognitive functioning of students and decrease the effect of personal factors on learning. Males enjoyed the divergent learning style more and females had more convergent learning style. It was also shown that there was no significant relationship between the learning styles of students and their field of study. Philbin et al (1995) found that the learning style of social sciences and humanities students is divergent, that of physics students is assimilate, and that of engineering students is convergent. Denizli and Cherki (2005, cited in Moradi, 2012) found that male students had a more tendency towards the judicial thinking style and female students used the executive thinking style more.

Considering the important role of academic self-efficacy, learning styles and thinking styles in the academic achievement, in the present study the role of academic self-efficacy, learning styles and thinking styles in the English lesson of students was investigated. The hypotheses of the study are as follows:

- H1: considering field of study, there is a significant difference among the academic self-efficacy of students.
- H2: considering gender, there is a significant difference among the academic self-efficacy of students.
- H3: considering field of study, there is a significant difference among the learning styles of students.
- H4: considering gender, there is a significant difference among the learning styles of students.
- H5: considering field of study, there is a significant difference among the thinking styles of students.
- H6: considering gender, there is a significant difference among the thinking styles of students.

### III. METHODOLOGY

The statistical pool of this study included all students of Behbahan Islamic Azad University who registered in the first semester of the academic year 1391-1392 (7941).

Considering field of study, gender, and academic status, the sample (397) was selected based on Jersi and Morgan table using stratified sampling technique. To collect data, three questionnaires were used:

1. Kolb's learning styles questionnaire: this tool consists of 12 questions to which students give score according to their own learning priorities. In this questionnaire, each question has four options that the students assign one of the 1,2,3,4 scores according to the correspondence of each answer with their own learning. In case of the highest correspondence, score 4 is assigned, and in case of the lowest correspondence, score 1 is assigned. In this questionnaire, the answers of each question are arranged according to four learning styles, which none of them is preferable to the other ones and they are equal. This questionnaire has been examined in terms of reliability and validity in Iran by Hosseini Largaani (1999), Rahmani Shams (2001), and Taghvaeenia (2003), and the acquired coefficients are acceptable according to Cronbach alpha.

2. Sternberg's thinking styles questionnaire: this questionnaire is a self-report that was designed by Sternberg and Wagner (1992). It includes 13 subtests and 104 questions in such a way that each 8 questions included in the test evaluate one subtest. Since this paper investigates only 3 subtests of thinking styles function, the 24-question test would be used as a tool for the above mentioned procedure. Nazarifar et al (2011) showed that the reliability coefficient for the aggregate 3 functions was 0.75, and Shokri et al (2007) calculated the reliability coefficient by Cronbach alpha the three judicial, executive, and legislative styles. They were 0.71, 0.68, and 0.74 respectively.

In this questionnaire, the answer to each question is calculated according to the seven degree Likert scale. The questions 1 to 8 evaluate the judicial thinking style, 9 to 16 evaluate the legislative thinking style, and questions 17 to 24 evaluate the executive thinking style.

3. The researcher-made questionnaire of student's academic self-efficacy: because there was no special questionnaire for testing the students' academic self-efficacy for the English lesson, the authors, inspired by Owen and Froman's questionnaire of academic self-efficacy and Solberg et al (1993)'s academic self-efficacy questionnaire, provided the academic self-efficacy questionnaire for English lesson. The viewpoints of ten English language experts were also taken into consideration in order to examine its reliability and validity and it was shown that its reliability was 0.94 and its validity was 0.86.

### IV. RESULTS

This section consists of descriptive and inferential findings.

TABLE I.  
DESCRIPTIVE STATISTICS OF VARIABLES OF THE STUDY

Standard Deviation	Mean	Highest	Lowest	Variable
11/02	37/26	58	12	Legislative
11/17	37/51	72	14	Judicial
8/30	42/47	56	18	Executive
6/77	28/47	44	14	Concrete experience
6/51	32/28	44	17	Reflective observation
6/21	33/11	47	18	Abstract conceptualization
7/41	32/27	44	14	Active experimenting
11/02	75/35	85	26	Self-efficacy

Descriptive findings: the mean and standard deviation of legislative variable were 37.26 and 11.02; those of judicial variable were 37.51 and 11.17; and those of executive style variable were 42.47 and 8.30. Also the mean and standard deviation of concrete experience variable were 28.47 and 6.77; those of reflective observation variable were 32.28 and 6.51; those of abstract conceptualization variable were 33.11 and 6.21; those of active experimentation variable were 32.27 and 7.41; and finally those of self-efficacy variable were 57.33 and 11.02 respectively. Considering academic self-efficacy, the results showed that there was a significant difference among humanities and engineering students at the level of 0.01. In other words, the mean of academic self-efficacy among humanities students was 54.81 and it was 61.60 among engineering students which was indicative of the higher self-efficacy engineering students than that of humanities students. The rate of academic self-efficacy among male and female students was different. The self-efficacy mean for male students was 64.61 and the self-efficacy mean for female students was 57.22. This was indicative of the higher rate of self-efficacy for males than that for females. Therefore, the first and second hypotheses were confirmed.

TABLE II.

FINDINGS OF INDEPENDENT T-TEST FOR THE COMPARISON OF SELF-EFFICACY WITH REGARD TO THE FIELD OF STUDY STUDY AND GENDER					
fs	fd	T	Standard Deviation	Mean	
0/01	365	5/97	9/67	54/81	Humanity
			12/29	61/60	Engineering
0/01	365	0/16	13/46	64/41	Male
			10/14	57/22	Female

The results also showed that considering gender and field of study, there was a significant difference among the learning styles of students. Considering gender, male students had the assimilate learning style more, but female students had the divergent learning style more. Considering field of study, humanities students had the divergent and accommodate learning styles more, but engineering students had the convergent and assimilate learning styles more. Therefore, the third and fourth hypotheses were confirmed.

TABLE III.

CHI SQUARE TEST SHOWING THE DIFFERENCE IN THINKING STYLE WITH REGARD TO FIELD OF STUDY AND GENDER

Assimilate	Accommodate	Divergent	Convergent	Variable
78	52	47	65	Male
16	29	43	37	Female
94	81	92	102	Total
11	46	57	23	Humanity
71	33	47	79	Engineering
82	79	104	102	Total

Data analysis showed that there was a significant difference among the thinking styles of students considering gender and field of study. As per gender, male students had the judicial thinking style more, but female students had the executive thinking style more. As per field of study, humanities students had the executive thinking style more, but engineering students had the legislative thinking style more. Therefore, the fifth and sixth hypotheses were confirmed.

TABLE IV.

CHI SQUARE TEST SHOWING THE DIFFERENCE IN THINKING STYLE WITH REGARD TO FIELD OF STUDY AND GENDER

Executive	Judicial	Legislative	Variable
59	104	79	Male
57	36	32	Female
116	140	111	Total
62	38	37	Humanity
52	72	106	Engineering
114	110	143	Total

## V. DISCUSSION

As was seen before, considering academic self-efficacy there was a significant difference between humanities and engineering students. But the rate of academic self-efficacy among male and female students was the same. This finding is in line with the findings by Khaksar beldaji (2006), Chang (1991), Perjures and Miller (1999), and Gheibi, Arefi and Danesh (2012). Khaksar beldaji (2006) concluded that the students of physics and mathematics had the highest rate of self-efficacy. Also, the rate of self-efficacy in both genders increased with the increase of age, and males had a higher self-efficacy. Chang (1991) found that self-efficacy was different considering age and gender. He showed that males had a higher self-efficacy than females. Also, Perjures and Miller (1999) concluded that the rate of self-efficacy in males was higher than that in females. The perception of self-efficacy can affect selection, resistance, performance, and excitement. Gheibi, Arefi and Danesh (2012) found that the self-efficacy of engineering students was higher than that of humanities and natural sciences students. They also found that the self-efficacy of female students was higher than that of male students.

To create or increase self-efficacy, it is necessary for students to be familiar with the learning styles of every field of study and the relevant jobs to be successful academically and in their careers. Measures should be taken to match teaching methodologies with the specific learning style of each field of study for the suitable education and for students to be able to learn the principles of their specialized field of study and to use their knowledge in an applied way and to take themselves as self-efficient individuals. In fact, self-efficacy is a principle of human activities and self-efficient individuals are creative and self-regulating and have an effective force on their activities to create desirable consequences. As a whole, self-efficient individuals choose bigger aims for themselves and activities that are more challenging. Self-efficient individuals even with obstacles in their way have greater persistence. They are able to come to terms with failures and disappointments and continue their way better.

The results showed that there was a significant difference among the thinking styles of students considering gender and field of study. As per gender, male students had the judicial thinking style more, but female students had the executive thinking style more. As per field of study, humanities students had the executive thinking style more, but the engineering students had the legislative thinking style more. These findings were in line with the findings of Nazarifar

et al (2011), Denizli, and Cherki (2005). Nazarifar et al (2011) concluded that psychology and educational sciences students were higher in the executive thinking style, engineering students were higher in the legislative thinking style, and there was no difference among them in the judicial thinking style. Nazarifar et al (2011) found that there was a significant difference among engineering male and female students in executive and judicial thinking styles; females were higher in the executive, and males were higher in the judicial thinking style. Denizli and Cherki (2005) found that male students tended towards the judicial thinking style and female students tended towards the executive thinking style.

Today, researchers have considered thinking styles as one of the effective variables of behavior. Various studies have shown that thinking styles are related with creativity processes, problem-solving, decision-making, academic achievement, etc. They affect factors such as culture, gender, age, field of study, and record of service.

The results also showed that there was a significant difference among the learning styles of students considering gender and field of study. As per gender, male students had the assimilate learning style more, but female students had the divergent learning style more. As per field of study, humanities students had the divergent and accommodate learning styles more, but engineering students had the convergent and assimilate learning styles more. These findings were in line with the findings of Gheibi, Arefi and Danesh (2012), Khaksar beldaji (2006), Hodayuni, Kadivar and Abdollahi (2007), and Philbin et al (1995), but they were different from the findings of Kolb and Wolf (1981). Gheibi, Arefi and Danesh (2012) found that humanities students had the accommodate learning style, engineering students had the convergent learning style, and the natural sciences students had the assimilate learning style. Khaksar beldaji (2006) concluded that physics and mathematics students enjoyed the divergent learning style more, sciences students used the assimilate learning style more, and humanities students employed the accommodate learning style more. Hodayuni, Kadivar and Abdollahi (2007) concluded that students with the convergent and assimilate learning styles chose sciences and physics and mathematics fields of study more than the students with the divergent and accommodate learning styles. But students with the divergent and accommodate learning styles compared with students with convergent and assimilate learning styles chose humanities more. Philbin et al (1995) concluded that the learning style of humanities students was divergent, that of physics students was assimilate, and that of engineering students was convergent. But Kolb and Wolf (1981) found that the students of history, English, political sciences, psychology, economics and social sciences had mainly the assimilate learning style.

Generally, learning styles are considered to be an important part of students' characteristics. Thus teachers dealing with different learners should accept the fact that every student may do his assignment and learn using a specific learning style. Although, it is possible to teach more efficient approaches and learning styles to students, every learning style is a personal characteristic that may be the most suitable for the learner.

## VI. CONCLUSION

As was said before, in the contemporary world one of the essential issues is how to educate students in a way that their styles are compatible with today's complex and changing situation and the challenging conditions of the future. Every student has his own specific learning style. These styles affect our learning under specific conditions. Some students learn better via listening, while some other students learn better via reading. Students, who do not pay attention to the correct way of learning, lose their motivation for thinking, learning and achievement soon, since lack of familiarity with their learning styles and weaknesses can affect their spirit badly. Many students may drop out from school because of the lack of suitable self-awareness and specific learning styles. The belief that the present differences in the learning of individuals were due to differences in their IQs and capabilities has affected the world of education for so long. But this viewpoint has changed today, and it is completely clear that differences in individuals' learning are to some extent dependent on their intelligence and capability and factors like personality characteristics and the difficulty of assignment are effective as well.

In spite of great attempts for finding a specific method of teaching, investigators have found that it is not possible to consider a specific method as the best one. Every method has its own advantages and disadvantages and many factors should be taken into account for a good teaching. Making teaching styles compatible with the educational material and students' styles results in a better and more efficient teaching. Such insight has caused many investigators to commence the discussion on the emergent need for understanding various types of teaching styles in the classroom.

Generally, students have different preferences for the 'how' and 'where' of learning, and it is expected from teachers to consider these issues when teaching. Due to the importance of students' self-efficacy, it is suggested to teachers and university authorities to investigate the self-efficacy of students and to attempt to pave the way for the promotion of students' self-efficacy. Some measures should be taken to make the teachers' teaching styles compatible with the specific learning styles each field of study, to achieve desirable education and for students to be able to learn the principles of their specialized field, to use their knowledge in an applied way, and to consider themselves as effective individuals.

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