Language learning styles of engineering and non-engineering students at private institution of higher education in Malaysia.

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Abstract

Each learner has his or her own preference of learning styles, which might be effective for them to achieve learning objectives. Nonetheless, not all preferred learning styles suit each learner. There are variables that may influence the suitability and the effectiveness of the learning styles. In other words, certain learning styles that work well for certain people, may not be suitable to some others (Cavanagh, Hogan and Ramgopal, 1995). In fact, students from different program apply certain learning styles to suit the nature of the program. For example, natural science students prefer Tactile, auditory and kinesthetic, while social science students prefer visual and group learning (Khurshid and Mahmood, 2012). Due to its interesting and variety of finding on learning styles, this study has looked into the learning styles employed by the undergraduates of engineering technology and non-engineering technology at a private university in Johor and secondly, to find if there was any relationship between learning styles and course of study, working experience, latest qualification and between students who come from rural or urban area. The respondents were semester one students (n = 257students) and in order to determine their learning styles, VARK questionnaire was administered and the data was analyzed to find any relationship between learning styles and the independent variables. The study found that majority of the students, either engineering or non-engineering preferred reading style, followed by audio, kinesthetic and visual. This finding could be a result of their background and other factors. It is hoped thatthe results will provide information to the lecturers on the students learning styles which can assist them to prepare teaching and learning activities which suit the students.

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Introduction

Some students coming to class looking forward for PowerPoint slides prepared by the lecturers because they feel that they learn better that way. However, some others prefer to listen to the lecture while taking notes, and in the current era of technology, the students record the lecture given. Later, they will listen to the recording. It clearly shows that different students have different learning styles which suit them best, according to their opinion. As lecturer, it is important to know the students learning styles in order to provide suitable teaching approach that could match with the styles (Zapalska and Brozik, 2006) because a matched learning and teaching styles results better students' performance (Manochehr, 2007). Due to its importance, this study looked into learning styles of students at Universiti Kuala Lumpur – Malaysian Institute of Industrial Technology, located at Bandar Seri Alam, Johor Bahru, Johor. The samples consist of engineering technology and non-engineering technology students. In total, there were 257 students involved in the study and they were in their first semester. The researchers also looked into other variables which could influence the learning styles of the students and they are course of study, working experience, latest qualification and the place which they come from, i.e. rural or urban area. Williams, Brown and Etherington(2013) have suggested that a study should be conducted to look at the influence of demographic variablessuch as regions in students' preferred learning styles.

The study answered the research questions of: 1. What is the learning styles of engineering technology and non-engineering technology students? 2. Is there any significant relationship between course of study and learning styles? 3. Is there any significant relationship between qualification and learning styles? 4. Is there any relationship between students from rural or urban area and learning styles? 5. Is there any significant relationship between working experience and learning styles?

There are various definitions of learning styles where it is labelled as "a confusion in the definition" (Curry, 1990). Cassidy (2004) defines learning styles as the ways each individual approach different learning tasks. In addition, models and concepts of learning styles have been introduced and some of the significant models or concepts are R. and K. Dunn model, model of Myers and Briggs, and the concept of Kolb. Kolb (1984), Honey and Mumford (2002) and Felder and Silverman (1998) present a concept of learning styles where it is considered impermanent or flexible which changes according to situation. To further identify the students' learning styles, instrument was developed and one of the common is VARK questionnaire.Many studies have been conducted on students learning styles and its

relationship to other variables such as field of study, students' performance and other variables. Some studies found that there were significant differences between students enrolling in different major of studies and field of study (Canfield, 1988).Dangwaland Mitra(1988) also found that field of study is related to learning styles and their study supported the finding in previous study by Kolb (1984) which found that there is positive relationship between learning styles and the specialization of study. The finding produced the same finding by Biberman and Buchanan (1986) which studied students learning styles among major program in business consist of accounting and economics / finance and marketing and management. In addition, 55% of nursing students at public university in Jordan have multimodal learning styles with kinesthetic as the dominant preference, associated with visual and read or write styles (AlKhasawneh, 2013). Klement (2014) also found that majority of the students of Faculty Education at Palacky University Olomouc, prefer kinesthetic learning styles.

Students come from all over the places in Malaysia, which include rural and urban area. Cox et al. (1988) highlighted that students from rural area are more concerned and involved in learning process as compared to students from urban area, while James, D'Amore and Thomas (2011) found that students from rural area have significant difference with the students from urban area in visual and kinesthetic score.

MATERIAL AND METHODS

A survey was employed in gathering data for this study. One session was arranged with the respondents for data collection purposes and it was held during the orientation week. The researchers asked the students to assist by answering the questionnaire given, but no explanation was given on how to answer the questionnaire. If the students read the instructions given in the questionnaire, they should realise that they can select more than one answers which suit them. The rationale of not explaining is to let the respondents to provide honest feedback.

Instrument

In order to find out the learning strategies employed by the students of engineering and non-engineering students, questionnaire was applied. There are two parts of the questionnaire where part A was on the demographic, while part B was on the questions about learning styles. The study has applied the VARK questionnaire which consists of only 13 questions to determine students learning styles. It is among the brief questionnaire for

learning styles, concise and it has been used in many other studies for various fields such as dental (Murphy et al., 2004) and online education (Zapalska and Brozik, 2006). Furthermore, VARK questionnaire is a reliable instrument since the items have been checked for the reliability in a study with nursing students in Jordan (α=0.85) (AlKhasawneh, 2013). VARK covers all four learning styles which are Visual (V), Aural (A), Reading / Writing (R) and Kinesthetic (K). Aural is for learners who prefer to listen to speech, reading / writing (R) is for students who prefer to assess information through printed words, visual (V) is for students who like to receive information in the form of graph, charts, flow diagrams, or any pictures and lastly is kinesthetic (K) which for students who learn by doing. VARK questionnaire was developed by Neil D. Fleming in 1995 at Lincoln University, Canterbury, New Zealand (Zapalska and Brozik, 2006). Canfield (1988) positively recommended VARK questionnaire since it permits teachers to match their teaching styles better according to students learning styles. Furthermore, it is among the simplest questionnaire available for learning styles and useful to teachers and students (James, D'Amore and Thomas, 2011).

Sample and setting

This study was conducted at one of private universities in Johor Bahru which is known for its establishment as the university that offers engineering technology programs. The respondents were from semester 1 students who just enrolled in any of the four different degree programs which are Industrial Logistics, Quality Engineering, Instrumentation and Control Engineering, and Facilities and Maintenance Engineering.

TABLES AND GRAPHS

Table 1: Respondents' profile

Variables	Frequency	Percentage (%)
Gender		
Male	158	61.5
Female	99	38.5
Age		
19-20	119	46.3
21-22	119	46.3
23-24	15	5.9
25 and above	4	1.6

Program		
BIL	135	52.5
BQE (BET)	44	17.1
BICE (BET)	64	24.9
BFaME(BET)	14	5.4
Previous qualification		
Diploma	98	38.1
Foundation / Matriculation	63	24.5
STPM	96	37.4
Social background (Living area)		
Rural	134	52.1
Urban	123	47.9

Table 2: Mean and Standard Deviation

Learning styles	Mean	SD
Visual	2.3	1.3
Audio	3.8	1.6
Reading / Writing	4.1	1.6
Kinesthetic	2.9	1.6

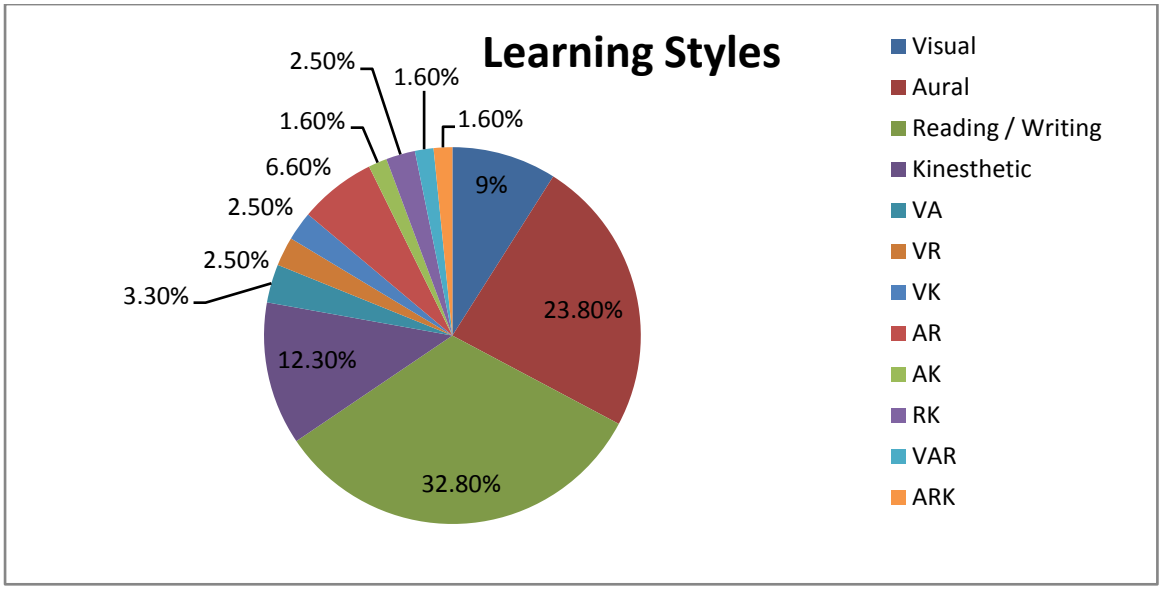

Figure 1: Preferred learning styles among the engineering technology students

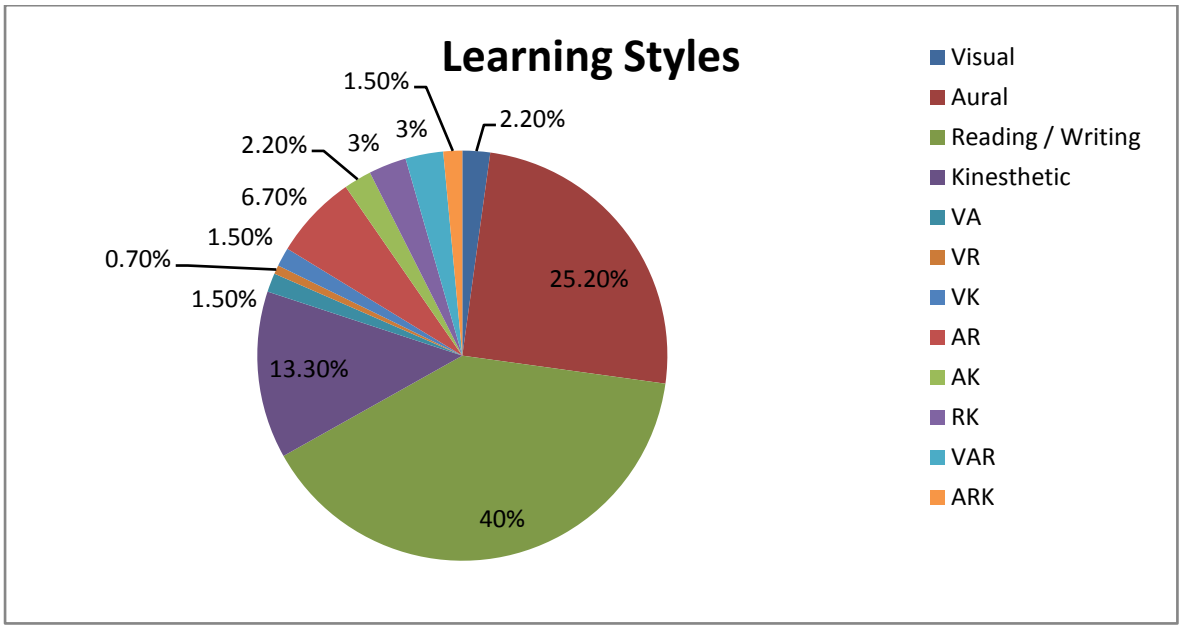

Figure 2: Preferred learning styles among the non-engineering technology

RESULTS

257 respondents from the first semester students have involved in the study.Among 257 respondents, 158 are male (61.5%), while 99 are female (38.5%).Majority of them are between 19 to 22 years old (92.6%) as they just completed their foundation / matriculation or diploma program.They are from four different degree programs which are Industrial Logistics, Quality Engineering, Instrumentation and Control Engineering, and Facilities and Maintenance Engineering. However, Industrial Logistics does not consider as Engineering

Technology program since it does not involve any engineering subjects. From the total respondents, 135 of them are from Industrial Logistics (52.5%), 43 respondents are from Quality Engineering (16.7%), 63 respondents are Instrumentation and Control Engineering (24.5%) and 13 respondents are from Facilities and Control Maintenance (13%). It is not a balance distribution as engineering programsare dominated by male students like in many higher learning institutes.These respondents mostly have obtained their diploma before they proceed with the degree program at Universiti Kuala Lumpur, MITEC. 38% of the respondent registered for degree program after they completed their diploma, followed by respondents with qualification of STPM which is 37.4% and the balance is the respondents who have completed their foundation or matriculation programs (24.5%). In addition, number of respondents who come from rural area is slightly higher than those who are from urban area with a difference of 4.2%.

In order to answer the research objectives on the relationships between the independent variables which are course of study, previous qualification, work experience and living area and the four elements of VARK, the analysis was done by using SPSS. In order to find the relationship between the variables, the data was analyzed by using the chi-square test since the data is nominal or ranked. Due to that, pearson correlation was not applicable since it is only for interval or ratio data. Based on the analysis, it shows that there is no relationship between VARK and course of study, qualification, background of students either they come from rural or urban area, and working experience.

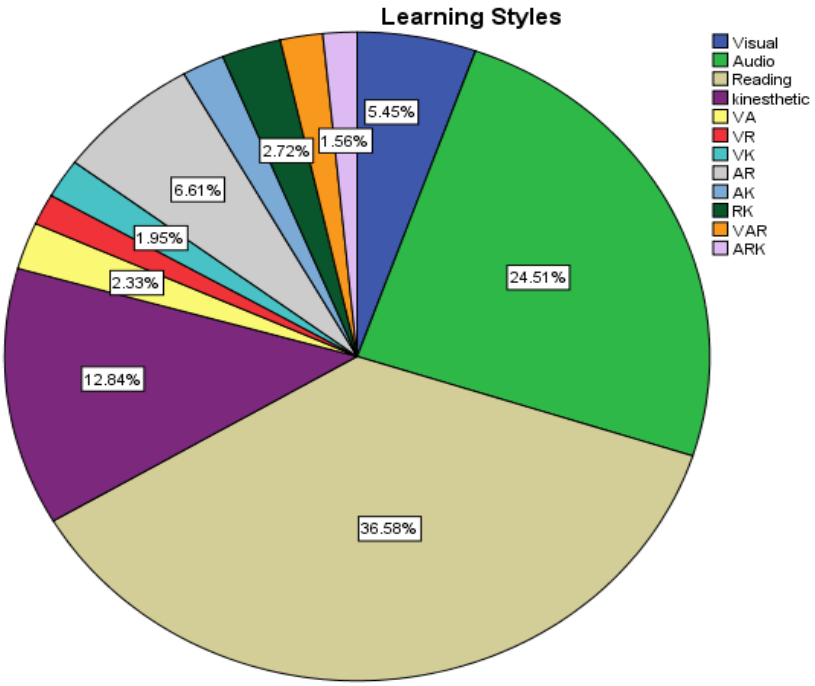

Figure 3: The percentage of students with preferred learning styles

Based on figure 3 above, majority of the respondents (37.35%) preferred reading learning styles. It means that they tend to apply only single style towards learning task. They also used other styles, but the most dominant was reading. The respondents also did not prefer multimodal learning styles instead they preferred to employ single or unimodal learning style. In details, the weightage of preferred learning styles were 79.3% for unimodal, 17% for bimodal and 3.5% for trimodal. For research question 2, a chi-square was performed and it was found that there was no relationship between learning styles and course of study, X^2 (11, N=257) = 9.16, p = .61.For research question 3 which looked into relationship between qualification and learning styles, again chi-square was performed and it was found that there is no relationship between the two variables, X^2 (22, N = 257) = 11.99, p = .96.Research question 4was looking at the relationship between learning styles and geography status, either rural or urban. The chi-square test for these two variables was X^2 (11, N = 257) = 14.37, p = .21. Based on the result, again there is no relationship between the place and learning styles and the same finding was found for research question 5, X^2 (11, N = 257) = 5.55, p = .90 which looked into the relationship between learning styles and working experience.

DISCUSSION

The finding from this study highlighted the learning styles employed by the students of engineering technology and non-engineering technology. Both groups preferredunimodal learning style which is reading / writing learning style that is the most dominant as compared to other learning styles. In fact, most students from both engineering technology and non-engineering technology employed the same learning style which is reading / writing. This could be due to their habit of study when they were in school where reading might be the only learning style that they have been exposed to. The result is in contra to a study on learning styles among the undergraduate dental students at King Saud University where more students prefer multimodal than unimodal (Asiry, 2015).Nonetheless, another study found that in average Mechanical Engineering students from three different private higher learning institutes in Malaysia preferred unimodal learning style which is visual style (Koh and Chua, 2012). The result from this study has proved that students between the age of 19 – 25 are unimodal, as suggested by VARK database (Fleming, 2009). The respondents prefer reading learning styles maybe because they just enter a different level of study. They assume that at university level, they have to read a lot and some of them were from school, and have yet to adapt to the way of learning at university. If the same study to be conducted after few more semesters, there might be differences in their learning styles as there are other possible variables like different learning environment, content which might change students' learning styles (Williams, Brown and Etherington, 2013).

The finding from this study has also shown that there is no relationship between course of study and learning styles (research question 2).Both engineering technology and non-engineering technology students preferred the same learning styles. The only similarity that all the students have is they were in the first week of their first semester. Thus, they have yet to adapt to the new environment of learning. Research question 3 has the same finding with research question 2 where no relationship was found between previous qualification, i.e. certificate, diploma or foundation / matriculation. As for research question 4, the analysis found that urban or rural area did not affect students in choosing most preferred learning styles. However, this is in contra to the finding on academic performance among engineering students where the students from rural area had poor performance as compared to the students from urban area (Felder et al., 1994). Furthermore, the elements of culture might also influence them on the style to study.To further validate that, another study should be conducted to understand better on the parameter. Due to the development of technology,

students at rural area are no longer left behind and, for that there is no connection between living area and learning styles. This could be due to accessibility of information on the Internet which enables them to reach for information. The results have similar finding with the study of school location and academic performance in Nigeria (Ezeudu, Olaowei and Umeifekwem, 2014) which stated that school location does not determine the academic achievement of the students. This finding has come to an agreement with the finding in a report by Canadian Council of Learning (2006) which has concluded that there is no obstacle for school in rural area to excel like the ones in urban area. Internet does not affect students learning style since most of them chose single module of learning. This could be due to the program that they joined where non-engineering technology requires students to read a lot. Besides that, it might happen due to insufficient exposure towards learning styles.

It is very much recommended for teachers or lecturers at university or colleges to consider students' learning styles in preparing activities or materials for teaching. In fact, they should receive proper training or information on the suitable activities for the certain types of learning styles as that could enable students acquire the skills or knowledge better. It is very common especially among private universities to employ manpower from the industry as their experience could contribute to the improvement of the university and at the same time to impart knowledge to the students. However, they do not have proper teaching training or any proper knowledge or theory behind teaching. Due to that, some teachers or lecturers prepare the teaching materials or activities based on their own assumption which may not be suitable to the students (Dunn, 1993). Thus, information on students learning styles is important, to both students and teachers.

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