Learning Styles And Academic Achievement: A Case Of UiTM Students

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ABSTRACT

It is important to note that individual differences affect different academic achievements. Besides being different in abilities, students have specific learning styles that may influence academic achievements (J. Alireza, 2011). Each individual has his own learning style preferences based on his personality and ability. This study aims to identify the types of learning styles among university students. It also aims to identify the different types of learning styles based on gender and variety field of study. In addition, this study also aims to determine the relationship between student learning styles and their academic achievement and to look into their academic achievement based on students' CGPA.

A total of 266 final semester students from Faculty of Business Management, Faculty of Accountancy, and Faculty of Computer and Mathematical Sciences of Universiti Teknologi MARA (Perak) and Universiti Teknologi MARA Kedah, were randomly selected as sample of this study. The result of analyses of variance show that there is a statistically significant difference in the academic achievement of these students that correspond to the four learning styles. It was found and concluded that converging learning styles scored the highest percentage among the respondents towards their academic performance. There is a strong relationship between student learning style and academic performance. The result showed there was a significant difference between gender and academic performance.

Key Words: Learning Styles, Academic Achievement, Field of Study, Gender

INTRODUCTION

A student's learning style preference refers to the way they respond to stimuli in a learning context, and to their characteristics way of acquiring and using information (Yeung, Read and Schmid, 2005) and students in any course will place a variety of different interpretations onto their lessons (Bailey and Garratt, 2002). Reid (1995) refers learning styles as an individual's natural, habitual and preferred way of absorbing, processing and retaining new information and skills. According to Keefe and Ferrell (1990), learning problems are frequently not related to the difficulty of the subject matter but rather to the type of learning and Chuah Chong-Cheng (1988) discusses the importance of learning styles as being not only necessary, but also important where most students favour to learn in particular ways with each style of learning contributing to the success in retaining what they learnt. In addition, Dun (1983) found that dramatic improvement in students' achievement in cases where learning styles have been taken into account. There have been many efforts in identifying the problem of low academic performance and some factors have been identified in explaining academic achievement. Among the numerous variables researched include intelligence (Deary, Strand, Smith and Fernandes, 2007), attitudes (Erdogan, Bayram, and Deniz, 2008), behavioral characteristics (Ergul, 2004; Lane, Barton-Arwoo, Nelsonz and Wehby, 2008), self esteem (Bankston and Zhou, 2002). A compatible learnng style with a strong teaching style of a program instructor will enable the students to retain information much longer than their counterparts who experience mismatch learning and teaching styles (Fedler, 1993). In other words, understanding learning style will help increase learning benefits expcially for low and moderate achievent students (Zin, Zaman Noah, 2002). This is at least help to be the first step in ensuring students' achievement. It is believed that when teachers are able to analyze the differences and needs of their students, the educational process is likely to become optimized for both students and teachers (Fairhurst & Fairhurst, 1995). Learners' styles were found to affect learners' learning behaviors and different learning style preferences would behave differently in the way they perceive interact and respond to the learning environment (Junko, 1988) and therefore it is important for teachers to examine the variations in their students on the features of their learning styles (Felder & Spurlin, 2005). This study, therefore, aimed at depicting the different type of learning styles, the relationship of learners' learning styles preference and the overall academic peformance of three faculties of UiTM as the information about learner's preference can help teachers become more sensitive to the differences students bring to the classroom.

LEARNING STYLE AND ITS LITERATURE

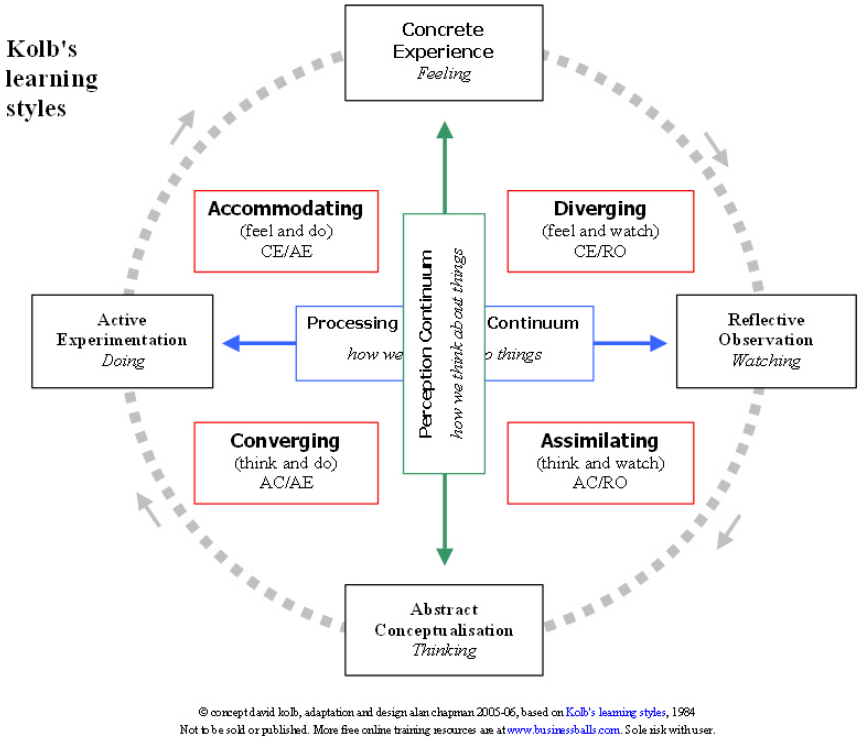
Kolb (1984) and Honey and Mumford (1992) describe learning style as an individual preferred or habitual ways of processing and transforming knowledge. According to Kolb (1984), psychological attributes, resulted from individual differences, determine the particular strategies a person chooses while learning. Grasha (1990) defined it as "the preferences student has for thinking, relating to others, and particular types of classroom environments and experiences" where Cornett (1983) sees it as "a consistent pattern of behavior but with a certain range of individual variability," where students learn differently and thus different learning styles exist (Entwistle, 1981; Honey and Mumford, 1992; Kolb, 1976; Schmeck, 1988). Learning style has been defined by various researchers mostly as an indication for individual differences. These differences may noticeable itself in 'life styles' and even in personality types (Zhang & Sternberg, 2005). Honey and Mumford (1992) stated that learning exists when someone can do something that he could not do previously. Among the various learning style theories, Kolb's (1984) ELT that defines learning as "the process whereby knowledge is created through the transformation of experience. Different individual uses different learning style and the effectiveness of the learning style also varies among individuals.

Stemberg (1997) stated and proposed that styles are at least in part socialized, suggesting that they can, to some extent, be modified. Hence, by being aware of learning styles of his students with their academic achievement, educators and teachers may get huge advantages in managing them.

TYPES OF LEARNING STYLES

Learning Style Inventory (LSI) by Kolb (1976) as cited by Zanich (1991) states that an effective learner relies on four different learning modes, e.g. concrete experience, reflective observation, abstract conceptualization and active experimentation, and later, Kolb (1976) further classifies learning style into four types, i.e. accommodator, diverger, assimilator and converger. Accommodator combines concrete experience and active experimentation, using the results of their testing as a basis for new learning. Diverger combines concrete experience and reflective observation and considers specific experience from different perspectives. The person is imaginative, interested in people and good at generating ideas. Assimilator combines reflective observation and abstract conceptualization and excels in the development of theoretical frameworks. Finally, the Converger combines abstract conceptualization and active experimentation in order to test the theory in practice.

Figure 1: Diagrams of Kolb's Learning Styles



ACCOMMODATING

Accommodating learners perceive through concrete experience (CE) and process by active experimentation (AE) where accommodating learners are most interested in doing things. They grasp their environment concretely through their feelings and utilize action to transform information (Hsu, 1999). They are risk takers and they enjoy finding out new experiences. They also solve problems using a trial-and-error method instead of using their analytical abilities. In addition, they prefer to work with others to do assignments, to set goals, to do field work and to test various approaches for design alternatives (Kolb & Kolb, 2005).

DIVERGING

Diverging learners perceive through concrete experience (CE) and process by reflective observation (RO). These learners are imaginative and emotional (Smith & Kolb, 1996) where they have the ability to synthesize and/or assimilate various observations for new idea generation (Hsu, 1999). They are less concerned with theorems and generalizations. Their approach to problem solving is not systematic, but is more creative in comparison to the other learning styles. These learners when working in-groups listen to the suggestions of others and accept critiques from them (Kolb & Kolb, 2005).

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ASSIMILATING

Assimilating learners perceive through active conceptualization (AC) and process by reflective observation (RO) where they experience their world symbolically and transform information through (Demirbas & Demirkan, 2003). They are more concerned with abstract concepts rather than practical applications; prefer readings, lectures and exploring analytical models (Kolb & Kolb, 2005).

CONVERGING

Converging learners perceive through active conceptualization (AC) and process by active experimentation (AE), bring logical, pragmatic and unemotional perspective to the problem solving process (Hsu, 1999). Their knowledge is organized and they do hypothetical-deductive reasoning while focusing on a specific problem (Smith & Kolb, 1996). They are unemotional and prefer to focus on things rather than people (Smith & Kolb, 1996).

ACADEMIC PERFORMANCE

Students' achievement is associated with their learning style (Honey and Mumford, 1992). For instance, Cano and Justicia (1993), demonstrate that students with better academic achievement scored higher in Concrete Experience, Abstract Conceptualization and Reflective Observation than those with poorer academic achievement. This result is further substantiated by Cano-Garcia and Hughes (2000) who also demonstrate that students with better academic achievement scored higher in Concrete Experience. However, empirical research indicates inconclusive association between reflective thinking and the academic performance in different discipline. For instance, Phan (2007) demonstrates that understanding (being part of reflective thinking) is related negatively with academic performance for students of educational psychology, whereas, critical thinking (part of reflective thinking) is positively associated with academic performance for students in the mathematics discipline.

Felder (1995) stressed that students learn more when information is obtainable in a variety of approaches than when only a single approach is applied. Much experiential research indicates that learning styles can either hamper or increase academic performance in several aspects even though not much research has been conducted on the relationship between instructional design of learning materials and learning styles (Riding & Cheema 1991).

PROBLEM STATEMENT AND OBJECTIVES OF THE STUDY

Holley and Jenkins (1993) have found that there was a significant difference in learning style. They claimed that students with different learning

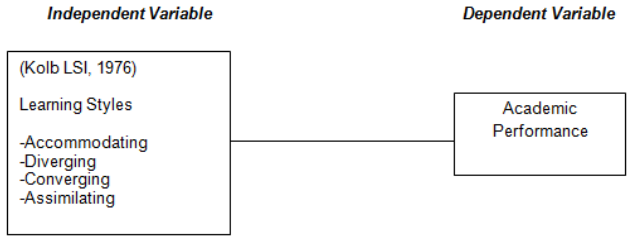
style perform differently depending on the examination format. There are also a number of studies that have examined the relationship between learning style and academic performance in various disciplines. While some studies indicated the relationship between performance scores and the converging learning styles (Rutz, 2003), others explain the learning styles differences in student performance as the function of the chosen assessment technique. Based on the previous study, has leaded the researchers' interest to identify the relationship among student learning style and academic performance of UiTM students of UiTM (Perak) and UiTM Kedah.

The objectives of this study were mainly to identify the types of learning styles among these three faculties of UiTM (Perak) and UiTM Kedah; to identify the differences of learning styles among male and female students towards academic performance; and to determine the relationship between learning styles and academic performance. In addition, the research questions for this study included what are the types of learning styles among these faculties students; what was the relationship between student learning styles and academic performance; and was there a difference between learning styles among male and female students toward academic performance. The hypotheses of this study was

H 1 There is a significant relationship between student learning style and academic performance.

The conceptual framework for this study has been adapted on the diagrams of Kolb's Learning Styles. The independent variables for this study were Learning Styles which include four types of learning styles which are accommodating, diverging, converging and assimilating. The academic performance is the dependent variable for this study. This study focused on the relationship among student learning style and academic performance and the differences between gender.

Figure 2: Conceptual Framework: Students' Learning Style and Academic Performance



METHOD AND MATERIAL

This research is important to identify the types of learning styles among students and their relationship towards academic performance. According to

Schroeder (1993), when the learning styles were considered in the teaching-learning process, student achievement was enhancing. The instrument used for this study to generate data was the survey questionnaire. The questionnaire consisted of three sections; Section A of demographic information; Section B of questions that relate to student learning styles and Section C of questions that relate to students academic performance according to their course grade. The research design for this study was a correlational. Correlational research is a method of research used to determine relationship between two or more variables. This type of research describes the linear relationship between two or more variables without any hint of attributing the effect of one variable on another. If they do, the two are correlates with one another (Salkind, 2006).

The respondents for this study were the final semester students of the Faculty of Business Management, Faculty of Accountancy, Faculty of Computer and Mathematical Science of UiTM (Perak) and UiTM Kedah where a total of 266 students (30%) from the total population were the respondents. The questionnaires were distributed and collected personally and the respondents were given one day to answer the questionnaires.

ANALYSIS AND FINDINGS

All data were analysed using the Statistical Package in the Social Science Software (SPSS) version 20.0. The data were analyzed for descriptive statistics median, mean, mode, frequencies and percentage after the entire questionnaire had been collected from the respondents.

Demographic Information of Respondents

Table 1.1: Gender (n= 266)

Gender	Frequency	Percent
Male	54	20.4%
Female	212	79.6%
Total	266	100

Table 1.1 showed that 20.4% of respondents were male and 79.6% were female.

Table 1.2: CGPA (n= 266)

CGPA	Frequency	Percent
Below than 2.0	5	1.9
2.0-2.49	30	11.3
2.5-2.99	58	21.8
3.0-3.49	112	42.1
3.5-4	61	22.9
Total	266	100

Table 1.2 indicated the CGPA of respondents. Respondents between the CGPA 3.0 – 3.49 were 42.1%, followed by respondents with the CGPA 3.5 – 4 were 22.9%. Those with the CGPA 2.5 – 2.99 were 21.8%, followed by respondents with CGPA 2.0 – 2.49 were 11.3% and finaly respondents with the CGPA of below than 2.0 were 1.9%.

Table 1.3: Age (n= 266)

Age	Frequency	Percent
18-20 Years	258	97
21-25 Years	8	3
Total	266	100

Table 1.3 indicated the age of the respondents. Most respondents were between the age of 18-20 years old and only 3% of the total respondents of the final semester students were 21-25 years old.

Research Question 1: What were the types of learning styles among final semester students of these three faculty of UiTM (Perak) and UiTM Kedah?

Table 1.4: Type of learning style

Learning Styles	Mean score
Accommodating	2.7317
Assimilating	2.9571
Diverging	2.9794
Converging	2.9990

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Table 1.4 explained the type of learning style among the final students of all the three faculties. Converging learning style scored the highest mean (2.999). It appears that the students learned through active conceptualization and experimentation, the concept of think and do, whereby they were more focus on things they do. Diverging learning style scored (2.979), these respondents perceived through concrete experience and process by reflective observation. As stated by Smith & Kolb (1996), these learners are imaginative and emotional. The table also showed that (2.957) mean score were the assimilating learning style. These respondents were more concerned with abstract concepts rather than practical application, in brief, they were the think and watch learners. Accommodating learning style scored (2.731) the least mean score where they were the feel and do learners. They were the risk takers and they enjoy finding out new experiences.

Research Question 2: What was the relationship between student learning styles and academic performance?

Table 1.5: Correlation between student learning style and academic performance

	Mean Learning Styles	**Mean Academic Performance**
Pearson Correlation	1	.643***
Sig. (2-tailed)	.000	
N	266	266

In order to determine the relationship between student learning style and academic performance, an alternate hypothesis was developed. Pearson Product-Moment Correlation Coefficient was computed on the two variables: student learning style and academic performance. Both of these variables used four-point Likert scales. An alternate hypothesis was developed as followed:

HA1 There is a significant relationship between student learning style and academic performance.

There was a strong relationship between the two variables (r = .643, n = 266, p = .00). Therefore, the hypothesis developed was accepted.

Research Question 3: Was there a difference between learning styles among male and female students toward academic performance?

Table 1.6: Independent Sample T- Test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
LearningStyles	Equal variances assumed	24.965	.000	-1.283	264	.201	-.04131	.03221	-.10473	.02210
	Equal variances not assumed			-1.706	136.416	.090	-.04131	.02421	-.08919	.00657

Table 1.6 showed the result of independent sample test between two groups; gender and academic performance. Sig. (2-tailed) from the table above was .201. As refered to Julie Pallant (2005), if the value in the Sig (2-tailed) column is equal or less than .05, then there is a significant difference in the mean score on the dependent variable for each of the two groups. If the value is above .05, there is no significant difference between the two groups. Therefore, the result showed there was a significant difference between gender and academic performance.

CONCLUSIONS

From this study it can be concluded that converging learning styles scored the highest percentage among the respondents towards their academic performance. People learn in different style but some may adapt their learning styles according to tasks (Pask, 1976). The convergent learning style relies primarily on the dominant learning abilities of abstract conceptualization and active experimentation. The greatest strength of this approach lies in problem solving, decision-making, and the practical application on ideas (Kolb, 1984). In addition, Accomodating learning style scored the least percentage among the respondents towards their academic performance.

There is a significant relationship between student learning style and academic performance. The relationship is strong between between these two variables, therefore, the hypothesis developed was accepted. Learning styles as conceptualized by Kolb (1981) have been found to be related to academic performance. Cano and Justicia (1993), demonstrate that students with better academic achievement scored higher in Concrete Experience, Abstract Conceptualization and Reflective Observation than those with poorer academic achievement. The result also showed that there was a difference between gender and academic performance. Even Othman and Othman (2004) found that there are no differences in learning styles between males and females and Wei (2009) found there are no significant differences in learning styles Selmes 1987 based

on gender, the result of this study is somehow different. Awareness of student learning style could provide a basis for educators to optimize teaching methods for diverse students' populations. Learning style diversity, when properly understood by both students and educators can be converted into appropriate teaching and learning methods that enable more students to attain success.

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