

# Student-Centred Learning in a Passive Learning Environment: Students' Perception and Performance

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## ABSTRACT

This study attempts to seek students' preference of teaching methods for the Accounting Theory course and to compare students' performance in classes using student-centred learning (SCL) with traditional lecture method (TLM), in a passive learning environment. Results reveal that the teaching method most frequently ranked highest by students is still the TLM. Also, there is no significant difference between students' performance under SCL or TLM. While this is unexpected, it is possible that SCL may not have the expected positive results when the students have been largely exposed to a passive learning environment. The results have important implications for accounting educators and policy-makers in Malaysia and other countries, particularly in the Asia-Pacific region where the learning environment is more passive.

**Key-words:** teaching methods, student-centred learning, passive learning environment, Malaysia, students' performance

**JEL classification code:** M49

## INTRODUCTION

The accounting theory (AT) course is the final financial accounting course in the undergraduate accounting programme of the sample university. This course requires considerable reading as it is almost entirely theoretical and has very little calculation. However, anecdotal evidence suggests that undergraduate accounting students tend to be more numerically inclined and do not like reading subjects<sup>1</sup>. Therefore they

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Any remaining errors or omissions rest solely with the author(s) of this paper.

<sup>1</sup> This observation is made from the comments obtained from students through the teaching evaluation rating (TER) questionnaires, which are distributed to students at the end of each semester by the faculty, hence independent of the lecturer conducting the course. The anonymous comments made by the students suggest that they prefer calculation subjects. The TER is similar to those conducted in the U.S. and Australia, where students' feedback would affect tenure and promotion (Rowley, 2003).

pay less attention in the said class, easily lose interest, and concentrate more on their calculation subjects during revision. Since the literature (Maier, 1967; Boyd *et al.*, 2000) has suggested that classes adopt student centred learning (SCL) to keep the classes interesting, improve students' performance, and to be in line with recommendations for accounting education reform (Accounting Education Change Commission, 1990; Ainsworth, 2001; French and Coppage, 2000; Danvers, 2006) two of the four AT classes in Semester II of 2005/2006 initiated a move away from the Traditional Lecture Method (TLM) towards SCL. This study not only obtains students' perceptions on their preferred teaching methods for the AT course but also establishes whether the outcome of applying the SCL method improves performance in this instance.

Therefore, the primary objectives of this study are:

- To elicit students' opinion on their preferred teaching methods for the accounting theory course.
- To test whether advancement towards the student-centred learning approach improves students' performance compared to using the traditional lecture method.

This paper fills two gaps in the literature – First, most prior research (Adler and Milne, 1997; Ross, 1989; Sivan *et al.*, 2000; Weil *et al.*, 2001; Weil *et al.*, 2004) has focused on students' perceptions of SCL approaches. This is of limited use because, as Dowling *et al.* (2003) explain, students' views do not necessarily provide objective evidence of the effectiveness of a particular teaching approach. Secondly, prior studies on SCL and their impact on performance have been conducted (Heagy and Lehmann, 2005; Leaby *et al.*, 2010) in countries like the United States of America (U.S.) where a more active learning environment exists and students are more accustomed to interactive learning. It is important for research in accounting education to examine issues in various educational systems (Stuart, 2004) as scant evidence (Hwang *et al.*, 2005 and 2008) exists on effectiveness of SCL in a more passive learning environment.

The study also makes a significant and timely contribution to accounting education in Malaysia, given the recent educational reforms implemented by the Ministry of Higher Education (MOHE). The Quality Assurance Division of the MOHE, in its "Guidelines and Standards for Educational Programmes in the Field of Accounting" (2003:3) and its Code of Practice (2005) prescribed interactive approaches in teaching-learning. Further, the results of this study could also apply to circumstances in other universities, in relation to the teaching of AT. This is possible

as the accounting programme in the sample university is structured according to the requirements of the International Federation of Accountants (IFAC) and professional accounting bodies (e.g.: ACCA, CIMA, CPA Australia), as well as *Halatuju IP*<sup>2</sup>.

The remainder of the paper is structured as follows. The next section provides a literature review, followed by the hypothesis and research method section. The subsequent section describes the results. Finally, a conclusion is drawn, in which limitations of the study and suggestions for future research are discussed.

## LITERATURE REVIEW

Literature exists on students' perceptions of SCL and its usefulness (Adler and Milne, 1997; Ross, 1989; Sivan *et al.*, 2000; Weil *et al.*, 2001; Weil *et al.*, 2004), but there are few studies (Hwang *et al.*, 2005 and 2008) which examine whether SCL has positively influenced academic performance. The literature review proceeds by describing the various definitions of and approaches to SCL, followed by studies that discuss the benefits and problems of SCL, finally literature on the relationship between SCL and academic performance is included.

O'Neill and McMahon's (2005) attempted to define SCL, its benefits and criticisms. They mention that various terms have been used interchangeably with SCL, including '*flexible learning*' (Taylor, 2000), '*experiential learning*' (Burnard, 1999), '*self-directed learning*' and '*co-operative learning*' (Hwang *et al.*, 2005). The major premise underlying SCL is that students construct the knowledge and the lecturer assumes the role of facilitator of learning, not presenter of information.

There is extensive evidence of the perceived benefits of SCL in education. Surveys of students' perceptions reveal that students find this approach as being effective (Ross, 1989, as cited in Shaftel and Shaftel, 2005). However, these perception-based studies suffer from a major flaw; Shaftel and Shaftel (2005: 234) argued, "Research on the application of effective instructional techniques in college classes has tended to focus on student and faculty perceptions of effective college teaching rather than empirical studies of the impact of instruction on student behaviour and performance". Also there is a limited number of studies linking teaching approaches to specific student outcomes (Clifford, 1999; Rosenthal, 1995).

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<sup>2</sup> *Halatuju II* is a guideline for accounting education in Malaysian public universities. All undergraduate accounting programmes in Malaysia have to comply with *Halatuju II*, which are the requirements set by the MOHE. The *Halatuju II* requirements are based on IFAC and the framework of reputable universities in the West. Currently, MOHE has established the *Halatuju III* committee. Based on the terms of reference for the *Halatuju III* committee, among the main objectives of *Halatuju III* is to assess the implementation of *Halatuju II* and to devise a plan of action to further strengthen accounting curriculum in Malaysian universities.

Sivan *et al.* (2000) studied the effectiveness of active learning at the Hong Kong Polytechnic University. Active learning approaches (games, simulation, discussions debates, student presentations, videos and library exercises) were implemented in three courses. The authors asked students to evaluate the extent to which the activity was enjoyable, enhanced learning and contributed to future careers. Students were also asked to compare seminars to lectures in terms of the development of independent learning skills, application of knowledge, career preparation and effective learning. Semi-structured interviews were also conducted. The authors found that students prefer seminars over lectures, and that active learning enhanced the use of deep approaches to learning. The study also found that various active learning approaches contribute to the development of critical thinking ability and problem-solving skills. This study, however, did not link active learning or SCL to academic performance.

Similarly, Adler and Milne (1997) and Weil *et al.* (2001, 2004) examined whether SCL approaches are perceived by students to enhance learning outcomes and they found that SCL approaches are perceived to produce learning benefits. However, again, their studies were based on student perceptions and did not examine the effects of SCL approaches on performance.

On the other hand, studies which investigate factors influencing academic performance have merely looked at demographic variables such as gender, age, state of residence, entry qualifications, secondary school academic performance, mode of attendance (full time/part time), linguistic capacity, extra-curricular activities, employment, student diversity and culture (Alfan and Othman, 2005; Borde, 1998; Carpenter *et al.*, 1993; Eskew and Faley, 1988; Lin and Laswad, 2008). There is very limited research linking SCL with performance in accounting courses, particularly the AT course.

Dowling *et al.* (2003) explored the effect of a hybrid, flexible teaching model which makes extensive use of multi-media resources on course grades. Evidence suggests that the approach enhances course grades. Likewise, Hwang *et al.* (2005) investigated the effects of teaching method and type of questions with students in a Hong Kong university. They found that students in a passive learning environment show better learning outcomes when they experience cooperative learning. The authors conclude that students are able to, and will, adapt to cooperative learning if the course is well-structured. The authors extended their earlier work with a different batch of accounting students (Hwang *et al.*, 2008). This time, the authors used a case study, instead of multiple-choice questions to examine if students taught using a cooperative learning approach were able to acquire more accounting knowledge. Results confirmed that a cooperative learning approach can be more effective than the TLM even for students in a more passive learning environment.

Although Hwang *et al.*'s studies (2005, 2008) provide some encouraging support for more SCL approaches in a passive learning environment, both studies suffer from inherent weaknesses. First, both were based on a single session. Second, for the earlier study, the outcome assessment was a test comprising only ten multiple-choice questions. While for the latter, the authors again used a single outcome assessment comprising a case study. The present study improves on this by exposing students to the two teaching methods over the period of one full semester, and assess students' performance based on their AT course grade. Thus the students' performance in this study is measured more comprehensively, comprising performance on quizzes, mid-term and final examinations. Consequently, it is hoped that the results will be able to provide more conclusive findings of the effects of SCL on students' performance. Additionally, the present study will be an important extension to Hwang *et al.*'s work (2005, 2008), as our present work is a response to Hwang *et al.*'s (2008) calls for researchers "...to assess participants' learning outcomes at various stages of the learning processes, such as at midterms or final examinations" (p. 74).

Results on the effects of SCL on performance are also mixed. Heagy and Lehmann (2005), for example, tested the effect of using problem-based learning (PBL) on basic knowledge examinations in the Accounting Information Systems course at both the undergraduate and graduate levels. The authors used 102 multiple-choice-questions in three examinations and a short case for the graduate students. The results showed that PBL does not significantly influence exam performance at either the undergraduate or the graduate levels. Similarly, Leaby *et al.* (2010) introduced concept mapping in an introductory financial accounting course. They hypothesised that concept mapping should enhance students' learning, which was measured by examination scores. However, their findings did not seem to validate their hypothesis. The contradictory results therefore require further research.

It is crucial that the effects of SCL on academic performance is studied as SCL has been criticised as being over-focused on the individual student while neglecting the class as a whole (Simon, 1999). Adler and Milne (1997) argue that SCL approaches are more "time consuming and may require greater commitment" (p. 192), and require substantial resources (O'Sullivan, 2004). Therefore, due to the additional resources required, the justification to pursue SCL is if it indeed enhances students' performance. Such a study is lacking in countries with a more passive learning environment, such as countries in the Asia-Pacific region, including Malaysia; hence, the need for this research.

The present study examines the differences in academic performance between students in AT classes who have been exposed to two different teaching approaches – SCL versus TLM, in a passive learning environment. The few studies on accounting education in Malaysia have investigated the determinants of students' performance

(Alfan and Othman, 2005) or students' perceptions on effective teaching methods and instructor characteristics in accounting (Fatima, *et al.*, 2007). There is very limited research linking SCL with performance in accounting courses. The aim of the present study is to fill this gap. The subsequent section describes the research method.

## HYPOTHESIS AND RESEARCH METHOD

In this study, firstly, students' perceptions on the AT course were obtained, in line with Lea *et al.*'s argument (2003, p. 321), "If education is to be truly student-centred, students should be consulted about the process of learning and teaching." Also, prior literature (Biggs, 1993; Mladenovic 2000 and Hassall and Joyce, 2001) states that it is important to obtain the opinions of students, as their perceptions would affect their learning process and ultimately their learning outcome. Moreover, a report by the American Accounting Association's Teaching and Curriculum Section's Promoting and Evaluating Teaching Effectiveness Committee (Calderon *et al.*, 1996) finds that students are valid judges of aspects related to teaching methods.

Since the first phase of the study attains students' perceptions, a hypothesis was not developed. However, evidence from prior studies (Lea *et al.*, 2003; Yazici, 2004; Fatima *et al.*, 2007) shows that students have positive views of SCL methods. Therefore, this study has similar expectations.

In the second phase, the performances of the students in the SCL and TLM classes are compared. Hence a null hypothesis is drawn based on prior literature (Maier, 1967; Boyd *et al.*, 2000) which suggests SCL improves performance.

*H<sub>0</sub>: The performance of students in the SCL classes is not significantly different from students in the TLM classes.*

The AT course is enrolled by final year students in the sample university in Malaysia. There were four AT classes in Semester II of 2005/2006, with a total enrolment of 149 students. Two of these classes were conducted using the TLM, and the other two incorporated the SCL approach. Three different lecturers taught the four groups. None of the lecturers knew that the performance of their students will be evaluated for research purposes, to ensure that a normal, unbiased teaching process was carried out. Nevertheless, the underlying assumption is that the lecturers will be teaching to the best of their ability since all lecturers are evaluated by students at this university<sup>3</sup>.

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<sup>3</sup> At the end of each semester, each lecturer is evaluated by their students using the Teaching Evaluation Rating. These ratings are later referred to when considering promotions.

The SCL classes were handled by a lecturer and the other two lecturers conducted the TLM classes. Although having all classes conducted by the same lecturer, to ensure consistency, would be better, it cannot be guaranteed that a lecturer who is effective in teaching using one method would be equally effective in using another method. Nevertheless, in order to ensure consistency and standardisation in all four classes, the SCL and TLM classes were conducted in the same semester with an identical number of class hours (i.e. 3 hours x 14 weeks = 42 hours). The course outlines that were distributed to the SCL and TLM students were identical. The lecturers used similar Powerpoint slides with identical coverage. The same textbook, notes and assessment methods were used. All classes had the mid-term and final examinations conducted on the same day and time using the same set of question papers. Cross-marking was carried out by all lecturers to ensure fairness. Thus, the differences in the classes were minimised except for the teaching method.

As per prior studies (Gammie *et al.*, 2003; Cullen *et al.*, 2004; Ballantine and Larres, 2004; Hwang *et al.*, 2005 and 2008), this study is conducted in one university to ensure standardisation. The difference between the TLM and SCL classes are that in the latter, there were numerous guided discussions and self fact-finding as more independent learning was expected. Before discussing some of the issues, the instructor in the SCL classes would allow students access to personal computers (PCs) in class and the students were asked to do specific and guided searches on particular topics so that they would get more updated and relevant information to those in the textbooks. Students were also often asked to get into groups in class to discuss certain issues before a class discussion is held. Therefore, in the SCL classes the one-directional lecture approach was kept to a minimum, whereas in the TLM classes, the entire content of the syllabus is given as a lecture.

Questionnaires were distributed to all four classes in the last class of Semester II, i.e. as suggested by Rowley (2003). The lecturers explained the purpose of the questionnaire, clarified instructions and addressed queries. Students who felt that they required more time to think were allowed to return the questionnaires later. This was done to reduce Rowley's (2003) concern that insisting on the completion of the questionnaires during class would reduce time for reflection.

The questionnaire comprised only 7 questions excluding demographic questions<sup>4</sup>. Then, the students were required to rank four of their preferred teaching methods for the AT course, with '1' being the most preferred'. This was followed

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<sup>4</sup> Demographic data in prior evidence (Fatima *et al.*, 2007) showed that gender and prior academic performance may affect perception. Although the affect of gender and prior academic performance on the students' perception has not been carried out in this study, the information was collected to enable further analysis if required.

by a question on how to make the AT course more interesting. A similar list of teaching methods was provided for the students to rank. These two lists were similar, but the questions were phrased differently and the list was not in the same order so that a reliability test could be conducted. The questionnaire also included open ended questions to allow students to express their opinions. The response rate for the survey was 72%. A non response bias test was conducted. The responses from the early and late respondents were not significantly different. The overall Cronbach alpha was 0.71, which was acceptable (UCLA Statistical Consulting Group, 2008). Descriptive statistics were used to analyse the data.

For the second phase, the AT course results of the students in the SCL classes were compared to those in the TLM classes.

The following variables were obtained from the university students' record:

- ATG = Grade point for the AT course
- READ = Mean grade point of two of the students' reading subjects, i.e. Principles of Management and Marketing Principles
- FAS = Average grade point of all the previous financial accounting courses (5 in total)
- AUD = Grade point for Audit 1 course (Audit 1 is a mixture of reading and calculation, thus is similar to the AT course<sup>5</sup>)

However, for more analysis, derivative variables had to be calculated to measure performance. They are:

- ATRE =  $ATG - READ$
- ATFA =  $ATG - FAS$
- ATAU =  $ATG - AUD$

The above variables were calculated to provide an indication of students' capabilities, as they are students' prior performance from reading subjects, financial accounting subjects and the combination subject (Audit 1), respectively. Therefore, the difference between students' performance from the AT course and the other courses would show whether the students' performance has improved or declined, based on past capabilities. A positive difference would indicate that, on average, students have improved in their performance compared to their past capabilities. A negative difference signals that the students' average performance has declined.

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<sup>5</sup> Audit 1 is only similar to the AT course as it has a combination of reading and calculation, however the proportion of the two differ from the AT course.

A sensitivity test was also conducted using a multivariate regression, with the following model:

$$ATG = \alpha + \beta_1 TEACH + \beta_2 EXP + \beta_3 SPP$$

Where:

- ATG = Grade point for the AT course (reflects each student's performance for the AT course)
- TEACH = Teaching method used (dichotomous variable: 1 = SCL and 0 = TLM)
- EXP = Lecturer's experience in teaching the AT course, which proxies for instructor effectiveness
- SPP = Student's past performance, measured as an aggregate of READ, FAS and AUD

TEACH, EXP and PP are expected to be the determinants of ATG. Control variables (EXP and PP) are included in the regression, as it is expected that student's performance for the AT course may depend on how much experience a lecturer has had teaching the course. Since there are only three lecturers teaching the course, the one with the longest experience of teaching the course is coded 3, the lecturer with the shortest experience is coded 1 and the remaining lecturer, is coded 2. Finally, a student's performance in the AT course would depend on the student's capabilities, which is measured using past performance from reading subjects (READ), prior financial accounting subjects (FAS) and combination subject (AUD). Although CGPA of students would normally be used to measure past performance, it is not appropriate in this study. This is because in the sample university, the accounting programme does not only require accounting and accounting related courses as a graduation requirement but also additional courses such as languages, religious courses and co-curricular activities. Therefore students' CGPA may not accurately reflect their aptitude for accounting subjects.

## ANALYSIS OF RESULTS

The demographics of the respondents are presented in Table 1.

**Table 1** Demographics of respondents

		Frequency	Total
Gender	Male	25	108
	Female	83	
Prior Academic Performance (CGPA)	2.0 - < 2.8	26	108
	2.8 - < 3.0	19	
	3.0 - < 3.6	53	

Table 1 indicates that there are 3 times more responses from female students than male students. This is reflective of the enrolment in the accounting classes in the sample university. The prior academic performance of the respondents is also relatively normally distributed, which again is indicative of students' prior academic performance.

Table 2 provides the rankings of the teaching methods and their frequencies<sup>6</sup>.

**Table 2** Frequencies and rankings of the preferred teaching methods for accounting theory course

Teaching method	1	2	3	4
Lectures	61	24	8	6
Group discussions	13	26	17	12
Tutorials	6	25	17	8
Group presentations	10	8	17	14
Group assignments	15	24	12	18

The most preferred teaching method for AT still remains the TLM, as it is ranked number "1" most frequently by about 61 students (56% of the respondents). These results may be expected of students who have not been introduced to SCL, but not those who have. The second most preferred method is group discussions, selected by 26 students (24%). Group discussions, tutorials and group presentations tie as the third preferred method. Finally, the fourth most preferred method is group assignments, as selected by 18 students (17%). An interesting finding is that since

<sup>6</sup> The other items and their frequencies are not presented in Table 2 to avoid confusion.

the AT course is enrolled by final year students, they are expected to be able to work independently, thus it was surprising to discover that about half of them still seem to prefer having tutorials.

Further analysis of other methods (not ranked as the 4 preferred teaching methods thus not in Table 2) showed that they involved effort of an individual nature, for example “individual presentations” and “individual assignments”. These results indicate that the students prefer to have more collaborative work in the AT course. The results in Table 2 are generally supported by the means of the teaching methods, as shown in Table 3.

**Table 3** Means of the preferred teaching methods

Teaching methods	Mean
Lectures	1.87
Group discussions	3.37
Group assignments	3.38
Tutorials	3.69

Since the ranking of the teaching methods are based on “1” being the most preferred method, thus the lower the mean, the more preferred the method. Therefore, as the results in Table 3 show, the TLM remains the most preferred teaching method for the AT course, followed by group discussions, group assignments and tutorials, thus supporting the results in Table 2.

Additional tests (t-test) showed that although having individual presentations are not among the preferred teaching methods, the students from the SCL classes (mean = 4.15) were more favourable ( $p < 0.05$ ) to this method<sup>7</sup>. However, the other teaching methods were not perceived to be significantly different by the students from the SCL and TLM classes. Therefore, the students from both SCL and TLM classes perceived the lecture method equally favourably. This is a disappointing finding as one would expect that the students in the SCL classes, having been introduced to the SCL approaches, would perceive the lecture method less favourably.

After enquiring the students about their preferred teaching methods for the AT course, they were asked on how to make the course more interesting. Table 4 provides the results.

<sup>7</sup> The result of the t-test was supported by the results of the Mann-Whitney U test.

**Table 4** Frequencies and rankings of the methods to make the accounting theory course more interesting

Methods	1	2	3	4
Have (more) student group discussions	31	18	18	7
Have more class discussions on current FRS	17	32	15	7
Have more class discussions on current accounting issues	29	32	17	15
Have more group assignments	8	17	12	17

The students proposed having student group discussions (31 students, 29% of the respondents) as their favourite alternative. The tie for the second alternative is to have more class discussions on current FRS and current accounting issues (32 students). Incorporating class discussions on current matters related to accounting is in line with the ideas of Beresford (2001) to make classes more interesting and beneficial. Based on the highest frequency, the third alternative is once again having more group discussions, and the fourth is to have group assignments. Therefore, to make the AT class more interesting, students are suggesting methods that may be considered more student-centred although currently they prefer the TLM, possibly because they are used to it.

The mean of the methods, as shown in Table 5, basically confirms the results in Table 4 that the most preferred methods to make the AT course more interesting is by having more class discussions on current FRS and current accounting issues and student group discussions.

**Table 5** Means of the methods to make the accounting theory course more interesting

Teaching Methods	Mean
Have more class discussions on current accounting issues	2.58
Have (more) student group discussions	2.95
Have more class discussions on current FRS	3.14
Have student group presentation	3.76

Although the fourth most preferred method is having group presentation, instead of having group assignments (as shown in Table 4), the overall findings in Tables 5 support those in Table 4.

Further analysis was conducted to determine whether students' perceptions in the SCL classes were different from those in the TLM classes. Interestingly, it was found that students that were from the TLM classes (mean = 2.61) perceived group

discussions more favourably as a means of making the AT course more interesting than the students from the classes that integrated SCL (mean = 3.16). However, the difference in perception is weak ( $p < 0.10$ )<sup>8</sup>. Similarly, the perception of the students from the TLM classes deemed class discussions of the FRS and current accounting issues more favourably than their counterparts from the SCL classes, although not to a significant extent. This could possibly be an indication of the concern of the students who have already experienced group discussion in the SCL classes that the effectiveness of group and class discussions depends on the contribution by all members involved, as mentioned by Tempone and Martin (1999).

On the other hand, the means for having group presentations, group assignments, individual presentations and individual assignments, were lower for the students in the SCL classes than those of the TLM classes. Although, only the means for individual assignments were significant ( $p < 0.05$ ) the findings suggest that the students who have experienced classes that incorporated the SCL approach seem to favour more independent and teamwork in order to make the AT course more interesting.

Analysis of the responses from the open-ended questions added to the results from the close-ended questions above. Students' suggestions to improve the AT course is to have field trips to accounting and auditing firms, case studies, especially those related to accounting standards, and guest speakers. These suggestions are in line with the recommendations made by Danvers (2006) to increase the relevance of undergraduate accounting education. Other suggestions include having more group assignments and group discussions, including outside classroom discussions. In fact one of the students specifically wrote in favour of having "discussions. Just listening to lectures is boring". Therefore the suggestions made by students are in accordance to those made by French and Coppage (2000), Albrecht and Sack (2001) and Yazici (2004). In addition to the methods suggested, about 12% of the students felt that frequent quizzes should be held "in order to encourage students to always read" as the AT course "is a reading course". This is an indication that the students tend not to be proactive, even at the advanced level, as they only seem to study when "forced" to do so.

After analysing the results of the first phase of the study, the results of the second phase are analysed. The descriptive statistics of the main variables used to evaluate students' performance are presented in Table 6.

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<sup>8</sup> The result of the t-test was supported by the result of the Mann-Whitney U test.

**Table 6** Descriptive statistics

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>Skewness</b>
ATG	2.886	3.000	-0.497
READ	3.359	3.335	-3.463
FAS	2.879	2.868	-1.075
AUD	2.461	2.330	-0.318

Where:

- ATG = Grade point for the accounting theory course  
 READ = Mean grade point of two of the students' reading subjects  
 FAS = Average grade point of the previous financial accounting courses  
 AUD = Grade point for Audit 1 course

Table 6 shows that the average grade point for the AT course (ATG) is between the grades of 'B' and 'B-', which is lower than the average grade point of the reading subjects (READ), which is about 'B+'. The difference is significant ( $p < 0.01$ ) using a t-test. This result indicates that on average, students' performance tend to be lower for the AT course compared to the average of the two reading subjects. However, the mean of ATG is comparable to the average grade point of the previous financial accounting courses (FAS) as the t-test shows that the difference is not significant. On the other hand, the mean of ATG is significantly higher ( $p < 0.01$ ) than the mean grade point of the audit course (AUD), which is between the grades of 'B-' and 'C+'. This would indicate that the students tend to do better for their AT course than their other combination course (Audit 1). The overall results of the median are similar to those of the mean<sup>9</sup>. The study conducted non-parametric tests to confirm the results of the parametric tests as the figures in Table 6 suggest that the main data used in this study are slightly skewed.

<sup>9</sup> The results of the t-test are confirmed when using the Wilcoxon test.

**Table 7** Comparison of ATG between the classes integrating student-centred learning (SCL) and classes using the traditional lecture method (TLM)

Performance measure	Mean for SCL	Mean for TLM	Significance (2-tailed)
ATG	2.82	2.95	0.226

N= 71 students for SCL

N= 78 for TLM

Where:

ATG = Grade point for the accounting theory course

The results in Table 7 show that there is no significant difference between the average performance of the students in the SCL and those from the TLM, based on the independent sample t-test. Thus, it would seem that  $H_0$  fails to be rejected. However students' past performance need to be taken into consideration for more accuracy, thus the following comparisons use the derivative variables. The results are displayed in Table 8.

**Table 8** Comparison of performance between the classes integrating student-centred learning (SCL) and classes using the traditional lecture method (TLM)

Performance measure	Mean for SCL	Mean for TLM	Significance (2-tailed)
ATRE	-0.555	-0.398	0.091*
ATFA	-0.098	0.102	0.021**
ATAU	0.405	0.537	0.192

N= 71 students for SCL

N= 78 for TLM

\* significant at 10% significance level (2-tailed)

\*\* significant at 5% significance level (2-tailed)

Where:

ATRE = ATG – READ

ATFA = ATG – FAS

ATAU = ATG – AUD

ATG = Grade point for the accounting theory course

READ = Mean grade point of two of the students' reading subjects

FAS = Average grade point of the previous financial accounting courses

AUD = Grade point for Audit 1 course

The results in Table 8 suggest that the performance of students in the AT course fell in comparison to their performance in reading subjects. However, the decline in performance (ATRE) was marginally more ( $p < 0.10$ ) for the students in the SCL compared to the TLM classes. As for ATFA, i.e. ATG taking into consideration prior performance in financial accounting courses, the performance of students in the SCL and TLM classes declined and improved, respectively. The difference in the means is significant ( $p < 0.05$ ). Thus, it would seem that  $H_0$  is rejected, but the results are contrary to expectation, where students from the TLM classes seem to outperform students from the SCL classes, taking into consideration their prior performance. However, a similar difference in performance was not found when using ATAU. Therefore, in this case,  $H_0$  fails to be rejected.

Prior to the sensitivity test of multivariate regression, correlation tests were run to obtain preliminary results on the association between the independent and dependent variables. Furthermore, the correlation is a potential indicator of multicollinearity.

**Table 9** Correlation tests

	<i>Spearman</i>					
	ATG	TEACH	EXP	READ	FAS	AUD
ATG	1	-0.109 (0.186)	0.046 (0.574)	0.648 (0.000***)	0.696 (0.000***)	0.676 (0.000***)
TEACH	-0.1 (-0.226)	1	-0.096 (0.244)	-0.024 (0.773)	0.045 (0.586)	-0.046 (0.578)
EXP	0.059 (-0.474)	-0.071 (-0.39)	1	0.102 (0.216)	-0.059 (0.475)	0.166 (0.045**)
READ	0.524 (0.000***)	0.029 (-0.726)	0.169 (0.039**)	1	0.501 (0.000***)	0.558 (0.000***)
FAS	0.618 (0.000***)	0.064 (-0.435)	-0.005 (-0.948)	0.624 (0.000***)	1	0.530 (0.000***)
AUD	0.667 (0.000***)	-0.066 (-0.431)	0.16 (0.054*)	0.515 (0.000***)	0.553 (0.000***)	1

*Pearson*

- \* significant at 10% significance level
- \*\* significant at 5% significance level
- \*\*\* significant at 1% significance level

The results in the lower left corner and upper right corner are the results for the respective Pearson's and Spearman's correlation tests.

Where:

- ATG = Grade point for the accounting theory course
- TEACH = Teaching method used
- EXP = Lecturer's experience in teaching the accounting theory course
- READ = Mean grade point of two of the students' reading subjects
- FAS = Average grade point of the previous financial accounting courses
- AUD = Grade point for Audit 1 course

The results in Table 9 show that there are significant positive correlations between the performance of students in the AT course and their prior performance in reading subjects, financial accounting subjects and combination subject. These results indicate that, basically, students who do well in prior subjects, tend to do well in other subjects, including the AT course. Despite a negative correlation between the teaching method and ATG, meaning that the performance in SCL is lower than TLM, this association is not significant.

Table 9 also shows that the variables READ, FAS and AUD are highly positively correlated ( $p < 0.01$ ) with each other indicating potential multicollinearity. Hence, these variables are aggregated into one measure of past performance, which is used in the multivariate regression, as shown in Table 10 below.

**Table 10** Multivariate Regression results

$$ATG = \alpha + \beta_1 TEACH + \beta_2 EXP + \beta_3 SPP$$

Variables	Coefficients	Significance
Constant	0.286	0.215
TEACH	-0.127	0.025*
EXP	-0.076	0.182
PP	0.743	0.000***

R-square	Adjusted R-square	F-test	Significance
0.547	0.538	58.431	0.000***

\*\* significant at 5% significance level

\*\*\* significant at 1% significance level

Where:

ATG = Grade point for the accounting theory course

TEACH = Teaching method used

EXP = Lecturer's experience in teaching the accounting theory course

SPP = Student's past performance, measured as an aggregate of READ, FAS and AUD

Overall, Table 10 shows that the independent variables are able to explain about 54% of the dependent variable, and that the regression model is a good fit. In addition, the results in Table 10 show that there is a significant negative association ( $p < 0.05$ ) between TEACH and ATG. This suggests that the students in the SCL perform poorer than the students in TLM, after controlling for other factors that may affect performance of the AT course. Therefore,  $H_0$  is rejected, but once again, contrary to expectation.

Past performance of students (SPP) seems to contribute most to their performance in the AT course (ATG) as the former is positively associated ( $p < 0.01$ ) with the latter. Thus, this result supports the results of the correlation tests. Moreover, in line with the results of the correlation tests, the length of experience of lecturers in teaching the AT course (EXP) is not significantly associated with the students' performance in that course (ATG). EXP proxies for instructor effectiveness, and the result suggests that in this particular case, instructor effectiveness<sup>10</sup> does not affect the performance of the course (ATG), possibly due to the fact that any variations in the different classes were minimised.

The overall results of all the tests conducted above seem to indicate that there is no significant improvement in performance of SCL when compared to TLM. In fact there are even occurrences of decline in performance. Thus, the overall results seem to be contrary to expectation.

## CONCLUSION

The objectives of this study were: To elicit the opinion of students on improving the teaching method of the AT course, and to investigate whether students' performance in classes that incorporated the SCL was better than those in the TLM classes. The results suggest that the majority of the students still favour TLM for the AT course. Nevertheless, suggestions have been made to incorporate SCL approaches, to make

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<sup>10</sup> Further analyses were conducted using ANOVA and Mann-Whitney tests. Based on the results of these tests, the result of no significant difference between the 3 instructors, hence their effectiveness, was confirmed.

the AT course more interesting. Hence the results confirm the findings of Lea *et al.* (2003), Fatima *et al.* (2007) and Yazici (2004) that students are in favour of some SCL approaches. Based on the findings of the study, TLM classes should be maintained, however a few SCL approaches such as group discussions and group assignments should be introduced. The results suggest that the Malaysian students generally are used to passive learning as inferred from the results that they still prefer lectures and want to rely on tutorials. They also seem to be inclined to be less independent as deduced from the fact that even in suggesting SCL approaches, they tend to suggest more group based work. Also, they are not proactive as they want more quizzes throughout the semester to “force” them to read.

The results of the correlations and multivariate regressions also seem to support students’ preference, as based on these findings, performance in TLM classes is marginally better than those in SCL classes. These findings are contrary to expectations as evidenced from prior literature and encouragement from the MOHE Malaysia led to the expectation that SCL would indeed outperform TLM. However, the results from the current study indicated that there was no significant difference between the performance in SCL and TLM, or that the performance in SCL tends to be lower than that in TLM. Some possible reasons for this outcome are discussed below.

Firstly, in order to successfully implement SCL in accounting education at the university level, the primary and secondary education systems in Malaysia should train and develop educators and students towards accepting and applying this approach. The limitation of this study is that it has not included an exploration of the extent of support of the primary and secondary education systems for the SCL approach at the tertiary level. Despite the tremendous effort and co-operation between the MOHE Malaysia and the Ministry of Education, Malaysia, the findings suggest that there is a need for both to work even more closely together to ensure a smoother transition towards incorporating a SCL approach in accounting education. This may also be applicable to other countries in the region, which have a more passive learning environment.

Secondly, the other financial accounting subjects are considerably quantitative. In these courses, there is a need to disseminate complicated technical skills during a limited time to a vast number of students, hence the TLM seems to be warranted. Consequently, the students who are introduced to the SCL approach during the AT course may be unfamiliar with the approach and take some time adjusting to it, thus affecting their performance. Hence, to integrate the SCL approach effectively, there may be a need for a gradual introduction of this approach earlier on in the accounting programme and extending its implementation in the higher level courses.

In addition, there could be an effect of culture on the acceptance of the SCL approach, which was not examined in this study. Adler *et al.* (2000: 120) found that a major impediment to learner-centred approaches in tertiary accounting education include “cultural and/or language divides” where the educator respondents stated specifically that Asian students in particular, are less actively involved in their learning. The educators surveyed in the study felt that the students’ prior educational experiences and home culture were the major reasons for their resistance to a more SCL approach. Asian students, in general, are accepting of what is taught by their teacher and what is in textbooks. The requirement of an inquisitive nature and readiness to explore other possibilities may have an effect on the successful implementation of SCL. Moreover, SCL may be more in line with specific characteristics of students. Although, this paper tries to control for this possibility by incorporating students’ past performance, it does not specifically investigate which personal characteristics of students would enhance the SCL approach or deter it.

Another factor that may play a role is the training of the instructors. None of the instructors underwent formal training, either in the TLM approach or SCL approach. Therefore, perhaps there is a need for instructors to undergo more systematic training in order to implement the SCL approach, particularly in a passive learning environment.

Finally, there is a possibility that the assessment method may not be in line with the teaching method. Even though two of the AT classes had incorporated the SCL approach, the assessment method did not change and remained primarily (80%) examination based. This could have led to a misalignment between the teaching method and the assessment method. Therefore, courses that have incorporated the SCL approach, in future, may have to realign their assessment method with that of the teaching approach.

The study has several limitations. Firstly, the study was conducted on the students of one university in Malaysia, albeit following prior studies, future research should extend the research to other universities and other countries in order to verify these results. Secondly, although variations in the classes were kept to a minimum, three different instructors handled the course; thus future research may consider having one instructor to possibly enhance consistency further. Also, this study does not analyse differences in perceptions based on gender and prior academic performance, which may have some effect on the results obtained.

Finally, the study investigates whether SCL improves students’ performance. It fails to include an investigation of why the outcome may be so from an interpretive or critical perspective even though some of the reasons for the possible responses can be deduced from the answers to the open-ended questions. Therefore, to

overcome some of the shortcomings discussed above, focus group interviews should be conducted to attain more in depth feedback from the students on the possible reasons for their performance in the AT course. It is hoped that future research can alleviate these limitations to augment understanding in this area of research.

To conclude, if accounting educators intend to successfully implement SCL, it would seem that there may not be a simple direct relationship between its implementation and students' performance. Other variables that affect this relationship have to be investigated as well. The findings of this study may be of interest to accounting educators of other universities in Malaysia, as well as other countries with a passive learning environment. Furthermore, the results are useful for accounting educators in countries like Australia and New Zealand where there is a high number of international students, who may come from learning environments which are more passive. It is hoped that the outcome of this study would inspire accounting educators and researchers to further explore this area in order to facilitate an effective accounting education system globally.

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