

Learning Style Preferences among Students of MARA Professional College Malaysia

Mohd Syaifulhafizi Md Noh, Mumtaz Begam Abdul Kadir

MARA Professional College, Malaysia

0129

The Asian Conference on Education 2013

Official Conference Proceedings 2013

Abstract

The study examines MARA Professional College students learning styles preferences. A total of 758 diploma level students of different study years, programmes and gender were involved in this study. This study employed a set of questionnaire measuring on students' different learning styles using five likert scales to determine five categories of Dun and Dun (1978) learning styles which are environment, emotional, sociological, physiological and psychological. Cronbach Alpha coefficient for the instrument was measured between the range of 0.813 to 0.930. The result of the study showed that Emotional category (mean 3.710, SD = 0.428) is the most dominant learning style adopted by the respondents. The second category is the sociological dimension (mean 3.588 SD = 0.614), followed by psychological as the third dimension (mean 3.492, SD = 0.603), the fourth dimension is physiological (mean 3.460 SD = 0.529) and the fifth is the environment category (mean 3.138, SD = 0.483). The results from this study showed that the diversity of learning styles gave different impacts on students' academic performances. In addition, recommendations were given to improve the effectiveness of teaching and learning.

INTRODUCTION

A higher education institution plays an important role in producing high quality graduates who will become assets to the development of the country. According to Sheal (1994), learning is a mental and physical process that leads to a qualitative change in someone perspective, understanding and in appreciating something. The learning process is not only related to improving knowledge and recalling what they have learned. On the other hand, learning should focus on the activity to get the concept, knowledge and further information and to be applied in life as well as the formation of attitudes (Hargreaves 1996).

Each individual has a different attitude towards the adoption of a teaching and learning process. Learning style is a personalized way used by each individual to search, store, and retrieve information (Felder & Henriques 1995). Learning styles that are practiced by every individual is different from each other. Each student began to form their early learning style from early age and will continue to use these learning styles when he/she grow up. Learning styles practiced by an individual may be influenced by certain factors. According to Dunn and Dunn (1978), an individual's learning style is influenced by environmental, emotional, sociological, physiological and psychological elements.

In addition, learning style is one of the important factors that could affect academic achievement (Doris, 1993; Liau, 2000). According to Abdul Ghani Awang (1996) one of the factors that leads to deterioration of students' academic achievements is their failure to adapt to the teaching and learning style in universities and their inability to find a right learning style. As a result, it will affect their academic performances thus unable to achieve an excellent result.

Learning styles should be altered to each lecturer's teaching style. Problem will arise when lecturers did not diversify their teaching styles to meet the needs of these students. Students will feel bored, unfocused, and lost interest in a particular subject which will discourage them from studying (Darman Ash, 2000). Studies have proven that active involvement of student in the learning process leads to a student's success (Hartman 1995; Dewar 1995). Important basis to encourage students to participate actively in the learning process lies in understanding the learning styles to meet the varieties learning styles (Birkey & Rodan 1995; Agogino & His 1995).

Therefore, the research on learning styles has been made to find out the learning styles possessed by each individual student and their relationships to academic achievement.

PROBLEM STATEMENT

A survey conducted by Dunn and Dunn (1978) a century ago reported that each individual has his/her own learning style. As a result, each student has a variety of individual styles, strategies and learning rates. This diversity should be identified by the instructor. In addition, the learning style has a strong influence on academic achievement. Among the causes of low academic achievement is the students' failure to adapt to teaching style in educational institutions, and their inability to have a right

learning style (Darman Abu 2000, 2003; Abdul Ghani Awang, 1996). Dunn and Dunn's model (1978) was used in this study to determine different learning styles of MARA Professional College students like the dominant style adopted by them. Beside, this paper also determines whether the students' learning styles/were influence by gender, academic performance and residential area. Thus, this research is done to answer the questions above.

OBJECTIVES

There are two objectives of the study:

1. Identifying the learning styles practiced by MARA Professional College students as a whole.
2. Identifying learning styles by gender, place of residence and academic performance.

SIGNIFICANCE OF RESEARCH

1. The college can identify and organize teaching and learning strategies.
2. The college can either improve or modify the regulation or infrastructure in order to provide a conducive environment.
3. Outcome of this study will be a great value in this field.

LITERATURE REVIEW

Learning style of each individual must be understood as each of them will process the information obtained in different ways. From a psychological context, learning is defined as changes in individual behavior produced by the experience and the environment (Carlson 1987). By knowing how and why an individual chooses specific learning styles will add more information in their educational development. Cognitive staging may not be related to their age and achievements. According to Dunn and Dunn (1978), learning style refers to the manner in which the elements of the five basic stimuli that affect a person's ability to understand, interact and respond to the learning environment.

The cognitive theory shown that the development of human learning was based on their age. Although it is not a final determinant but generally the age stage will be associated with a person's maturity and susceptibility to choose or follow a particular learning style. Young male students usually prefer learning through simulation and games while elder students prefer lectures, structured instruction, drill and memorization.

Studies conducted to see the relationships between gender and teaching and assessment strategies show how gender affects problem solving styles (Nelson 1996). Tyson (1996) found that female students did not show a high level of cognitive performance in relative to male students in Mathematics subject but the difference is not very significant.

Harless (1996) mentioned that there is a correlation between learning style and gender but the significant differences between males and females are not obvious. This

finding is supported by a survey conducted by Nik Mohd Rahimi (2000) which showed no significant difference between the group of men and women in the four learning styles.

Solomon and Kerndall (1979) also raise an issue of gender because women were found to engage in highly structured activities while men prefer activities with lower structure. Mior and Jessel (1989) argue that women are more susceptible to engage in unfair thoughts on personal and collective situations. They should be encouraged to investigate structure and work in group.

Individual learning style preference can easily be identified using Dunn Learning Style Inventory, Dunn & Stevenson (1997). Dunn (1995) stated that the studies of Mohd Najib and Nor Shafrin (2008) about learning styles have the correlation with the achievement of students either high or low achievement. However, Megowan study (1998) on 68 American students from the Faculty of Industrial Technology at the University of Mississippi showed no relationship between students' learning styles and their academic achievements. Similar findings were obtained by Cavanagh and Stephen (1995) in his study of 192 nursing students using Kolb learning style inventor where they found that there is no significant relationship between learning style and achievement. Norihan Abu Hassan (2001) also found that there are no significant differences between the learning styles of excellent, average and poor students in learning mathematics. These findings imply that the positive effects of learning style are the same for all students even if they have different capabilities.

METHODOLOGY

The study design used is descriptive shaped survey with data collected using questionnaires. Descriptive study will provide insight or information at a specific time, in addition to developing future plan (Wiersma 1995; Mohd Majid Konting 1999).

SAMPLE AND POPULATION

The study population consisted of students enrolled in the College of Professional MARA in Malaysia. The study sample consisted of 737 students. Students were selected randomly but following specific structure.

INSTRUMENT

This questionnaire consists of two parts. Part A includes reference to demographic characteristics such as gender, place of residence and academic achievement. Part B consists of 45 items that have been translated and adapted from the learning style questionnaire Dunn & Dunn (1978). Five aspects of learning patterns studied by Dunn and Dunn model are environmental, emotional, sociological, physiological and psychological. A summary of the number of items by Dunn and Dunn model are shown in table 1.

Table 1: Distribution of items for each learning styles category

LEARNING STYLE	Items
Environmental	9
Emotional	17
Sociological	5
Physiological	9
Psychological	5
TOTAL	45

To get the response, 5 point Likert scale was used which is '1' for strongly disagree and '5' strongly agree. Next, a pilot study was carried out and the reliability of the components of learning styles are between $\alpha = 0.86$ to 0.91 . Implications of the value obtained showed that all the items are used for each component in the questionnaire survey has the high reliability and consistency.

FINDINGS

Studies conducted involved respondents from MARA Professional College students in Malaysia. Interpretation of mean scores shown in table 2 was used to interpret the average mean score of each item.

Table 2: Interpretation of mean score

Mean Score	Interpretation
1.00 - 2.33	Low
2.34 - 3.66	Medium
3.67 - 5.00	High

Source: Barnett 2000; Jamil 2002; Jainabee 2005 & Mumtaz 2008

PROFILE OF RESPONDENTS

The study was conducted at the College of Professional MARA in Malaysia. Respondents for this study consists of students majoring in a variety of full-time program. A total of 737 students were selected as respondents for this study. Distribution of the number of students by gender, place of residence and academic performance.

RESULT

This section answers the questions for the variation of learning styles practiced by MARA Professional College students. Descriptive analysis using the mean value made by showing students' learning styles based on the 5 categories of learning such as the Dunn and Dunn model.

Table 3: Mean Analysis of Learning Style

Learning Style	Mean	Standard Deviation	Interpretation
Environmental	3.138	0.483	Medium
Emotional	3.710	0.428	High
Sociological	3.588	0.614	Medium
Psychological	3.460	0.529	Medium
Physiological	3.492	0.603	Medium

It was found that Emotional learning style category heavily influenced students' learning in MARA Professional College. This is because the available learning style for this category has the highest mean value compared to other categories.

Table 4: Cross-correlation analysis between Learning Style and their place of residence

LEARNING STYLE	PLACE OF RESIDENCE	MEAN (SD)	INTERPRETATION
Environmental	HOSTEL	3.1282 (0.48)	Medium
	RENTAL HOME	3.1636 (0.51)	Medium
	FAMILY	3.1399 (0.45)	Medium
Emotional	HOSTEL	3.7084 (0.42)	High
	RENTAL HOME	3.7190 (0.45)	High
	FAMILY	3.6797 (0.34)	High
Sociological	AHOSTEL	3.5965 (0.62)	Medium
	RENTAL HOME	3.5666 (0.58)	Medium
	FAMILY	3.5407 (0.73)	Medium
Physiological	HOSTEL	3.4448 (0.51)	Medium
	RENTAL HOME	3.5095 (0.57)	Medium
	FAMILY	3.4074 (0.47)	Medium
Psychological	HOSTEL	3.4914 (0.59)	Medium
	RENTAL HOME	3.5016 (0.64)	Medium
	FAMILY	3.4519 (0.61)	Medium

Next, the cross-correlation analysis between Learning Style and their place of residence is found that for all three categories of the hostel residence, rental homes and live with the family also had the highest mean value on emotional category. Results of this analysis indicate that the overall MARA Professional College students, regardless of where they live, were strongly influenced by emotional factor in their learning styles.

Table 5: Cross-correlation analysis between gender and their learning style

LEARNING STYLE	GENDER	MEAN (SD)	INTERPRETATION
Environmental	MALE	3.2801 (0.54)	Medium
	FEMALE	3.0339 (0.40)	Medium
Emotional	MALE	3.7745 (0.49)	High
	FEMALE	3.6628 (0.37)	High
Sociological	MALE	3.6166 (0.63)	Medium
	FEMALE	3.5676 (0.60)	Medium
Physiological	MALE	3.5023 (0.56)	Medium
	FEMALE	3.4284 (0.51)	Medium
Psychological	MALE	3.5190 (0.61)	Medium
	FEMALE	3.4728 (0.60)	Medium

For the gender aspect, it found that both male and female students' learning styles were influenced by the emotional factor. However, male students were more emotionally influenced on education, compared to female students. For other learning styles, the data showed that both male and female sexes are at moderate means.

Table 6: Cross-correlation analysis between academic performance and their learning style

LEARNING STYLE	ACADEMIC PERFORMANCE	MEAN (SD)	INTERPRETATION
Environmental	2.00-1.49	3.2519 (0.58)	Medium
	2.50-2.99	3.1329 (0.47)	Medium
	3.00-3.49	3.0842 (0.47)	Medium
	3.50-4.00	3.1826 (0.48)	Medium
Emotional	2.00-2.49	3.6892 (0.39)	High
	2.50-2.99	3.7092 (0.44)	High
	3.00-3.49	3.6771 (0.43)	High
	3.50-4.00	3.7918 (0.37)	High
Sociological	2.00-2.49	3.8167 (0.64)	High
	2.50-2.99	3.6038 (0.58)	Medium
	3.00-3.49	3.5034 (0.65)	Medium
	3.50-4.00	3.5034 (0.62)	Medium
Physiological	2.00-2.49	3.4769 (0.49)	Medium
	2.50-2.99	3.4499 (0.54)	Medium
	3.00-3.49	3.4591 (0.54)	Medium
	3.50-4.00	3.4879 (0.51)	Medium
Psychological	2.00-2.49	3.4500 (0.65)	Medium
	2.50-2.99	3.4746 (0.59)	Medium
	3.00-3.49	3.4816 (0.60)	Medium
	3.50-4.00	3.5977 (0.62)	Medium

According to academic performance, it is found that the learning styles of moderate, high, and excellent students were greatly influenced by emotional factors. Whereas low performing students showed their learning style is strongly influenced by

sociological factors. In this respect, it can be concluded that the majority of students choose the dominant learning style on emotional aspects.

DISCUSSION AND IMPLICATION

The findings showed that the most dominant learning style adopted by MARA Professional College students is emotional style. This is followed by sociological, psychological, physiological and finally the environment style. The research also found to be in conformity with the study of Low (2003) and Darman (2003) who found that emotional category is dominant in student learning styles. Compared to female students, male students were more emotionally influence on education. Referring to this study, it is understood that the students look forward to be praised and reprimanded from their parents and lecturers as motivation in their learning process. They will also be happy to get good marks or grades on assignments and tests.

In addition, the findings also show that students are more likely to be given freedom in doing the work or assignment in their own ways and for the tasks to be graded. Given task or job must also be clarified with detailed instructions. This means that good grades, compliment and constructive criticism from parents and lecturers are forms of motivation for students that will be a catalyst for their emotional balance and learning performances.

Therefore, parents and lecturers are recommended to consistently advise and take care of the educational development of students. Lecturers are also encouraged to provide multi-dimensional nature of tasks and inter-discipline to students. The "problem based learning" or "active learning" is very appropriate to run in their teaching. In this way it can attract students and increase their motivation and emotion. In effect, it will improve the students' emotion and motivation thus leading to academic achievement and good grades.

According to Dunn and Dunn Model (1978), motivation can be categorized into two types: intrinsic and extrinsic motivation. Intrinsic motivation is internal motivation for students to participate in the learning process. These motivations such as needs, interests, attitudes and natural emotions or are guided by the requirements of the environment and experience. Meanwhile, extrinsic motivation is the insistence and encouragement to take action to obtain reward. In learning, the intended benefits in the form of scores, grades, and positions in the class gift. With both motivations, students will work hard to achieve success in their field of study. Lecturers also should give clear instructions and aim to enhance students' understanding and encourage them to learn more effectively.

Along with the development of education nowadays, students should be nurtured with "creative thinking" skill with a mindset that the "spoon-feeding" method is no longer relevant. Two-way interaction between lecturers and students is very important. The lecturer also should be clearer and well versed in relating existing experience with inspiration around or to explain to the students the relationship between the past and the present. This is because teaching is not just asking the question When and Where,

but also the question of Why, How and What should be embedded in the learning and teaching (Zoe Burgess, 2010).

Students also love to learn the new things and tend to learn using game method. According to Atan Long (1988), learning is a process that begins with the capture of stimuli received by the senses. The finding also shows that students prefer to study at night and in the morning rather than the afternoon. This might be because of more quiet and peaceful surroundings at those times compared to in the afternoon.

Nelson's (1993) and Zamri Mohamed Amin (2000) study found that the matching and suitability of learning styles will lead to a good academic record. Nelson's findings (1993) on the impact of learning style factors on college students' understanding and achievement show the positive impact on the learning style of the student's academic achievement. For those who getting exposures to learning style were having higher academic achievement rather than those not getting exposure on learning styles.

As a result of these findings, those recommendations are given to the college:

- i. The college should help students to identify and adopt learning style by holding workshops and courses to increase students' awareness about their learning styles.
- ii. Lecturers also need to be exposed in order to understand the students' learning styles in order to plan more effective teaching method and diversity in the process of teaching and learning.
- iii. Counseling units also play an important role in driving students undergo improvements attitudes and behavior so that it can foster interest and inspire students to learn. Thus, students can identify own strengths and weaknesses will be identified by the students as well as exposed also to other skills that can form the character and leadership of the self that will have an impact on their future career opportunities.
- iv. The restructuring of the curriculum can also be done by encouraging the use of "problem based learning" or "student centered learning". Along with that, good amenities and appropriate to the needs of lecturers and students, such as infrastructure and conducive environment to enhanced for optimal comfort during the process of teaching and learning can be achieved. Basic needs such as playing fields, ease of Internet access, projector, study and living room, as well as the layout of the lecture hall should be given priority.
- v. The college also should provide motivation program from time to time to give inspiration to students to succeed. Responsibilities assigned by the college for students to carry out a program, business or carnival must be continue because the results show that the category of emotional learning style also owned by the students.
- vi. The college and the lecturer should give a clear and structured instruction to students who have the emotional learning styles category because they requires a clear and structured instruction to perform certain tasks assigned to them successfully.

REFERENCES

Abdul Ghani Awang (1996). *Kemahiran Belajar Di Institusi Pengajian Tinggi*. Kuala Lumpur: Dewan Bahasa Dan Pustaka.

Agogino, A.M. & His, S. (1995). Learning Style Based Innovations to Improve Retention of Female Engineering Students in the Synthesis Coalition. In *ASEE/IEEE Frontiers in Education 95' Proceedings, Purdue University*. Retrieved from <http://fairway.ecn.purdue.edu/asee/fie95/4a2/4a21/4a21.htm>

Baharin Abu (2000). *Teaching Effectiveness and Staff Professional Development Programs in HEI in Malaysia*. Published Doctoral Thesis, The University of Birmingham, UK.

Birkey, R. C. & Rodan J.J. (1995). *Adult Learning Styles and Preferences for Technology Programs*. Retrieved from National University Research Institute website: <http://www2.nu.edu/nuri/11conf/conf1995/birkey.html>

Carlson (1987). *Psychology: The Science Behaviour*, Allyn & Bacon: Mc Graw Hill, Boston.

Cavanagh, Stephen (1995). *Nurse education today*. Retrieved from the Eric database. (EJ507734)

Dewar, T. (1995). *Adult Learning Online*. Retrieved from <http://www.cybercorp.net/~tammy/lo/oned2.html>

Doris, B. M. (1993). An Investigation of Students' Learning Styles in Various Disciplines in Colleges and Universities. *The Journal of Humanistic Education and Development* 33(2), 65–74.

Dunn, Stevenson (1997). Teaching Diverse College Students To Study A learning Style Prescription. *College Student Journal*, 31(3), 333-339.

Dunn, Dunn (1978). Teaching Students Through Their Individual Learning Style Prescription. *College Student Journal*, 3(3), 333-339.

Felder, Henriques (1995). Learning and Teaching Styles in Foreign and Second Language Education, *Foreign language Annals*, 28(1), 21-21.

Hargreaves (1996). How Undergraduate Students Learn, *European Journal of Engineering Education*, 21(4), 425-434.

Harless, D. K. (1996). *A comparison of gender differences in the relationship among learning styles, achieving styles and studies strategies of college students*. University of Minnesota. DAI-A 56/07. AAC 9537867

Hartman, H.J. (2001). *Metacognition in Learning and Instruction*. Kluwer Academic Publishers: Netherlands.

Liau, T.L. (2000). The Case for Emotional Literacy: The influence of emotional intelligence on problem behaviours in Malaysian secondary school students. *Journal of Moral Education*, 32(1).

Low X. X. (2003). *Pola Gaya Pembelajaran Pelajar-Pelajar Di Kelas Lukisan Kejuruteraan Sekolah Menengah Sains Muar*. Universiti Teknologi Malaysia. Laporan PSM

Megowan (1998). An Investigation of the impact of student and faculty learning style congruency and academic achievement in an undergraduate industrial technology program (African-Americans). *Disertation Abstract International*, 58(12), 1262A.

Mohd Majid Konting (1994). *Kaedah Penyelidikan Pendidikan*. Kuala Lumpur: Dewan Bahasa Dan Pustaka, Kementerian Pendidikan Malaysia.

Mohd Najib Abdul Aziz & Nor Shafrin Ahmad (2008). Kemahiran Belajar dan Hubungannya Dengan Pencapaian Akademik: Kajian di Daerah Kerian, Perak. *Jurnal Pendidikan dan Pendidikan*, 23, 29-47

Moir & Jessel (1989) Adolescent coping: the different ways in which boys and girls cope. *Journal of Adolescence*. 14(2), 119–133.

Nelson, B.J (1993). *An Investigation of the Impact of Learning Style Factors on College Students Retention and Achievement*. Disertasi Ed. D. St John's University.

Nik Mohd Rahimi, Kamarulzaman Abd. Ghani & Zamri Mahamod (2000). Kepelbagaiannya gaya pembelajaran Bahasa Arab Komunikasi mengikut jantina dan lokasi sekolah. Seminar Prosiding Pendidikan Pendidikan Kebangsaan 2000. *Siri Penerbitan Fakulti Pendidikan, UKM*, 70-78.

Norihan Abu Hassan (2001) *Perkaitan antara pencapaian awal, kaedah pengajaran, gaya pembelajaran dan kesukaran subjek terhadap pencapaian matematik di kalangan pelajar Diploma Kejuruteraan*. Tesis Phd (tidak diterbitkan) UKM.

Sheal, P. R (1994). *How to Develop and Present Staff Training Course*. London: Kogan Page Ltd.

Solomon & Kerndall (1979). *Children in classrooms, An Investigation of Person-environment Interaction*, NY: Praeger.

Tyson & Velma Venerta (1996). *An Analysis of the differential performance of girls on standardized multiple-choice mathematics achievement test compared to constructed response tests of reasoning and problem solving*. The University of Iowa. DAI-A 56/10. ACC 9603091.

Wiersma (1995) *Research methods in education: An introduction (6 th ed.)*. Massachusetts: Allyn and Bacon.

Zamri Mahamod & Mohamed Amin Embi (2000). *Pengenalanpastian Gaya dan Strategi Pembelajaran Bahasa Sebagai Satu Cara Mengatasi Masalah Kepelbagaian Pelajar Di Dalam Kelas Bahasa*. Seminar Prosiding Pendidikan Kebangsaan 2000.



