

Analysis of the learning styles of part time BEKG program upon their academic performances

Rahifa Ranom^{1,*}, Irma Wani Jamaludin¹, Ser Lee Loh¹

¹Fakulti Kejuruteraan Elektrik, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia

*Corresponding e-mail: rahifa@utem.edu.my

Keywords: Learning styles, teaching deliveries, academic performances

ABSTRACT – This study examined the relationships among learning styles, teaching deliveries and academic performance of BEKG part time students in UTeM. A questionnaire of student learning styles and a survey were conducted and the relationships are measured using regression analysis. The study discovered that most of the students preferred visual learning style. The results show that teaching deliveries using slides and board are significant towards visual learning style students. Furthermore, it is found that there is significant relationship between learning style and academic performances. Therefore, the study can contribute to provide guidelines of teaching deliveries for lecturers in order to improve academic achievements.

1. INTRODUCTION

In order to ensure quality learning experience among the undergraduate students is to consider their learning styles which refers to how students learn and process information in their specific manners. Dung et al defined learning style as how effective an individual to process information by their own characteristics and preferences [5]. Numerous research studies have been conducted to investigate the correlation between the student's learning styles and their academic performance [1,3,4,6,7]. Williams et al has shown that there is a positive relationship between the learning styles and academic performance of university students [7]. Furthermore, a research conducted by Alavi found that having an information student's learning styles can improve their learning and increase their self-confidence [1]. Dalmolin et al [4] suggest that determining the learning styles of students will eventually help students to increase their understanding. Unal et al found that there is a significant relationship between students learning styles, study habits, and academic performance of distance learner students [3].

This study was carried out for part time undergraduate students of Bachelor of Electrical Engineering (BEKG), Fakulti Kejuruteraan Elektrik, Universiti Teknikal Malaysia Melaka. Part time studies are offered for working adults and professional who pursue higher education through part time mode. The method of teaching is face to face lectures and is conducted in 7 hours lecture in a day during the weekend. We highlighted here that the study was conducted based on the academic performances in Engineering Mathematics 2 (EM2) course. The content of the course consists of

multivariable calculus, multiple integrals and vector calculus. Students are compulsory to enrol and pass the subjects. The BEKG programme is an engineering degree programme which requires high skills of mathematics literacy for solving practical problems. Therefore, it is necessary to provide an effective teaching based on student's learning style to improve their academic performances.

Research Questions.

The following research questions are designed to conduct the study.

1. What are the predominant learning style preferences among the students?
2. What is the relative contribution of the learning styles on the level of academic performance of the students in the program?

2. METHODOLOGY

2.1 Instrumentation

A questionnaire of student learning styles by MAXSA [2] and a survey of satisfaction level of teaching deliveries were used in the study. The instrument consisted of two sections.

A. Student learning styles

In this section, respondents need to score the questions in three subsections (Auditory, Visual, Tactile/Kinesthetic) from a range 0 to 4, where '0' denotes 'Never' and '4' denotes 'Always'.

B. Teaching deliveries

In this section, the scoring scheme is from 1 to 5, where '1' denotes 'Ineffective' and '5' denotes 'Very Effective'.

2.2 Statistical analysis

A total of 30 students (29 males and 1 female) of part time BEKG program participated in the study. Firstly, the total marks of each subsection in section A will identify the learning style preferences of students. Secondly, we analyse the satisfaction level of teaching deliveries in section B of the survey by finding correlation value between learning styles and teaching deliveries. Finally, we analyse the level of academic performance of respondents (based on their results of EM2 course) and determine the relationship between learning styles, teaching deliveries and academic performance of the respondents using regression analysis. The study is tested at 0.05 significant level.

3. RESULTS AND DISCUSSION

Figure 1 shows that majority of the students learn best through visual (73%) which indicates that most of the students depend on more on the sense of sight. They incline to understand well by seeing the words and illustrations from notes, slides of handouts and looking at solution on the board.

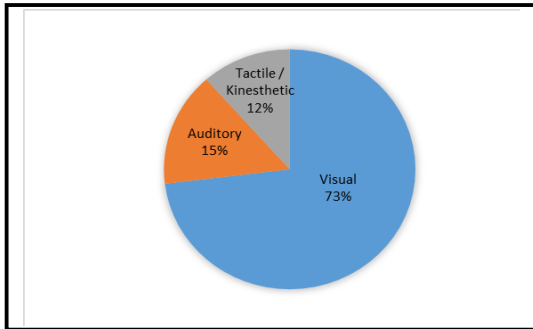


Figure 1 The distribution of preference learning styles of the students.

As most of the students are visual learning style preference, further discussion only focusses on the visual learning style students. Table 1 presents significant positive correlation between visual learning style preference and teaching deliveries. Teaching deliveries using slides and board has shown significant associations with visual learning style students.

Table 1: Correlation between visual learning styles and teaching deliveries

Teaching deliveries	r	p-value
a. Clear and understandable presentation (slides)	0.80977	0.0124928 ^s
b. Use example or illustration (using board)	0.77438	0.0195328 ^s
c. Good presentation of course material (module)	0.71872	0.698669 ^{ns}

Note: s – significant at 0.05 level; ns – not significant at 0.05 level

Table 2: The relationship of academic performance with visual learning styles preference and teaching deliveries

Variables	r	p-value
Visual Learning Style	0.77285	0.000187 ^s
Teaching Deliveries	0.52579	0.38644 ^{ns}

Note: s – significant at 0.05 level; ns – not significant at 0.05 level

Table 2 shows that the academic performance has positive relationship with visual learning style with $r = 0.77285$ and $p\text{-value} = 0.000187$. In contrast, the results show low positive correlation between academic performance and teaching deliveries and it is proven by the $p\text{-value} = 0.38644 > 0.05$. Hence, this analysis has given an insight that the lecturers should enhance and vary their teaching and learning techniques with the appeal of visual learning activities to improve the academic performance of students.

4. SUMMARY

This study revealed that most of the part time BEKG students at UTm were visual learning style preference. Consequently, the students prefer the teaching is delivered using slides and board. The study has shown a significant relationship between learning styles and academic performance and therefore by determining the learning style of students helps to improve academic achievements. The implications of the study can guide lecturers to plan the teaching and learning deliveries in class specifically for part time BEKG students.

5. ACKNOWLEDGEMENT

We wish to thank the Faculty of Electrical Engineering and Universiti Teknikal Malaysia Melaka (UTeM) for the help and support for carrying this research.

REFERENCES

- [1] Alavi, S., & Toozandehjani, H. (2017). The Relationship between Learning Styles and Students' Identity Styles. *Open Journal of Psychiatry*, 7, 90-102.
- [2] Andrew D. Cohen, R. Michael Paige (2019). *Maximizing Study Abroad: An Instructional Guide to Strategies for Language and Culture Learning and Use*, Amazon Digital Service.
- [3] Çakıroğlu, Ünal. (2014). Analyzing the effect of learning styles and study habits of distance learners on learning performances: A case of an introductory programming course. *The International Review of Research in Open and Distributed Learning*, 15(4). <https://doi.org/10.19173/irrodl.v15i4.1840>
- [4] Dalmolin A., Mackeivicz, G., Pochapski, M., Pilatti, G., & Santos, F. (2018). Learning styles preferences and e-learning experience of undergraduate dental students. *Rev Odontol UNESP*, 47(3), 175-182.
- [5] Dung, P., & Florea, A. (2012). An approach for detecting learning styles in learning management systems based on learners' behaviors. *International Conference on Education and Management Innovation IPEDR 2012*, 30.
- [6] Khalid, R., Mokhtar, A.A., Omar-Fauzee, M.S., Kasim, A.L., & Don, Y. (2013). The Learning Styles and Academic Achievements among Arts and Science Streams Student. *International Journal of Academic Research in Progressive Education and Development*, 2(2).
- [7] Williams, B., Brown, T., & Etherington, J. (2013). Learning style preferences of undergraduate pharmacy students. *Currents in Pharmacy Teaching and Learning*, 5, 110-119.