The Contributions of Students' Learning Styles, Thinking Styles and their Attitudes towards Studying their Specializations in the English Language to their Achievement at the College Level

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Abstract:

The objective of this study was to examine whether students` learning styles, thinking styles and their attitudes studying their special specializations in English can be used as predictors of their English achievement. Survey research methods were employed to obtain data (n=181 first year university-level students of the Special Education and Kindergarten Departments at Taif University) who received the English 101 course in their first year at the university. Biggs, Kember & Leung (2001) Learning Style Inventory (2F-SPQ-R) was used as the basis for assessing respondents' learning style preferences. The Sternberg and Wagner's (1992) Thinking Styles Inventory (TSI) was used to assess students` thinking styles. A questionnaire prepared by the researchers was used to collect data on the students` attitudes to study their specializations in English. Results were statistically analyzed using multiple regression, correlations, descriptive statistics, reliability, ANOVAS, and the *t*-test. The results of the correlation analysis revealed the absence of a relationship between thinking styles and surface learning styles. There was also a negative relationship between thinking styles and deep learning style $p<0.01$ ($r = 0.328$-0.428). The results of regression analysis indicated that students` academic achievement was not related to

students' thinking styles and learning styles. The findings also revealed that there was a positive relationship between achievement and attitudes. According to the Briggs, et al (2001) questionnaire, the results reported that students were equal in deep and surface approach scores.

Keywords: learning styles, thinking styles, students' attitudes, English achievement

اسهام كل من أساليب التعلم واساليب التفكير واتجاهات طالبات الجامعة نحو دراسة تخصصاتهن باللغة الإنجليزية وأثر ذلك على تحصيلهن فيها

هدف البحث الى بحث العلاقة بين أساليب التعلم و أساليب تفكير الطالبات واتجاهاتهن نحو دراسة تخصصاتهن باللغة الإنجليزية و أثر تلك المتغيرات على تحصيلهن فى اللغة الانجليزية وذلك لدى طالبات جامعة الطائف بالمملكة العربية السعودية. وتكونت عينة البحث من ١٨١ طالبة من طالبات كلية التربية وتتراوح أعمارهن من ١٨ -٢٤ . وتم تطبيق قائمة أساليب التفكير Sternberg and Wagner's (1992). وقائمة أساليب التعلم Biggs, Kember & Leung (2001)، واستبيان الاتجاهات من اعداد الباحثتان نحو دراسة موضوعات فى التخصص باللغة الانجليزية. وتم استخدام الاساليب الاحصائية وهى : تحليل الانحدار، وتحليل التباين ومعاملات الارتباط. وتم التوصل الى النتائج التالية:، لا توجد علاقة بين أساليب الفكير واساليب العلم السطحى. وجود سالبة بين أساليب التفكير وأساليب التعلم العميق. التحصيل الاكاديمى فى اللغة الانجليزية لا يرتبط باساليب تفكيرهم وأساليب تعلمهم. وجود علاقة ايجابية بين تحصيل الطالبات واتجاهاتهن نحو اللغة الإنجليزية.

الكلمات المفتاحية : أساليب التعلم، أساليب التفكير ، أتجاهات الطالبات, تحصيل اللغة الانجليزية

Introduction

- **Learning Styles:**

Learning styles has become a _buzz_ word in the field of ESL/EFL (DeCapua& Wintergerst, 2005). The concept of learning style has long been focused on education, and research related to learning styles has flourished in the past two decades. Over the last four decades the literature from both psychology and education has supported the suggestion that learners of all ages have different, yet consistent ways of responding in learning situations. These behaviors have been termed learning styles (Grasha, 1990). In literature there exist numerous learning styles and learning style models. The differences among definitions and models result from the fact that learning is achieved at different dimensions and that theorists define learning styles by focusing on different aspects (Yilmaz-Soylu & Akkoyunlu, 2009).Up till now, no single definition of the term learning style has been identified. For example, Felder (1996) defined learning styles as "characteristic strengths and preferences in the ways learners take in and process information". James and Gardner (1995) defined learning styles more precisely by saying that learning style is the "complex manner in which, and conditions under which, learners most efficiently and most effectively perceive, process, store, and recall what they are attempting to learn". Learning style is also defined as "the way in which each person begins to concentrate, process, internalize, and remember new and difficult academic content" (Denig, 2004). Learning style is defined as the manner in which students of all

ages are affected by sociological needs, immediate environment, physical characteristics, emotionality and psychological inclinations (Carbo, Dunn & Dunn, 1986). Learning styles, as defined by Guild (1994) are conceptual, behavioral, cognitive, and affective patterns that are displayed over time and task.

Styles refer to people's preferred ways of using the abilities that they have (Sternberg, 1997). The Dunns' (2001) research shows that not all students learn intuitively and that many need structure and supervision. Identifying students' learning styles helps educators understand how people perceive and process information in different ways. It can refer to pre-dispositions to adopt particular processes, which is what is meant when students are asked by questionnaire how they usually go about learning (Biggs, 1987). Students' learning styles are a major consideration in planning for effective and efficient learning (Childress, 2001). Becoming familiar with differences in style provides in depth communication and understanding of the interests and needs of a diverse school population. The acceptance of diversity of style creates an atmosphere that encourages a student to reach his or her full potential (Guild & Garger, 1985).Gregoric (1979) asserts that one's learning style is made up of distinct behaviors that serve as indicators of how one learns and adapts to the environment. He continues to note, "It gives us a clue as to how a person's mind operates" (p.234).

- **Biggs` Deep, Surface and Achieving Learning Approach**

This study utilized the Biggs, Kember, & Leung learning styles (2001), because there are positive relationships between Biggs` learning styles and Sternberg`s thinking styles (Zhang & Sternberg, 2000). Biggs proposed three learning approaches: surface, which involves a reproduction of what is taught to meet the minimum requirements; deep, which involves a real understanding of what is learned; and achieving, which involves using a strategy that will maximize one's grades. Each approach is composed of two elements: motive and strategy. Motive describes why students learn, while strategy describes how students go about their learning. Learners applying a deep learning approach are intrinsically motivated and have the ability to understand the ideas for themselves. They learn by relating ideas to previous knowledge and experiences, looking for patterns and underlying principles, and checking evidence and relating it to conclusions. They examine logic and arguments cautiously and critically, develop an understanding of the topic, and become actively interested in the course content. With surface learning, students aim to satisfy the course requirement (e.g. pass the examination by concentrating on the surface features of the learning task). With deep learning, students try to understand the underlying meaning of the content, for self-development or for the sake of understanding. With achieving learning, students try to attain the highest grade possible. Each

approach can be measured by two factors: motive and strategy (Biggs, 1987).

Whereas deep and surface strategies describe the way students engage the task itself, the achieving strategy refers to how the student organizes, when and where the task will be engaged, and for how long. Higher order factor analyses usually associate the achieving motive and strategy with the deep approach (Biggs, Kember & Leung, 2001). There is a third form, known as the "Achieving" or strategic approach, which can be summarized as a very well-organized form of surface approach, and in which the motivation is to get good marks (Atherton, 2009). Amongst researchers there is common agreement that deep learning approaches represent higher-order thinking and processing and are hence more desirable in an academic context than surface learning approaches (Roemcke, Day & Patel, 1998). Although learners may be classified as "deep" or "surface", one person may use both approaches at different times, although she or he may have a preference for one or the other. They correlate fairly closely with motivation: "deep" with intrinsic motivation and "surface" with extrinsic, but they are not necessarily the same thing. Either approach can be adopted by a person with either motivation (Atherton, 2009).

In the last 30 or 40 years, a number of educators have proposed that teaching would be more effective if faculty members took account of differences in students' learning styles (Kemp, Morrison, Ross, 1998; McKeachie, 1995).

Research indicates that a better understanding of learning styles can be beneficial to both teachers and students (Rassool and Rawaf, 2008; Zhang and Lambert, 2008; Li,Chen,Yang and Liu,2010). Results of Ismail, Hussain, and Jamaluddin (2010) show that the students prefer different learning styles: Visual/Verbal, Audio/Verbal, Visual/Non Verbal and Tactile/ Kinesthetic.

- **Learning styles and achievement:**

Learning style theory asserts that students become successful academically in learning environments that match their own learning style (Kolb, 1984). Dunne & Dunne (1978) make the claim that not only can students identify their preferred learning styles, but that students also score higher on tests, have better attitudes, and are more efficient if they are taught in ways to which they can more easily relate. Therefore, it is to the educator's advantage to teach and test students in their preferred styles. While (Scott, 2010) affirmed that research conducted over the last 40 years has failed to show that individual attributes can be used to guide effective teaching practice, many scholars have concluded that learning styles affect student learning (Cano, 1999; Dyer, & Osborne, 1996; Garton, Spain, Lamberson, & Spiers, 1999). These studies found significant relationships between multiple learning styles and student achievement (e.g. Vigentini, 2009; Abidin, Rezaee, Abdullah, and Singh, 2011).

The findings of Oskay, Erdem, Akkoyunlu, & Yilmaz, (2010) have suggested that being aware of students' learning styles and preferences when designing classroom

practices has implications for students achievement and quality of instruction. Results of a comprehensive literature review and many studies show that relationships between achievement and learning styles exist (e.g. MacMurren, 1985; Mainemelis, Boyatzis, & Kolb, 2002; Kvan & Jia, 2005; Demirbas & Demirkan, 2007). Moreover, these relationships can provide additional contributions for the detection process of learning styles. Additionally, Rassool and Rawaf (2008) conclude learning styles preference will determine knowledge acquisition. Knowing students` learning styles can improve their academic achievements (Dağ & Geçer, 2009). Diaz & Cartnal (1999) asserted that knowledge of student learning preferences can aid faculty in class preparation, designing class delivery methods, choosing appropriate technologies, and developing sensitivity to differing student learning preferences. Inappropriate teaching strategies can present some genuine learning difficulties for students (Lashley & Barron, 2006). The study of Naimie, Siraj, Piaw, Shagholi & Abuzaid, (2009) revealed that matching teaching and learning styles in EFL classes can help improve students' achievement.

- **Learning styles and attitudes:**

Attitudes towards studying ESE (English for Special Education) and EKS (English for Kindergarten studies) courses refer to undergraduates` emotional, informational and behavioral responses towards their experience in learning these courses. The emotional dimension includes feelings about the ESE and EK courses, positive, neutral or negative. The

informational component consists of beliefs and information the subjects have about these courses. The behavioral component includes the subjects` tendencies to behave in a particular way towards the courses (Luthans, 1989). Based on the literature review, student learning styles and attitudes seem to be associated with achievement. For example, in the study on predicting student success with the learning and study strategies Inventory (LASSI), Hendrickson (1997) & Sam and Ling (2000) found that attitudes were the best predictors of student grade point average. Moreover, Torkar, Mohar, Gregorc, Nekrep, & Adamic (2010) concluded that there was positive relationship between factual knowledge and attitudes. However the study of Lynch, Steele, Palensky, Lacy and Duffy (2001) revealed that there was no correlation between students' learning preferences and attitudes.

- **Thinking styles:**

Thinking is an important part of the learning process. By understanding the diversity of thinking styles our students possess, we are able to insure that students understand what we are teaching even if they have very different styles from our own. We can do this by incorporating elements and activities that reach all learning styles. Sternberg's theory of thinking styles—the theory of mental self-government— was first published in 1988. Using the word "government" metaphorically, Sternberg (1997) proposed that just as there are many ways of governing a society, there are many ways of using the abilities that we have. These different ways of using abilities can be construed as our thinking styles. In using our abilities, we choose styles with which we feel comfortable.

Moreover, people use different thinking styles on the basis of the stylistic demands of a given situation. Many characteristics of thinking styles have been delineated by Sternberg (1997), among which the modifiability of thinking styles is one of the most important. Sternberg contended that thinking styles are at least partially socialized, indicating that they can be cultivated and modified. The theory describes 13 thinking styles that fall along five dimensions of mental self-government: (a) functions (including the legislative, executive, and judicial styles), (b) forms (including the hierarchical, oligarchic, monarchic, and anarchic styles), (c) levels (including the global and local styles), (d) scopes (including the internal and external styles), and (e) leanings (including the liberal and conservative styles) (Sternberg, 1997).

The theory of mental self-government has been operationalized through a number of instruments, including the most frequently used Thinking Styles Inventory (Sternberg & Wagner, 1992). The internal validity of the theory has been demonstrated in many studies (e.g., Bemardo, Zhang, & Callueng, 2002). Biggs & Telfer (1987) have demonstrated that knowledge about student's thinking styles is helpful for educators and curriculum designers interested in designing effective and workable teaching strategies that satisfy student needs. This is essential to the aim of the teaching-learning process, which is for students to receive meaningful knowledge that can be used in new learning situations and retained longer in the mind. The findings of Zhang (2004a;

2004b), Fan & Zhang (2009) indicated that the use of the hierarchical thinking style significantly contributed to better achievement in the social sciences and humanities and that the use of the judicial style uniquely contributed to better achievement in the natural sciences. The use of the monarchic thinking style significantly predicted students' achievement in design and technology. The results of this study suggest that thinking styles should be taken into account in school settings and those thinking styles that generate creativity should be cultivated in students.

- **The relationship between thinking styles and learning styles**

The tendency of recent theories in styles is to integrate learning styles into thinking styles (Sternberg, 1997). According to El-Dardir (2003) there is a significant relationship between Sternberg`s thinking styles and Biggs` learning styles (executive, local, conservative, royal and internal thinking styles) and surface learning style, whereas there are positive relationships between thinking styles (global, hierarchical, Oligarchic, external) and deep learning style. Abu Hashem and Kamal (2007) also mentioned that there are positive correlations between some learning styles and some thinking styles. Moreover, Zehang & Sternberg (2000) stated that there are positive relationships between thinking styles (executive, conservative, royal and local) and surface learning styles (surface strategy and surface motivation).

Thinking styles and achievement

Zhang (2004b) stated that there is a need for further research on the relationships between thinking styles and academic achievement. That majority of the studies used average achievement scores rather than achievement scores in specific subject areas. However, given that thinking styles are at least partially socialized, success in achieving high scores for one subject (e.g., mathematics) could be different from that for another subject (e.g., history). Therefore, in the present study the researchers used students' academic scores in specific subjects (English).

Many studies e.g., Zhang (2001), (2002), (2005); Fan & Zhang (2009), concluded that there is a relationship between achievement and a number of thinking styles. e.g. Zhang and Sternberg (1998) concluded that there was a positive correlation between conservative, hierarchal and internal thinking styles and achievement, while Zhang (2002) found that there was a positive correlation between conservative thinking style and achievement, whereas Bernardo, Zhang & Callueng, (2002) concluded that there was a positive correlation between executive, judicial, conservative, hierarchal, anarchical, internal, thinking style and achievement. Thinking styles are good predictors of achievement (e.g. Abu Hashem & Kamal, 2007; Zhang, 2007; Zhang & Fan, 2007; Zhang, 2010). However, other studies e.g., Shelaby (2002) found that there was a negative correlation between judicial thinking styles and achievement.

Agwa (1998) also concluded that there were no significant correlations between thinking styles (executive, conservative, royal and local) and university students` achievement.

- **Problem of the study:**

Although learning styles are considered as an important factor in education, students often have to learn in courses that do not support their learning styles, (KinshukLiu & Graf, 2009). Muasher (2008) has demonstrated that education quality in the Middle East and other Third World countries lags behind the accelerated economic needs and that the education systems are less effective in developing analytical, problem solving, and critical thinking skills in both male and female students. Similarly, Rotkowiski (2008) has emphasized that it is time to change the curricula and accelerate the process of putting the educational reforms into practice. However, in Saudi Arabia as happened in most of the Arab countries, as we noticed that there is a gap between educational outcomes and market requirements as well as a need for education systems to focus on quality rather than quantity of education. Montgomery and Groat (1998) explain why we need a variety of learning styles in our teaching: (1) to make teaching and learning as a dialogue; to create a kind of interactive and cooperative climate in the classroom, (2) to respond to more diverse students not only in gender, age, nationality and cultural background, (3) help us to communicate our message to our students more easily across the range of student learning, (4) making teaching more rewarding, (5) ensuring the future of our disciplines; if we make sure that students with a diversity of learning styles are

welcomed and encouraged. Two problems bother many college students and hinder their learning: (1) lack of knowledge about appropriate learning approaches, and (2) lack of knowledge about the relationship between learning styles and thinking styles.

An issue of criticism deals with the contradiction between different scholars in both Western societies and in the Arab world, more research is needed to verify the relationships between the variables of the study of thinking styles, learning styles, attitudes and achievement. Namely, many researchers (e.g. Griqorenko & Strenberg, 1997; Agwa, 1998; Busato, Prins, Elshout,, and Christiaan, 2000) found that a number of thinking styles related to achievement while others not. Moreover, thinking styles are different according to specialization or major, as Shelabi stated in her study (2002). Additionally, the researchers did not find any studies that dealt with these specializations (English for Special Education and Kindergarten). Considering learning styles, investigations are motivated by educational and psychological theories, which argue that learners have different ways in which they prefer to learn.

Another issue of criticism deals with the implications of learning styles in education that inconsistent results are obtained by studies dealing with investigating the effects of learning styles on achievement. Many of these studies found that no significant relationships could be found between learning styles and achievement (e.g. Salem, 1988; Sins,

Joolingen, Savelsbergh & Bernadette, 2008; Cutolo & Rochford, 2007). Others concluded that there was a negative correlation between surface learning styles and achievement (e.g. Ramadan & Shahat, 2001). While other studies suggested that students' perceptions of the learning styles are a stronger predictor of their academic achievement (e.g. Karagiannopoulou & Christodoulides, 2005). Moreover, research on the relationship between English achievement and learning styles and thinking styles has received a great impetus in the Western World. Unfortunately this area of enquiry has not received much work in Arabic countries, especially with English achievement.

A number of research issues could be addressed, as follows:

1. There are no differences between the two groups (special education –kindergarten) in their learning styles, thinking styles and attitudes towards studying in English.
2. There are significant positive correlations between Biggs` learning styles (surface motive and strategy, deep motive and strategy) and Sternberg`s thinking styles (Legislative, Legislative, Judicial, Global, Local, Liberal, Conservative, Hierarchical, Monarchic, Oligarchic, Anarchic, Internal and External).
3. English achievement can be predicted through learning styles, thinking styles and attitudes towards study in English.

2. Method

2.1 Participants

The population for this study included 181 students taking two non-major English introductory courses, English 101 offered by the English Language Center at Taif University. The undergraduates were administered the Biggs, et al. (2001), Learning Styles Inventory, Thinking Styles Inventory of Sternberg & Wagner, (1992) and an Attitudes Questionnaire after completing the courses term in January 2010. The participants' ages ranged from 18 to 24 years. (Mean age = 18.96 years; SD = 0.832). The students were enrolled in various undergraduate programs: 82 were enrolled in Special Education, and 99 were enrolled in Kindergarten.

2.2. Measures

- **Thinking Styles Inventory**

The Sternberg and Wagner's (1992) Thinking Styles Inventory (TSI) is based on the theory of mental self-government. Consisting of 65 statements, the inventory assesses the 13 thinking styles delineated in the theory, with each 5 statements contributing to the assessment of one of the thinking styles. For each statement, the participants rated themselves on a 7-point Likert-type scale, with 1 indicating that the statement does not at all represent their way of thinking.

- **Learning styles Inventory**

The Revised Two–Factor Study Process Questionnaire (R-SPQ-2F of Biggs, Kember, & Leung, (2001) Learning Styles Inventory consists of 20 items. It categorizes students into two different types of learning style approaches termed Deep Approach and Surface Approach, each containing two subscales, Motive and Strategy. The Deep Approach subscale assesses to what extent the student is motivated by intrinsic factors. The Deep Motive scale assesses how much the student is motivated by curiosity, whereas the Deep Strategy scale assesses how much effort the student is willing to put into gaining a satisfying understanding of the material. The participants rated themselves on a 5-point Likert-type scale, with 1 indicating that the statement does not at all represent the way they learn.

- **Attitudes Questionnaire**

A questionnaire prepared by the researchers was used to collect data on the students` attitudes toward studying English subjects in their specialization. It consists of 31 items to assess the students` attitudes toward studying subjects and expressions in their specializations in English. The Cronbach Alpha reliability of Attitudes Questionnaire was 0.83 on a pilot study involving 38 subjects selected randomly from first year Home-economic students. For the achievement, the researchers used final term scores.

- **Reliability and validity for learning styles inventory, thinking styles questionnaire and attitudes questionnaire**

Content validity was ranged from 0.36-0.70, 0.36-0.60 and 0.36-0.75 for the thinking styles questionnaire, learning styles inventory and attitudes questionnaire, respectively. And face validity for the questionnaires were established by a panel of three faculty members associated with the English Language Center and three graduate students in the Faculty of Education. The scales were pilot-tested for reliability with 32 students taking a different undergraduate English course, Home-economics 101. Cronbach's alpha coefficients were 0.94, 0.75 and 0.89 for the Thinking Styles Questionnaire, Learning Styles Inventory and Attitudes Questionnaire, respectively.

Results:

- **Data Analysis:**

In addition to the descriptive statistics such as frequencies, means, standard deviations, *t*-tests, Pearson correlations and one-way ANOVA, to identify the variables that predict university English achievement of the Special Education and Kindergarten Department students, separate stepwise regression analyses were performed. This method helps to find the smallest possible set of predictor variables included in the regression model. Therefore, stepwise regression provides only the highest contributing variables as predictors.

Table 1, Descriptive statistics for the variables of the study

Std. Deviation	Mean	N	
10.6184	75.5138	181	Achievement
6.2155	30.2707	181	Surface total
6.7036	30.8508	181	Deep total
38.5150	331.1050	181	Thinking styles
9.6053	66.9337	181	Attitudes

Table 2, Independent Samples t-test for the two groups of the study

Sig.	df		S.d	Mean	N	Specialization	
.823	179	.439	38.3786	332.4878	82	Special Education	Thinking styles
.823	179	.439	38.7851	329.9596	99	Kindergarten	
.631	179	-.692	9.6376	66.3902	82	Special Education	Attitudes
.631	179	-.692	9.6041	67.3838	99	Kindergarten	
.726	179	-.077	6.1046	30.2317	82	Special Education	Surface total
.726	179	-.077	6.3366	30.3030	99	Kindergarten	
026	179	.294	5.8278	31.0122	82	Special Education	Deep total
026	179	.294	7.3776	30.7172	99	Kindergarten	
.001	179	4.267	8.1588	79.0488	82	Special Education	Achievement
.001	179	4.403	11.5308	72.5859	99	Kindergarten	

Table (2) shows that students are equal in the deep and surface approach scores. For special education students` surface approach and deep approach are (M=30.232, t= -.077, df =81, p < 0. 726 and M=31.012, t= -.786, df =81, p < 0.431) respectively. For kindergarten students, surface approach and

deep approach are (M =30.303, and M =30.717, t= -.415, df =98, p < 0.679) respectively. This result agrees with the results of Lu, et al. (2003) that suggest that, at the graduate level, students are able to learn equally well despite their different learning styles. But it is inconsistent with the findings of Svirko & Mellanby (2008) that conclude that the students reported using significantly less deep approach to learning.

For the comparison between the two groups t-test for independent samples showed that there are no differences for both in surface total (M=30.231, 30.303, Sd =6.104, 6.336, t= -.077, -.077, df=179, p < 0.939) for special education and kindergarten students respectively. For deep motive (M=15.523, 14.784, Sd =3.303, 3.847, t=1.366, 1.385. df=179, p < 0.174). For deep strategy (M= 15.483, 15.923, Sd= 3.512, 4.261, t=-749, -763, df=179, 0.455, 0.446). And for deep total (M=31.012, 30.717. Sd=5.827, 7.377,t=0.294,.300, df=179, p < 0.764) for special education and kindergarten students respectively. But there are differences between them in surface motive (M= 15.024, 16.818, Sd= 3.983, 3.786, t= -309, -308, df=179, p < 0.002) and surface strategy (M= 15.207, 13.484, Sd=4.087, 3.417, t=3.088, 3.037, df=179, , p < 0.002, , p < 0.003) for special education and kindergarten students respectively; where special education students are higher in surface strategy while kindergarten students are higher in surface motive. These findings might be explained by similar cultural background, such as upbringing and university teaching methods, of both students and teachers.As shown

from the above table there is no differences between the two groups in thinking styles and their attitudes. While there are differences between them in the English achievement; Special Education students had higher scores than Kindergarten students. This can partially be explained because Special Education students were admitted to the university with the highest Secondary School GPA's of any students of all departments in the university.

Table (3) Pearson correlations between Learning styles, thinking styles and attitudes (n=181).

Deep total	Surface total	Thinking styles	Attitudes	Achievement	
				1	Achievement
			1	0.261**	Attitudes
		1	0.281**	- 0.043	Thinking styles
	1	0.072	0.194**	0.022	Surface total
1	-.078	-.424**	-.261**	0.036	Deep total

Notes: ** p< .01 (significant at 0.01 level)

Table (3) indicates that there is no relationship between thinking styles and surface learning style. Whereas there is a negative relationship between thinking styles and deep learning style p< 0.01 (r = 0.328-0.428). This result is inconsistent with the results of Zhang & Sternberg (2000) and El-Dardir (2003) that conclude that there is a positive relationship between Sternberg`s thinking styles and Biggs` learning styles. But for thinking styles dimensions there are negative relationships between a number of thinking styles (legislative, executive, judicial, global, local, conservation, hierarchic, monarchic, oligarchic, internal, external thinking

styles) and deep learning style. A possible explanation for this phenomenon is that teaching methods and curricula of the university; students in the sample for this research depend on lecturing and memorizing information, with no chance of interaction from the students. Because of that, students do not learn to think independently, create, or plan things on their own. This result agrees with what (Gatfield and Gatfield, 1994) suggest that Asian students are relentless rote learners, surface learners, syllabus dependent, passive and lacking in initiative, not expressive of opinions, and lacking in independence. Or maybe to the culture of the students, culture being said to play a strong, possibly dominant, role in determining how an individual will prefer to learn (Dreyer, 1998).

While in the present study there are positive correlations between liberal, anarchic thinking styles and surface strategy and surface total learning styles, this result doesn't agree with the results of Cano-Garcia & Hughes (2000) and El-Dardir (2003) that conclude that there are positive correlations between (executive, local, conservative, monarchic and internal thinking styles and surface learning styles. As seen in the table, that there is no relationship between achievement and thinking styles. A possible explanation for this might be that thinking for the students in this sample is kept to a minimum while all that is required of them academically is memorization; namely memorization is a low level of thinking. Achievement because of external

factors. This result is consistent with the results of Rudd, Baker & Hoover (2000), additionally, the analysis of Fan & Zhang (2010) indicated that the capacity of thinking styles for explaining and predicting academic achievement was sometimes over.

However, it is inconsistent with the results of Agwa (1998), Zhang (2000), Shelabi (2002), Bernardo & et al. (2002) and Alumran (2008) find that there is a positive relationship between achievement and with a number of thinking styles. For the relationship between achievement and learning styles, table (3) indicates that there is no relationship between achievement and learning styles (surface total and deep total). This finding is consistent with many of the previous studies results that concluded that there is no relationship between learning styles and students' achievement (e.g. Liu and Reed, 1994; Day, Raven, and Newman 1997; Lu, Yu & Liu, 2003; Miller, 2005; Deryakulu, Büyüköztürk and Özçınar, 2009; Yilmaz-Soylu and Akkoyunlu, 2009). Moreover, there is a positive relationship between achievement and attitudes. This might be because positive attitudes towards study help to increase the achievement. This result is consistent with the result of Van den Bergh, Denessen, Hornstra, Voeten, & Holland (2010), Cokada & Yilmaz, (2010). While this result is inconsistent with the result of Fawson, Reutzel, Read, Smith, & More (2009) that document that there is no relationship between students` attitudes and their achievement.

To predict the students` achievement scores through attitudes, thinking styles and learning styles, stepwise

regression analyses were performed to form the model of the relationship between attitudes, thinking styles, learning styles and English achievement.

Model summary:

Table 4, the partial correlation of attitudes, thinking styles and learning styles

R^2changes	Std. Error	Adjusted R^2	R^2	R	Model
0.088	10.2561	0. 067	0.088	0. .296	1

Predictors:(Constant), Deep total, Surface total, Attitude Thinking.

The results of the Linear Multiple Regression in Table 4 show that $R^2 = 0.088$, $F(3,144) = .450$, $p > .05$), indicating that the model explained 8%. of the variance in the students achievement, and that the only predictor of student achievement was attitudes ($B=0.346$, $\beta = 0.313$, $t=4.048$ $p>.001$).

Table 5, Multiple Regression Analysis (English achievement vs. Attitudes, Thinking styles, and learning styles).

Sig.	t	Standardized Coefficients	Unstandardized Coefficients		Model
		β	Std. Error	B	
0.000	5.306		11.114	58.968	Constant
0.000	4.048	0.313	0.085	0.346	Attitude
0.232	-1.199	-.097	0.022	-.0268	Thinking

Sig.	*t*	Standardized Coefficients	Unstandardized Coefficients		Model
		β	Std. Error	*B*	
					styles
.721	-.358	-.026	0.125	-.0449	Surface total
0.356	0.925	0.075	.128	.118	Deep total

Table 5, shows that attitude is the only predictor of achievement.

Discussion :

This study examined the contributions of learning styles, thinking styles and attitudes towards studying their special specializations in English as predictors of Saudi students' English achievement. With respect to the first research hypothesis results showed that the Special Education students' scores on the Biggs et al. (2001) questionnaire were equal in their deep and surface approach as compared to Kindergarten students. Though there were no differences between the two groups, a deep approach is desirable in university learning. Hence, the educational implication would be that Saudi University students should be encouraged to use deep approach more through designing curricula depending on this approach. Moreover, this suggests that both the ESE and EK courses need further refining to elicit a deeper approach or at least that it may be important to ensure that the course is introduced in such a way that this is achieved. This result is inconsistent with the results of Callan (1996) who noticed that students in the same classroom have differing learning styles.

With respect to the second hypothesis that examined correlational relationships between Biggs` learning styles (surface motive and strategy, deep motive and strategy) and Sternberg`s thinking styles (Legislative, Legislative, Judicial, Global, Local, Liberal, Conservative, Hierarchical, Monarchic, Oligarchic, Anarchic, Internal and External), the results indicated that there is no relationship between thinking styles and surface learning styles. There is a negative relationship between thinking styles and deep learning style $p< 0.01$ ($r = 0.328$-0.428). This finding is inconsistent with many other studies' findings that attempted to determine the relationship between learning styles and thinking styles (e.g. Cano-Garcia & Hughes, 2000; El-Dardir, 2003; Zhang, Fan, & Watkins, 2010; Abidin, Rezaee, Abdullah, and Singh, 2011; Sharif & Mustafa, 2011).

The third research hypothesis addressed the statistically significant predictors of university students' academic achievement. Findings of this study showed that thinking styles and learning styles were not good predictors of students' academic achievement. Similarly, Fox & Bartholomae (1999) conclude that student learning style was not a strong predictor of success. The results of (Akkoyunlu & Soylu, 2008) showed no significant differences between students' achievement level according to their learning styles. However attitude was the only significant factor in students` learning. This requires educational policymakers and educators to design curricula and textbooks that respond to different

learning styles. Herrmann (1989) has argued that thinking patterns should be developed so that learners utilize more than one thinking style. Other possible reasons for the results include teachers' indifference toward individual differences among students; the prevalence of lecturing, dialogue, and direct discussions as teaching methods in the classroom.

It seems that for Saudi college students, achievement and thinking styles are negatively correlated. Moreover, in the present study the liberal, anarchic thinking styles were positively correlated with achievement. Zhang and Sternberg's (1998) study involving Hong Kong students of a wider range of abilities yielded results that were more inconsistent with those of the present study. The thinking styles that Zhang and Sternberg found to be positively associated with academic achievement were "the ones that require conformity (e.g., conservative), orientation toward a sense of order (e.g., hierarchic) and preference for working independently (e.g., internal)". These same thinking styles were found to be correlated with academic achievement in a comparable Philippine sample. The significant correlations with the executive and judicial styles were consistent with the findings of the Hong Kong study, although the correlation between academic achievement and the anarchic style seems contradictory.

Conclusion:

The goal of this study is to investigate the preferred learning styles of Saudi students and the relationships between Biggs` learning styles (surface, motive and strategy, deep motive and strategy) and Sternberg`s thinking styles

(Legislative, Legislative, Judicial, Global, Local, Liberal, Conservative, Hierarchical, Monarchic, Oligarchic, Anarchic, Internal and External). The study further attempted to examine the contributions of learning styles, thinking styles and attitudes as predictors of students' achievement. The researchers adopted Biggs, et al., (2001) model of learning styles as a theoretical framework. The most obvious conclusion made from this study is that there are fewer differences between the two student groups than might have been previously thought, given the differences in cultural beliefs and educational history.

However, it is important to note that in spite of the findings that have been achieved in this paper, further researches are needed to clarify the contradiction contributions for learning styles and thinking styles in the students' achievement. Furthermore, other factors such as classroom climate, previous background, motivation, gender and other multicultural issues will of course greatly influence the amount and quality of learning that takes place (McKeachie, 1995).

Recommendations:

Educators should be aware of students` different learning styles and their attitudes towards learning so that they can stimulate student motivation and get students actively involved in the learning process. Educators should vary their teaching styles to meet students` learning styles. In essence, instructors should encourage students to become active learners by providing opportunities for students to reflect on

their learning styles and use of thinking styles. This will help assure student success and class achievement. The implications of these findings are for educational psychologists, which include assessment of learning styles and thinking styles and the need to encourage thinking as an important part of the learning process. Teachers remain more ambivalent, with some seeing learning styles as a potentially valuable tool in learner-centering: others question the validity of the construct, and the utility of instruments measuring it. Further investigation is clearly needed (Young, 2010).

Learning styles can be considered in different ways in education. A first step is to make learners aware of their learning styles and show them their individual strengths and weaknesses. The knowledge about their learning styles helps them to understand why learning is sometimes difficult for them and is the basis for strengthening their weaknesses. The results of this study indicate that more research is needed in the area of learning styles and thinking styles and their relation to achievement.

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