PREFERRED LEARNING APPROACHES, LEARNING METHODS AND LEARNING ENVIRONTMENTS: A CASE STUDY OF UNIVERSITI TEKNOLOGI MARA (UiTM) SARAWAK, MALAYSIA

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Abstract

Employers have been critical about graduates' lack of employable qualities. One of the steps to improve students' quality is to understand their learning approach. Thus, the aims of this research are: to determine the impact of students' learning approaches on their academic performance, to rank the learning methods and learning environments preferred by them. The instruments used are the Revised SPQ, and Jarvis and Woodrow's learning environments and methods. The subjects (N = 400) of this study were undergraduates students of Universiti Teknologi MARA Sarawak. The survey used self-administered questionnaire. The key findings were: students using deep learning approach performed better academically than those using surface learning approach; lecture, and hearing and explanation are preferred by most students. In line with the findings, program management and academician need to tailor their teaching with students' specific needs. Furthermore, program management needs to plan intervention programs – such as effective study skills – to encourage students to be more independent, learn in groups and be more resourceful learners.

Keywords :Learning approach, learning method, learning environment, deep learning approach, surface learning approach

1. Introduction

Employers have been critical about graduates' lack of employable qualities such as critical thinking, reflective thinking, and the ability to solve novel problems, and their preparedness for work. As such, there have been many criticisms and suggestions as to how students should approach their learning to enhance those critical skills. In this respect, the former Minister of Higher Education, Dato' Mustapa Mohamed, in his message in the National Higher Education Action Plan (NHEAP) 2007-2010, reiterated that for the Ministry of Higher Education (MOHE) to bring Malaysia's higher education to a greater height is by strengthening the teaching and learning in universities. One of the steps to improve students' quality is to understand their learning approaches methods and environments most preferred by them. Therefore, with that agenda in mind, the aims of this study are threefold: first, to determine the relationship between students' learning approaches and their academic performance; second, to identify the learning environments preferred by most students; and third, to determine the learning methods preferred by most students in their effort to achieve excellence in academic at Universiti Teknologi MARA, Sarawak, Malaysia.

2. Literature review

2.1. Introduction

Different learning approaches, learning methods and learning environments are believed to have different effects on students' academic performance (Biggs, Kember and Leung, 2001). There are examples of studies showing the relations between teachers' conception of teaching and learning and their approaches to teaching, as well as relations between students' deeper approaches to learning and higher quality learning outcomes (Trigwell, Prosser, and Waterhouse, 1999). Additionally, a wide variety of individual learning styles and approaches has been identified and it would not be safe to conclude that any one approach would meet the needs of an entire cohort of students (Wishart, 2005). Other findings indicate that students have different levels of motivation, different attitudes about teaching and learning, and different responses to specific classroom environment and instructional practice (Felder and Brent, 2005). Interestingly, the broad distinction between an orientation towards comprehending the meaning of learning materials [deep learning approach or DLA] and an orientation towards merely reproducing those materials [surface learning approach or SLA] seems to be a universal feature of all systems of higher education (Richardson, 1994).

2.2 Learning Approaches

The first term to be understood is learning approaches. Marton and Saljo (1976) explain that student approaches to learning is how students study depending on the perceived objectives of the course they are studying. They found that students could be divided into two distinct groups, those that used an understanding approach to learning [DLA] and those that took a reproduction approach to learning [SLA]. Previous studies have shown that learning approaches can influence academic performance. Based on this idea, Coffield, Moseley, Hall, and Ecclestone (2004) posit that teachers and course designers should pay close attention to students' learning approaches. In one study done by Jones (1992), it was found that students using DLA are more organized as they have a rough study schedule, make their own notes and review their notes. Similarly, several studies by Entwistle (1998) have shown that a DLA to studying is related to high levels of attainment in higher education, while a SLA is more likely to lead to failure. Other studies similarly reveal considerable evidence supporting the DLA-SLA division of student learning (Zeegers, 2002) and that the DLA is thought to lead to greater academic success (Snelgrove and Slater 2003).

2.3 Learning Methods

Learning methods refer to the way in which teachers transmit the contents of a subject to the students. Learning method preferences refer to students' preference for the way in which teachers transmit most successfully the contents of a subject to the students. Jarvis and Woodrow (2001) contended that the most popular method of learning among all students, and undergraduate was talking and discussing. For mathematics students they found that they learned better by doing problems than talking and discussing; likewise the Science and Art students. Students in general were much more likely to prefer methods that are more associated with hearing an explanation and doing problems. As for English language students felt that they could learn

independently by reading books and doing their own research when compared to Mathematics students.

Wishart (2005) arrived at similar finding for Information Science (IS) students, that is, they preferred talking and discussing while Computer Science (CS) students were more likely to use solving problems. Even though they differed in their first preference, they shared hearing an explanation as their second most popular method of learning. The least preferred learning method, for both IS and CS students, was reading journals; while reading online was surprisingly unpopular even though there was an increasing tendency for students to rely on the Internet (Wishart, 2005). A study by Jarvis and Woodrow (2001) showed a strong negative association between memorising and practising and the dimensions of the learning method preference while talking and discussing were positively correlated with an interactive and DLA. These indicated that DLA required active interaction in preference to teacher-centred methods of instruction. Students who felt they learn well by memorizing were usually learning through the surface approach.

2.4 Learning Environments

Learning environment refers to the situation in which the students learn their subjects. Learning environment preferences refer to an individual's preferences for the situation in which they feel they learn most successfully (Jarvis and Woodrow, 2001: 5). Dunn (1991) claimed that an individual's environmental preferences were resistant to change. However, it is clear that to some extent students do adapt to incompatible environments, although how much impact a mismatch has on learning outcomes is unclear. Institutions of higher education provide varied and many learning environments for their students, some are more interactive than others. A study by Jarvis and Woodrow (2001: 21) finds that preference for lectures correlates negatively with interaction (a deep approach to learning and relativist views of knowledge); while a preference for workshops correlate positively with interaction and a deep approach.

3. Methodology

This is a study investigating the relationship between students learning approaches, learning methods and learning environments and their academic performance without trying to influence and manipulate the variables. The subjects of this study involved undergraduate students from four academic programs of Universiti Teknologi MARA (UiTM) Sarawak, namely: Bachelor of Accounting (Honours) (BAcc), Bachelor of Administrative Science and Policy Studies (Honours) (BAS), Bachelor of Business Administration (Honours) (Marketing) (BBA-M), and Bachelor of Business Administration (Honours) (Finance) (BBA-F). As the population of the students involved was considered small (N = 400), everyone was invited to participate in the study. The survey was carried out in class and facilitators were around to facilitate the students if they had difficulties in understanding the instructions and questions but not to the extent that suggested answers.

The instrument used is based on Biggs, Kember and Leung (2001) 20-item Revised-Two-Factor Study Process Questionnaire (Revised SPQ), six learning methods plus five learning environments based on Jarvis and Woodrow (2001), and a modified version of learning environment by Wishart, (2005), on the students' academic performance at Universiti Teknologi MARA, Sarawak, Malaysia. The questionnaire is divided into four sections. Section A requires respondents to provide their personal information which consists of age,

gender, degree studied, year of study, and previous grade point average (GPA). Section B requires respondents to state their level of agreement or disagreement with the Revised SPQ items on a scale of between 1 (never or only rarely true of me) and 5 (always or almost always true of me). The dimensions and items for this section are based on Biggs, et al (2001). Section C requires respondents to rank their preferred learning environment from 1 (most preferred), to 5 (least preferred). Section D requires respondents to rank order the preferred learning method from 1 (most preferred) to 6 (least preferred). The dimensions for sections C and D are based on Jarvis, et al (2001) as modified by Wishart (2005). Relevant statistical techniques from the Statistical Package for Social Science (SPSS) were used to address the research questions.

4. Analysis and findings

Out of 400 students invited to participate, only 215 responded and fully completed the questionnaire, representing a 53.75% response rate. The result of the analysis shows that female students were dominating the enrolment in each programme. This is true of almost all the other public universities in Malaysia. The enrolment of students among the four programs was also not evenly distributed. This is in line with findings by Jarvis and Woodrow (2001) indicating marked gender differences in applications for entry to higher education. Students from BBA-M provided the majority of the respondents with 36.6% (79 students), while BAcc and BBA-F each provided 24.9% (53 students). The lowest with 13.6% (30 students) came from BAS. The majority of the students were in year two with 51.2% (110 students), followed by year three 26.8% (58 students), then year one at 16.4% (35 students), and finally year four with only 5.6% (12 students).

4.1 Learning Approaches

The main scales of the instrument were scored according to Biggs, Kember and Leung (2001) formula as shown in Table 1. The finding reveals that students used different learning approaches in their effort to achieve a better academic performance. The students are inclined to adopt DLA (average score = 3.28) in comparison to SLA (average score = 2.99). As noted in Table 2 and Table 3, mean DLA and mean SLA ($p = 0.001 < 0.05$) make significant contribution of 6.2% ($R^2 = 0.062$) to the variance in respondents' grade point average. This means that the independent variables, DLA and SLA have significant influence on students' academic performance. This result is consistent with several previous studies. For example, Jones (1992) found that students using DLA are more organized as they have a rough study schedule, make their own notes and review their notes. Likewise, Entwistle (1998) have shown that a DLA to studying is related to high levels of attainment in higher education, while a SLA is more likely to lead to failure. On similar note, Snelgrove and Slater (2003) found that using DLA lead to greater academic success. However, Biggs (1979) cautions that scores along the SPQ dimensions are regarded as tendencies, which are more likely to be actualised as the situation specifically demands. Thus, one might more confidently assume that the person scoring high on SLA will adopt utilising strategies when he is specifically instructed to rote learn facts and details.

Table 1: The calculation of the main scale average scores of Revised SPQ

Deep Learning Approach (DLA) Average score based on questions	Surface Learning Approach (SLA) Average score based on questions

(1+2+5+6+9+10+13+14+17+18)/10 = 3.28	(3+4+7+8+11+12+15+16+19+20)/10 = 2.99

Source: Biggs, Kember and Leung, 2001. Note: The responses to items were scored as follows: 1 (never or only rarely true of me) to 5 (always or almost always true of me).

Table 2: ANOVA[b] of Regression Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.129	2	1.064	7.041	0.001[a]
	Residual	32.052	212	0.151		
	Total	34.181	214			

a. Predictors: (Constant), Mean SLA, Mean DLA
b. Dependent Variable: previous GPA

Table 3: Model Summary of Regression Analysis

Model	R	R Square	Adjusted R Square
1	0.250[a]	0.062	0.053

b. Dependent Variable: previous GPA

Similarly, he goes on to say that the person who is high on DLA scores high when instructed to learn meaningfully. Another caveat according to Chan and Watkins (1994) is that, in any study of student perceptions it must be remembered that 'actuality' may reflect either what the students are really experiencing or doing or what they think (or are prepared to report) that they are experiencing or doing. Besides, there are a number of other contextual and environmental factors that can influence whether students choose to use SLA or DLA for a particular learning task. In this connection, Gow and Kember (1990) have identified work pressures, assessment pressures, extrinsic motivation, and rote memorization as contributing factors. In another situation, Groves (2005) reveals evidence that learning approach is likely to be influenced by teaching quality, type of assessment and learner characteristics.

4.2 Learning Environments

In the case of the learning environments preferred by students, they were asked to rank each type of the learning environment according to their preference using 1 for most preferred and 5 for the least preferred learning environment which answers objective 2 of the research. As shown in Table 4, the overall result indicates that lectures (average score 2.59) are the learning environment preferred by most students, while individual research (average score = 3.28) are less favoured by the students. Note: as the rank is from low (1) to high (5), low average score indicates the most preferred choice.

Table 4: Learning environment according to respondents' preference

Rank	Lectures		Seminar Discussion		Small Group Tasks	
	Count	Score	Count	Score	Count	Score

1	89	89	50	50	29	29
2	16	32	26	52	44	88
3	27	81	65	195	64	192
4	61	244	40	160	41	164
5	22	110	34	170	37	185
Total	215	556	215	627	215	658
Average score		2.59		2.92		3.06

Table 4: Learning environment according to respondents' preference (cont)

Rank	Practical Workshop		Individual Research	
	Count	Score	Count	Score
1	24	24	20	20
2	57	114	74	148
3	34	102	26	78
4	53	212	16	64
5	47	235	79	310
Total	215	687	215	620
Average score		3.20		3.28

Note: Calculation of average score = (Count x Rank) / 215

This result differed from Wishart (2005) whose study indicated that preference is towards talking and discussing. However, it has to be borne in mind that Wishart's respondents were students from Computer Science and Information Science disciplines while the respondents for this study were from Business and Management discipline as well as Social Science discipline. On the other hand, the result is consistent with the study conducted by Jarvis and Woodrow (2001) which shows that students of the soft subjects [social disciplines] prefer lectures.

Based on the above, Gieve and Clark (2004) urge that it is important to recognize that different students may perceive a learning environment differently, based on their learning preferences and approaches. They believe that understanding the learning behaviour may provide insights into students' learning across cultures and into individual students' learning needs. In this regard, they suggest that lecturers pay more attention in determining how students' learning preferences can affect their attitudes and learning approaches and in turn impact their learning outcomes.

4.3 Learning Methods

As shown in Table 5, the result reveals that hearing and explanation (average score 2.44) is preferred by most students while the least preferred is solving problems (average score 4.02). Note: as the rank is from low (1) to high (6), thus low average score indicates the most preferred choice.

Table 5: Learning methods according to respondents' preference

Rank	Hearing an Explanation		Talking and Discussing		Reading Books	
	Count	Score	Count	Score	Count	Score
1	95	95	48	48	41	41

2	57	114	84	168	35	70
3	14	42	29	87	42	126
4	4	16	4	16	9	36
5	12	60	14	70	26	130
6	33	198	36	216	62	370
Total	215	525	215	605	215	775
Average score		2.44		2.81		3.60

Table 5: Learning methods according to respondents' preference (cont)

Rank	Reading Journals		Reading Online		Solving Problems	
	Count	Score	Count	Score	Count	Score
1	17	17	8	8	12	12
2	18	36	13	26	8	16
3	64	192	37	111	28	84
4	30	120	63	252	107	428
5	51	255	73	365	35	175
6	35	210	21	126	25	150
Total	215	830	215	888	215	865
Average score		3.86		4.13		4.02

Note: Calculation of average score = (Count x Rank) / 215

The findings of this research also suggest that students are dependent on lecturers to help them to understand content knowledge. The results indicate that they are very dependent on what is delivered by their lecturers and they need lecturers to explain in details what is taught. This result also indicates that most of these students are not resourceful investigators and do not favour critical thinking.

This result differed from Jarvis and Woodrow (2001) who contended that the most popular method of learning among all students, and undergraduate were talking and discussing. Similarly, Wishart (2005) concluded that for IS students, preferred talking and discussing while CS students were more likely to use solving problems. The least preferred learning method, for both IS and CS students, was reading journals. A study by Jarvis and Woodrow (2001) shows a strong negative association between memorising and practising and the dimensions of the learning method preference while talking and discussing are positively correlated with DLA.

4.4 Summary

Even though, the findings of this study were consistent or inconsistent with past studies elsewhere, the findings was unique in view of the facts that the students in this study came from a different cultural background as those in other studies such as Australia, Hong Kong, USA, UK and Europe. Furthermore, most past studies focused on students from science streams (for examples, in Jarvis and Woodrow, 2001; Wishart, 2005) as opposed to the current study whereby students were from social sciences and subjects taken were mostly business related. The nature of business related subjects of emphasizing problem-based learning which requires students to solve business problems, case studies and display decision making skills also contribute to this scenario. Hence, deep learning approach is most appropriate way of learning.

5. Conclusion and Implications

5.1 Conclusions

The learning approaches, learning environments, and learning methods chosen by students are partly influenced by the reasons why they want to learn. Also, as mentioned earlier, other variables that may impinge on their choice of learning approaches, learning environments, and learning methods are the context of teaching-learning, the materials used by lecturers, and a host of other factors.

Objective 1 is to determine the relationship between students' learning approaches and their academic performance. From the findings and discussions above, it can be concluded that the students' learning approach can influence their academic performance. This is supported by mean DLA and mean SLA which make significant contribution to the variance in respondents' grade point average.

Objective 2 is to identify the learning environments preferred by most students. It can be concluded that lectures is the learning environment preferred by most students, while individual research is least favoured by the students.

Objective 3 is to determine the learning methods preferred by most students. The conclusion is that hearing and explanation is preferred by most students while solving problems is least favoured by the students.

5.2 Implications

These conclusions suggest that intervention programmes (such as effective study skills and critical thinking skills, etc.) are necessary to meet the needs of the students in general in terms of teaching delivery and teaching approaches of the lecturers. Recognising this aspect can enable lecturers to identify the appropriate teaching delivery methods that suit certain groups of students and encourage students to be more independent in their learning behaviour and inculcate the need of critical thinking among students. Essentially, this research can provide information to program management and academicians to tailor their teaching in response to students' specific needs in an effort to bridge the gap between learning and teaching. Furthermore, it may provide insight to help management decision-making to plan intervention programmes to encourage students to be more self-dependent and learn in groups as well as be more resource investigators. Finally, the authors suggest a shift from knowledge transfer teaching approaches that focus on large student-number lectures to student-centered, focusing on learning and assessment tasks.

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