

A Study of the Learning Styles of Malaysian Students

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ABSTRACT

This study examines the learning style of students at Universiti Kebangsaan Malaysia. A translated version of the Grasha-Riechmann Learning Style Inventory was distributed to students in pure science, social science and professional courses. Results indicated that students from different fields of study varied very slightly but not significantly in their learning style. The male students showed a slightly higher inclination towards Independence and Avoidance learning styles while female students were found to be slightly more Participative and Competitive. It was found that Collaborative and Competitive learning styles were dominant among UKM students and that Collaborative, Dependent and Participative styles were associated with academic performance. The implications of these findings are discussed in terms of university teaching and learning to accommodate different learning style of students in order to meet the objectives and vision of the national university.

Keywords: *learning style, teaching and learning, higher education, personality, quality*

INTRODUCTION

Higher education institutions are facing new challenges. The university is no longer looked upon as the ivory tower as viewed by Wolf (1969) but rather as a center of mass education and an economic-driven body (Hairudin, 2002). In this new structure, students are the clients while

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lecturers are the service providers (Tjeldvoll,1997). Hence, the latter have to meet the ever growing demands of the clientele by adjusting the learning environment. Sternberg (1997) wrote that one of the mistakes made by lecturers in higher institutions is failing to recognize the learning and thinking styles of students. As a result, lectures and learning activities are conducted in a manner that does not match the students' style of learning. The match to students' learning can only be achieved if lecturers are aware of the students' learning style and its impact on academic performance. Therefore, there is a need to conduct a survey on students' learning preferences in order to improve the quality of teaching and learning.

The role of the university has changed (Mirza, 1994). The advent of a borderless world means that Universiti Kebangsaan Malaysia (UKM) has to meet high expectations from its stakeholders, including the government, which is the financier, future employers and students. In the year 2007, the Malaysian Government announced that UKM was designated as a research university (RU). The changing role from an institution that educates and prepares students for the job market to a teaching and research institution requires major adjustments by UKM's governance and most of all by its academic staff. Although research, publication and dissemination of knowledge have now become new agenda, teaching is still the core business for faculty members. The need to improve delivery methods and classroom instruction is a never ending endeavor. In order to foster quality teaching and learning, action was taken to overcome unproductive delivery methods by faculty and low performance by undergraduates. Reports have spelled out that teaching and learning activities need to be revised. A high percentage of students were found to be over-dependent on lecture notes and lacking in self-regulating study skills. In another report, lecturers were found to be either teacher-centered or subject-matter-centered.

Most educators agree that quality teaching contributes to quality learning. Effective learning also depends on the learners being active and highly motivated and having the right strategy and knowledge. In order to help college students or undergraduates learn effectively, instructors need to know and adapt to different styles of learning (Grasha, 1996). It is also suggested that if lecturers are to help students learn, they should teach in a way that matches their students' learning style. Conti and Welborn (1986) stress that learning style influences the environment in which students wish to learn and how they will approach learning situations.

Hence, this study explores UKM students' social learning preferences and suggests necessary measures to improve the teaching and learning environment and to encourage students to become life long learners.

LEARNING STYLE

A review of the literature shows that learning style, like most psychological terminology, has been addressed in different ways (Woolfolk, 2010). As a result, learning style varies in definition, models and instruments. Zhang and Sternberg (2005) placed individual learning styles in three categories, that is cognitive-centered styles, personality-centered styles and activity-centered styles. Snow, Corno and Jackson (1996) acknowledged that learning style is one of the six personal styles that have been studied extensively. They defined learning style as a construct that encompasses an individual's approach to learning, studying and problem-solving tasks and his or her approach to cognitive activities and information-processing operations. Stylistic aspects of learning may also include variations in preferred modes of task or social conditions in which such tasks are undertaken.

Grasha (1996) and Sternberg (1997) defined learning style as the different ways or means by which students learn. Dunn (1984) concentrated on learning procedures and responses by defining learning style as the way in which an individual begins to focus on, process and remember new information or knowledge. Earlier, Dunn and Dunn's (1978) learning style model identified five main stimuli that trigger learning: environment, emotion, sociological factors, physical factors and psychological factors.

Grasha (1996) postulated that learning takes place in a social context and therefore, learning style can be observed from the way students behave and respond to the social-learning environment. He categorized learning styles based on six modes of students' behavior in the learning environment at tertiary level as follows:

Independent learning style refers to students who prefer to work alone and need little direction or attention from a lecturer. They like to think for themselves and are confident of their learning abilities. Independent learners prefer to learn content that they feel is important. They like self-paced instruction and independent task assignments in the classroom.

Avoidant learning style refers to students with a high rate of absenteeism and those with poor work and study organization. They are not keen to learn content or participate in classroom activities and prefer not to be called on in the lecture room.

Dependent learning style refers to students who depend heavily on lecturers and friends in learning tasks. They always look for authority figures for specific guidelines and clear instructions for assignments. Dependent students prefer notes from lecturers and learn only what is required.

Collaborative learning style refers to students who find group work enjoyable. They prefer tasks that involve group discussions and projects. Collaborative learners feel they learn by sharing ideas and knowledge. Lectures followed by small group discussion or small seminars are considered as the best way to learn materials.

Participative learning style refers to students who are attentive and responsive to course work requirements. They are known by teaching staff for being 'good citizens' in class and are eager to fulfill course requirements on time. Classroom discussion benefits them most.

Competitive learning style refers to students who emphasize high grades and attention from lecturers. Their aim is to perform better than others in the class where rewards and recognition are only for the very best. Competitive learners take learning seriously and are the dominant figures in classroom discussions.

Grasha (1996) found that there are no significant differences in the profiles of students majoring in a variety of academic disciplines. Students who attend a two-year program are more dependent, competitive and participative than those who registered in four-year programs. He also found that women have somewhat higher scores on collaborative style. Students over 25 years of age tend to be more independent and participatory in their learning styles.

METHODOLOGY

The study intends to answer the following questions. Is there any significant difference in learning style based on gender, age and course?

Which learning style is dominant among UKM students? Is there any relationship between learning style and academic performance?

This exploratory study used the survey method by distributing 600 questionnaires to third year students. A total of 545 questionnaires were returned of which 205 were completed by male and 340 by female students. To collect data on students' learning style, a translated version of Grasha-Reichmann's (1974) Student Learning Style Inventory was used. Pilot test results show that the inventory has an internal validity of Cronbach Alpha values between 0.50 and 0.76.

RESULTS

Table 1 depicts the background of the sample based on area of study, gender, age group and ethnicity. Bumiputra (B) refers to Malays and other ethnic groups determined to be indigenous populations by government legislation. Two hundred and five subjects were male students while 340 were female students studying in the third year. Although all the subjects were third year students, 360 subjects were below 22 years, 120 were between 23-26 years old and 65 were above 27 years.

Table 1 : Frequency Distribution of Sample Based on Area of Study, Gender, Age Group and Ethnicity

	Male	Female	Age less than 22	Age 23 –26	Age 27 and above	B	NB
Pure Science	71	118	135	52	2	130	59
Social Science	73	94	70	37	60	151	16
Professional	61	128	155	31	3	176	13
Total	205	340	360	120	65	457	88

N = 545

B = bumiputera

NB = non-bumiputera

Table 2 shows that male students have a slightly higher mean (mean = 4.53, SD = .76) than female for independent style (mean = 4.49, SD = .67). On the other hand, female students show a slightly higher mean value for dependent learning style (mean = .17, SD = .61) as compared to their male counterparts (mean = 4.91, SD = .75). Female students also show a slightly higher mean for collaborative (mean = 5.06,

SD = .73) and competitive learning style (4.60, SD = .73) than the male students. Male students also show a slightly higher mean in avoidant learning style (mean = 3.57, SD = .84) than female students (mean = 3.48, SD = .82).

Table 2: Mean and Standard Deviation Distribution of Learning Styles Based on Gender

Learning Style		Gender	
		Male	Female
Independent	Mean	4.53	4.49
	S.D	.76	.67
Dependent	Mean	4.91	5.17
	S.D	.75	.61
Collaborative	Mean	4.86	5.06
	S.D	.84	.73
Competitive	Mean	4.52	4.60
	S.D	.86	.73
Participative	Mean	4.90	5.15
	S.D	.87	.69
Avoidant	Mean	3.57	3.48
	S.D	.84	.82

Table 3 shows that bumiputera (B) students have a slightly higher mean (mean = 4.51, SD = .70 > mean = 4.45, SD = .69) than non bumiputeras (NB) (for independent style . Bumiputera students also show a slightly higher mean for collaborative style (mean = 5.04, SD = .75 > mean = 4.72, SD = .82), competitive style (mean = 4.61, SD = .76 > mean = 4.37, SD = .86), participative style (mean = 5.06, SD = .76 > mean = 5.01, SD = .83) and avoidant learning style (mean = 3.52, SD = .82 > mean = 3.47, SD = .87) than non bumiputera.

Table 4 shows that students from different age levels recorded different mean values for various learning styles except for the avoidant style (mean = 3.57, SD = .83). Mature students are slightly more collaborative (mean = 5.53, SD = .71) and participative (mean = 5.70, SD = .59) than younger students. Younger students show slightly higher scores for avoidant styles (mean = 3.57, SD = .83 > mean = 3.12, SD = .69) than those over 28 years old.

Table 5 shows that social science students are slightly more independent (mean = 4.59, SD = .72) than those students in the natural sciences (mean = 4.55, SD = .72) and professional course (mean =

Table 3: Mean and Standard Deviation Distribution Among Bumiputera and Non Bumiputera for Learning Styles

Learning Style	Ethnic	B	NB
Independent	Mean	4.51	4.45
	SD	.70	.69
Dependent	Mean	5.08	5.02
	SD	.65	.80
Collaborative	Mean	5.04	4.72
	SD	.75	.85
Competitive	Mean	4.61	4.37
	SD	.76	.86
Participative	Mean	5.06	5.01
	SD	.76	.83
Avoidant	Mean	3.52	3.47
	SD	.82	.87

B – bumiputera

NB – non bumiputera

Table 4: Mean and Standard Deviation Learning Style Distribution Based on Students Age

Learning Style		Age		
		<22yrs	23-27 yrs	28>yrs
Independent	Mean	4.46	4.51	4.74
	SD	.67	.79	.64
Dependent	Mean	5.04	5.01	5.40
	SD	.66	.76	.52
Collaborative	Mean	4.93	4.84	5.53
	SD	.73	.85	.71
Competitive	Mean	4.60	4.45	4.62
	SD	.74	.85	.83
Participative	Mean	4.94	5.04	5.70
	SD	.71	.87	.59
Avoidant	Mean	3.57	3.57	3.12
	SD	.83	.83	.69

Table 5: Mean and Standard Deviation Distribution of Learning Style Based On Students Field of Study

Learning Style		Field of Study		
		Science	Social Science	Professional
Independent	Mean	4.55	4.59	4.38
	SD	.72	.72	.65
Dependent	Mean	5.17	5.07	4.98
	SD	.64	.75	.63
Collaborative	Mean	4.92	5.13	4.92
	SD	.77	.84	.71
Competitive	Mean	4.55	4.64	4.53
	SD	.84	.79	.70
Participative	Mean	5.05	5.20	4.93
	SD	.75	.87	.68
Avoidant	Mean	3.54	3.56	3.45
	SD	.76	.93	.79

4.38, SD = .65). Natural science students are found to be slightly more dependent (mean = 5.17, SD = .64) than social science students (mean = 5.07, SD = .75) and students majoring in professional courses (mean = 4.98, SD = .63). Social science students are also slightly more participative (mean = 5.20, SD = .87) than those in pure science (mean = 5.05, SD = .75) and professional courses (mean = 4.93, SD = .68).

None of these differences were however, statistically significant.

Which Learning Style is Dominant Among UKM Students?

Table 6 is a comparison of mean learning style and the standardized mean as proposed by Grasha (1996). It reflects that collaborative (mean = 4.98 > 4.90) and competitive learning styles (mean = 4.57 > 4.06) are dominant among UKM students. However, independent, avoidant, participative and dependent learning styles are not dominant.

Relationship Between Learning Style and Academic Performance

Table 7 shows the findings from the correlation between learning style and academic performance. It was found that there was a low but statistically significant relationship between participative, collaborative and competitive learning styles and cumulative grade point average

Table 6: Comparison of Mean Learning Style and Standardized Mean by Grasha (1996)

Learning style	Sample mean	Standardized mean	Inference
Independent	4.50	5.46	Not dominant
Avoidant	3.52	5.46	Not dominant
Collaborative	4.98	4.90	Dominant
Dependent	5.07	5.74	Not dominant
Competitive	4.57	4.06	Dominant
Participative	5.27	5.60	Not dominant

* Standardized Mean (suggested by Grasha, A 1996).

Table 7: Correlation between Learning Style and Academic Performance

Learning Style	Independent	Avoidant	Collaborative	Dependent	Competitive	Participative
Academic Performance	.066	-.243**	.103**	.123**	.070	.246**

** Significant at $p = 0.01$

(CGPA) ($r = .246$, $r = .103$ and $r = .123 < p = 0.001$) respectively. Avoidant style however shows a negative correlation with academic performance ($r = -.243$).

DISCUSSION

The results of this study show how students' learning styles vary according to gender, age and type of courses. Female students are found to be very slightly more dependent, competitive, collaborative and participative, while male students were very slightly more independent and avoidant. This would mean that there is a very slight tendency for females to prefer and welcome lecturers who provide notes and learning materials. Dependent students will benefit more from well structured lectures, guidance and concrete hands-on experience. On the other hand, there is a very slight tendency for males to prefer to study on their own and to be less dependent on lecture materials. This supports the findings of Grasha (1996) that male students majoring in physical education adopt more avoidant and independent roles than females. Adult students tend

to be more collaborative and participatory than younger students. These differences were, however, very small and not significant.

The main finding of this study is that competitive and participative learning styles are dominant among UKM students. Competitive learning style students learn best when lecturers are task-oriented and are highly motivated by rewards and recognition. Universities could encourage students to excel by providing more grants, scholarships or achievement rewards. A participative learning style student learns better from collaborative work and cooperative learning situations. Matching learning styles with instructional presentation strategies could enhance student learning (Ford and Chen, 2001). In an experimental research, study, they found that there was an overall significant gain score for students learning in matched conditions.

The results of this study also show that there is a significant but low correlation between participative, collaborative and dependent learning styles and academic performance. It is reasonable that students who are active in class, working closely with friends and get lecturers' guidance would excel in exams. This study also supports Grasha's (1996) findings that students with an avoidant style tend to get lower grades than those with a participative style.

CONCLUSION

This study shows that UKM students have certain learning preferences. Collaborative and competitive learning styles are dominant among students and it is recommended that lecturers plan learning activities including collaborative work and set high expectations for their performance. Independent, avoidant, dependent and participative styles are not dominant.

There was no significant variation among the students according to gender, field, age or field of study. It was however, found that there was a modest but significant link between academic proficiency and collaborative, participative and dependent learning style and a negative and significant association between academic proficiency and avoidant learning style.

The results of the study also suggest that student attendance is an indicator of his or her course grades. Therefore, lecturers need to ensure that every student is punctual and cognitively engaged in learning. Students can be more attentive when lectures are conducted in an

organized manner blended with learning tasks that stimulate critical and creative thinking. It is important for lecturers to accept diversity in learning style among students and be more creative in conducting lectures and modes of assessment to foster more enjoyable and meaningful learning experiences.

This study focuses only on learning styles and their influence on academic performance. Future studies should focus on examining the relationship between learning style as a construct and other personality factors. Designing effective classroom teaching and learning strategies requires more than merely identifying and matching the preferred learning style of students with the teaching styles of academic staff. Situational factors such as students' purpose for attending classes and the nature of course requirement could have an impact on students' learning styles. Learning can be more meaningful and effective when academic staff understand why and how students think and learn.

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