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Learning Approaches and Academic Performance

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Abstract

Since Graduate on Time (GOT) being introduced as one of their key performance indicators (KPIs), certain higher education institutions are facing with situation where students are unable to complete their studies within the specified time frame. Various learning approaches have been adopted by educators in their effort to enhance students' examination results so as to assist them to graduate on time. Studies by Tan and Laswad (2015) and Davidson (2002) have proven that learning approaches do significantly give an impact to academic performances, while Djajadikerta *et al.* (2008) and Chan (2011) have shown otherwise. Hence, this study is performed in order to provide further evidences concerning learning approaches and their impact onto students' academic performance, i.e. their examination grades. Using Biggs' (1987a) Study Process Questionnaire, 208 completed questionnaires are obtained from final semester students of Diploma in Accountancy from Faculty of Accountancy, UiTM Perak Branch, Tapah Campus. Data pertaining to their previous semesters' grades are obtained from the online academic system and analyses are performed using SPSS. The result reveals a significant positive relationship between learning approaches and Cumulative Grade Point Average (CGPA), and it has definitely add credence to the body of knowledge pertaining this matter.

Keywords: Learning approach; Learning styles; Academic performance; Accounting education.

1. Introduction

Learning approach refers to a person's concept on learning motivation via employment of suitable strategies (Zhang and Stenberg, 2000); while learning style is the cognitive strategies by which a person obtains and applies knowledge (Swanson *et al.*, 2005); Learning approach is also considered as a link between the learning environment and the learning styles where these learning styles are being influenced by a person's character that does not normally change overnight.

Based on past studies, approaches to learning could be categorized either into 'deep', 'surface' (Marton and Saljo, 1976) or 'achieving' approaches (Biggs, 1987a). Diseth (2007) finds that 'surface' and 'strategic" approaches to learning are predictors to the students' examination grades, together with other factors such as 'workload-demands'. However, different results are recorded by Djajadikerta *et al.* (2008) for a study that has been carried out on accounting students where it shows a negative correlation between 'deep' and 'surface' approaches with perceived performance for the female students. In fact, Duff *et al.* (2002) state that learning approach is a poor predictor for academic performance.

Hence, it is important for educators to know whether the learning approach does affect academic performance or otherwise. If there are enough evidences on their relationships, then the academicians should give more attention to students' learning approaches.

This is done in order to help them in improving their academic performance and consequently assist them to complete their studies on time, as stipulated in the respective programs' requirements. Students need to complete their study on time as failure to do so would cause additional costs incurred by them as well as the respective institutions. Able to graduate on time is definitely a bonus to the society as these students have already successfully

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obtained the necessary qualifications that enable them to contribute to the development of the country. Accordingly, the objectives of this research are to find out the relationships between learning approaches (LA) and grades for two selected accounting courses, Financial Accounting 4 (FAR270) and Accounting Information System (AIS205), LA and *Cumulative Grade Point Average (CGPA)*, and to look at the differences in their preference of LA between genders.

The remainder of this paper is divided into four sections: Section 2 deliberates on the literature review and hypotheses development; Section 3 touches on research methodology that are being employed; Section 4 relays the analyses, and it ends with Section 5, conclusion and recommendations.

2. Literature Review and Hypotheses Development

There are numerous learning styles and learning approach models constructed and tested for over more than twenty years, such as Gregorc Learning Styles, Canfield Learning Styles, Myers-Briggs Type Indicator, Learning Styles Inventory, Learning Styles Profile, Inventory of Learning Process, Learning Approach Questionnaire, Felder-Soloman Index of Learning Style (ILS) Approach to Studying Inventory, VARK (Visual, Aural, Read/Write and Kinesthetic) and the Study Process Questionnaire.

The Index of Learning Style (ILS), for instance, measures learning style by visual-verbal dimension where lower score of the inventory represents visual and higher score for verbal (Galvan, 2007). The Myers-Briggs Type Indicator (MBTI) which relies heavily on personality theory, provides categorical scorings on four scales; extraversion-introversion (E-I), sensing-intuition (S-N), thinking-feeling (T-F) and judging-perceiving (J-P). Kolb's Learning Style Inventory (LSI) differentiate learning style into four-steps cycle; concrete experience (CE), reflective observer (RO), abstract conceptualization (AC) and active experiment (AE) (Salter *et al.*, 2006).

Davidson (2002) finds several interesting results relating to learning approaches. Using the results from two large sections of Introductory to Financial Accounting course in a Canadian university as the dependent variable, he reveals that there is a significant relationship between performance on complex examination questions and the use of deep study approach. However, in another finding he states that there is no significant relationship between the use of deep study approach and performance on examination questions that are less complex. This implies that questions with different level of complexity would require different approaches to learning.

However, study done by Djajadikerta *et al.* (2008) has proven otherwise. They have investigated the association between adopted learning approaches and perceived academic performance of the accounting students in Indonesia. Their respondents are comprised of 271 accounting undergraduate students attending one of the oldest and most reputable private universities in Indonesia. Biggs (1987a) Study Process Questionnaire (SPQ), they state that there is no correlation between adopted learning approaches with perceived academic performance. Further, their results show a completely different trend between the male and female students. While the female students are having negative correlation between both surface and deep approaches scores, and performance, the reverse findings are found for the male students'.

In another study by Duff *et al.* (2002); they have tested on 146 social science students in Scotland pertaining to the relationship between students' learning approaches to age, gender, prior educational achievement and academic performance. They also have highlighted that the three dimensions of learning approaches to be poor predictors for academic performance.

Focusing on introductory economics course of a college in California, and relying on VARK (Visual, Aural, Read/Write and Kinaesthetic) inventory which was developed by Fleming and Mills (1992) to measure the preferred learning style, Boatman *et al.* (2008`) have found that strong visual learning preference is positively related to student performance. However, this study finds that neither ethnicity nor gender influence student performance.

A more recent study by Tan and Laswad (2015) have examined the impact of different learning styles in an introductory accounting course on students' academic performance using Kolb's Learning Style Inventory, Version 3.1. Their results reveal that students' learning styles are associated with academic performance particularly for final examination results. Interestingly, this study has highlighted that assessment should be designed in such a way that they are not biased towards a particular learning style. The findings have exhibited that the so called 'assimilating learning style' appears to perform comparatively better than those with 'diverging' or 'accommodating' learning styles.

In comparing students' blended learning and traditional approaches, Chan (2011) has shown that by switching from traditional to blended learning methods, there is no improvement in the students' final grade performance. Rather their improvements are achieved via their ongoing in-depth class activities involvements.

Further, (Clark and Latshaw, 2012) also have investigated the student's performance of an introductory accounting group of students. The findings of this study have pointed out that the 'reflective' and 'sensing' learning styles contribute significantly to students' accounting grades. Their results also have highlighted that students' effort surrogated by computer graded homework could significantly affect the student's performance in accounting courses.

Additionally, critical thinking is also considered as a predictor for students' academic performance. Based on the final year students of Bachelor in Accountancy from six Malaysian universities, (Puteh and Abdul, 2014) has verified that there exists a significant difference in critical thinking levels between high, moderate and low performance students.

Based on the above discussions, the following three hypotheses are developed and to be tested in this study:

H1: There is a significant relationship between LA with exam grades for course FAR270

H2: There is a significant relationship between LA with exam grades for course AIS205
H3: There is a significant relationship between LA with *CGPA*
H4: There is a significant difference in LA between genders

3. Research Methodology

In identifying the learning approaches, this study uses the revised version of Study Process Questionnaire that consists of 42 items which are being classified into "Surface", "Deep" and "Achieving" (Biggs, 1987a). A total of 258 questionnaires have been distributed to all final year students of Diploma in Accountancy (AC110) of UiTM Cawangan Perak, Tapah campus during the second semester of 2016/2017 studying session, with 208 (81%) usable completed surveys. As for the examination results, data are gathered through the Students Information Management System (SIMS) which is accessible by all lecturers.

The two selected courses for this study are; Financial Accounting 4 (FAR270) and Accounting Information System (AIS205). FAR270 is a semester 4 course, while AIS205 is a semester 3 course. These courses have been chosen due to the differences in the nature of studying those courses. FAR270 is a financial accounting course which requires good knowledge in accounting, i.e. in identifying and applying various standards of International Financial Reporting Standards and the Generally Accepted Accounting Principles. While, AIS205 is a lab course which emphasizes more knowledge in accounting computer applications and systems.

4. Analyses

This section starts off with descriptive statistics, and followed by results and discussion.

4.1. Descriptive Statistics

In this study, out of the 208 respondents, 39 are male students and 169 are female students. The data is collected according to five main variables: learning approach, gender, FAR270's Grade, AIS205's Grade and CGPA. Based on the results reported in the table below, 39.4% of the students are categorised under surface approach, 35.6% of students are under achieving approach and 25% are more comfortable to use deep approach. The grades for both courses, FAR270 and AIS205, are not much of a difference where their grades are in the range between A and B.

Table-1. Summary of main variables

Items		Frequency	Percentage (%)
Learning Approach	Surface	82	39.4
	Deep	52	25
	Achieving	74	35.6
Gender	Male	39	18.8
	Female	169	81.2
FAR270	A	85	40.9
	B	89	42.8
	C	34	16.3
AIS205	A	95	45.7
	B	92	44.2
	C	21	10.1

The only continuous variable in this study is the student's CGPA. The minimum and maximum of student's CGPA is between 2.01 and 3.99 with mean of 3.37. According to the value of skewness and kurtosis, it is concluded that this variable is normally distributed since the values are between –1 and +1.

Table-2. Descriptive of CGPA

	Minimum	Maximum	Mean	Std.Deviation	Skewness	Kurtosis
CGPA	2.01	3.99	3.37	0.418	-0.900	0.307

4.2. Results and Discussion

The Chi-square test of association is being used to test Hypothesis 1 (H1), Hypothesis 2 (H2) and Hypothesis 4 (H4) which are the relationship of exam grades for courses FAR270, AIS205 and gender with the learning approaches. Table 3 shows the results of Chi-Square test of association between AIS205's grades and Learning_Approach. Based on the result, the value of Pearson Chi-Square is 6.643 with P-value is equal to 0.156 which is greater than 0.05. Hence, it is concluded that the result is not significant as there appears to be no association between Learning_Approach and student's grade in AIS205. This means that the student's grade in AIS205 is not significantly different either they take surface, deep or achieving as their learning approaches, rejecting H2.

Table-3. Chi-Square Test of Association between Learning_Approach and Student's Grade in AIS205

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.643[a]	4	.156
Likelihood Ratio	6.370	4	.173
Linear-by-Linear Association	.219	1	.640
N of Valid Cases	208		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.25.			

Table-4. Cross tabulation Table between Learning Approach and Student's Grade for AIS205

Learning_Approach * AIS205 Crosstabulation						
			AIS205			Total
			A	B	C	
Learning_ Approach	Surface	Count	34	42	6	82
		% within Learning_Approach	41.5%	51.2%	7.3%	100.0%
		% within AIS205	35.8%	45.7%	28.6%	39.4%
		% of Total	16.3%	20.2%	2.9%	39.4%
	Deep	Count	26	17	9	52
		% within Learning_Approach	50.0%	32.7%	17.3%	100.0%
		% within AIS205	27.4%	18.5%	42.9%	25.0%
		% of Total	12.5%	8.2%	4.3%	25.0%
	Achieving	Count	35	33	6	74
		% within Learning_Approach	47.3%	44.6%	8.1%	100.0%
		% within AIS205	36.8%	35.9%	28.6%	35.6%
		% of Total	16.8%	15.9%	2.9%	35.6%
Total		Count	95	92	21	208
		% within Learning_Approach	45.7%	44.2%	10.1%	100.0%
		% within AIS205	100.0%	100.0%	100.0%	100.0%
		% of Total	45.7%	44.2%	10.1%	100.0%

Further, based on the cross-tabulation results in Table 4, the percentage of students who scored A in course AIS205 between the three learning approaches, are showing slight differences in their results; 35.8% for surface, 27.4% for deep and 36.8% for achieving.

The results of Chi-Square test of association for student's grade in FAR270 and learning approaches are also not significant since the value of Pearson Chi-Square is 4.112 with P-value 0.391, which is greater than 0.05. This means that there is no association between student's grade in FAR270 and learning approaches, rejecting H1.

Table-5. Chi-Square Test of Association between Learning Approach and Student's Grade in FAR270

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.112[a]	4	.391
Likelihood Ratio	4.164	4	.384
Linear-by-Linear Association	1.003	1	.317
N of Valid Cases	208		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.50.			

Table-6. Cross-tabulation between Learning_Approach and Student's Grade in FAR270

Learning_Approach * FAR270 Crosstabulation						
			FAR270			Total
			A	B	C	
Learning_Approach	Surface	Count	33	35	14	82
		% within Learning_Approach	40.2%	42.7%	17.1%	100.0%
		% within FAR270	38.8%	39.3%	41.2%	39.4%
		% of Total	15.9%	16.8%	6.7%	39.4%
	Deep	Count	16	26	10	52
		% within Learning_Approach	30.8%	50.0%	19.2%	100.0%
		% within FAR270	18.8%	29.2%	29.4%	25.0%
		% of Total	7.7%	12.5%	4.8%	25.0%
	Achieving	Count	36	28	10	74
		% within Learning_Approach	48.6%	37.8%	13.5%	100.0%
		% within FAR270	42.4%	31.5%	29.4%	35.6%
		% of Total	17.3%	13.5%	4.8%	35.6%
Total		Count	85	89	34	208
		% within Learning_Approach	40.9%	42.8%	16.3%	100.0%
		% within FAR270	100.0%	100.0%	100.0%	100.0%
		% of Total	40.9%	42.8%	16.3%	100.0%

The Chi-square test shows that there is no difference between male and female in Learning_Approach since the value of Pearson Chi-square is 1.797 with P-value is equal to 0.407 which is greater than 0.05, rejecting H4. This is proven by the results provided in Table 6, where 35.9% male and 40.2% female prefer to use surface, 33.3% male and 23.1% female prefer to use deep, while 30.8% male and 36.7% female prefer to use achieving learning approach.

Table-7. Chi-Square Test of Association between Approach and Gender

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.797[a]	2	.407
Likelihood Ratio	1.715	2	.424
Linear-by-Linear Association	.010	1	.918
N of Valid Cases	208		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.75.			

Table-8. Cross-tabulation between Learning_Approach and Gender

Learning_Approach * Gender Cross tabulation					
			Gender		Total
			Male	Female	
Learning_Approach	Surface	Count	14	68	82
		% within Learning_Approach	17.1%	82.9%	100.0%
		% within Gender	35.9%	40.2%	39.4%
		% of Total	6.7%	32.7%	39.4%
	Deep	Count	13	39	52
		% within Learning_Approach	25.0%	75.0%	100.0%
		% within Gender	33.3%	23.1%	25.0%
		% of Total	6.3%	18.8%	25.0%
	Achieving	Count	12	62	74
		% within Learning_Approach	16.2%	83.8%	100.0%
		% within Gender	30.8%	36.7%	35.6%
		% of Total	5.8%	29.8%	35.6%
Total		Count	39	169	208
		% within Learning_Approach	18.8%	81.3%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	18.8%	81.3%	100.0%

Even though there is no association between Learning_Approach and students' grades for FAR270 and AIS205, as well as genders, there exists positive relationship between Accounting students' CGPA and Learning_Approach,

supporting H3. One-way ANOVA test is being employed in order to investigate their relationships. Table 9 shows the results of One-way ANOVA.

Table-9. Analysis of Variance

ANOVA					
CGPA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.600	2	.800	4.601	.011
Within Groups	35.813	206	.174		
Total	37.413	208			

Based on the results above, there is a significant difference in mean score for accounting students' CGPA between the three learning approaches since the value of F-statistics is 4.601 with P-value equal to 0.011, which is less than 0.05 level of significance. This means that the learning approaches do have impact on the accounting students' CGPA.The study then proceeds with the multiple comparison observations by using Tukey test in order to know which learning approach is significantly different among them. The Tukey test reveals that there exists a significant difference in accounting students' CGPA between deep and achieving since the P-value equal to 0.01 which is less than 0.05.Based on the mean difference between achieving and deep which is +0.222, it is concluded that the students who adopt achieving approach have better results compared to deep. However, there is no difference between surface and the other two learning approaches, deep and achieving.

Table-10. Multiple Comparisons between CGPA and Learning Approach Multiple Comparisons

Dependent Variable: CGPA						
Tukey HSD						
(I) Learning_ Approach	(J) Learning_ Approach	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Surface	Deep	.08993	.07349	.441	-.0836	.2634
	Achieving	-.13208	.06685	.121	-.2899	.0257
Deep	Surface	-.08993	.07349	.441	-.2634	.0836
	Achieving	-.22201*	.07503	.010	-.3991	-.0449
Achieving	Surface	.13208	.06685	.121	-.0257	.2899
	Deep	.22201*	.07503	.010	.0449	.3991

*. The mean difference is significant at the 0.05 level.

5. Conclusion and Recommendation

Studies on the relationships between learning approaches with students' examination performance in different disciplines such as accounting, engineering and nursing have shown contradict results. Although there are some studies such as Davidson (2002) and Diseth (2007) that have provided evidences on the presence of some degree of relationships between them, others like Duff *et al.* (2002) and Swanson *et al.* (2005) have proven otherwise.

Similar to Duff *et al.* (2002) and Swanson *et al.* (2005); the current study reveals that there is no significant relationship between learning approaches; surface, deep and achieving, with the students' examination grades based on individual subjects (FAR270 and AIS205). However, interestingly there exist certain levels of relationships between learning approaches and CGPA, i.e. the overall examination results.

This study has certainly contributed to the body of knowledge pertaining learning approaches and their impact towards performance, specifically the accounting students' examination results. However, the current study has included only two courses. Thus, for future study, there should be inclusion of all courses registered during a semester so as to provide further evidences concerning learning approaches having impact on examination performance.

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