



Inter-teaching: Improving the Academic Performance of Auditing Students in Vietnam

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Abstract

The aim of this study is to investigate the effectiveness of inter-teaching; a student engagement pedagogy associated with behavioural and engagement theories and designed to engage students in their own learning. This methodology was introduced as a response to create a more positive outcome for students studying an auditing course who have historically experienced difficulties with successfully completing the subject. Inter-teaching was implemented and its effectiveness measured by comparing the final exam grade distributions from inter-teaching and the lecture tutorial teaching methods. Using a quantitative research methodology, students fail grade distributions were significantly lower in the inter-teaching semesters compared to previous semesters where the instructional method of teaching was the lecture model. The results suggested that inter-teaching may be a more effective method of teaching, resulting in an improved academic performance in the auditing course. It is expected that this study will contribute towards the effectiveness of student learning, an improvement in pass rates, and overall greater student satisfaction in advanced accounting courses.

JEL Classification: M40

Keywords: Inter-teaching, Lecture Tutorial, Student Engagement, Independent Learning, Group Discussions, Interteaching.

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1. Introduction

Auditing, an Australian accounting course which is taught at a private university in Vietnam, has experienced unacceptable student failure rates causing considerable concern among students and faculty members. The lecture-tutorial model (lecture model) was the instructional teaching model for auditing which is known to discourage student involvement and engagement (Coetzee & Schmulian, 2012; Jarvis et al., 2014; Sturmey, Dalfen & Fienup, 2015). Assessment is measured by invigilated exams which encourage cramming and rote learning (Watty, De Lange & O'Connell, 2013). The lecture model⁴ of teaching is heavily criticised in the literature, for producing poor in-depth learning and passive student participation (Williams, 1993; Boyce & Hineline, 2002; Lucas & Mladenovic, 2004; Jackling, 2005; Springer & Borthick, 2007; Cannella-Malone, Axe & Parker, 2009; Coetzee & Schmulian, 2012; Jarvis et al., 2014; Sturmey, Dalfen & Fienup, 2015). Through the introduction of a student engagement teaching model, known as inter-teaching, Vietnamese students' academic performance in auditing has improved because inter-teaching changes student behaviour from being a passive learner to being an engaged learner (Saville, Zinn & Elliott 2005; Saville et al. 2006; Sturmey, Dalfen & Fienup, 2015). It is expected that this study will contribute towards the effectiveness of learning, improvement of exam grades for accounting students and overall better student engagement.

1.1. *The Purpose of the Study*

The need for research into engaging pedagogies, which deliver positive accounting course outcomes, warranted the investigation of "what is the impact of inter-teaching on Vietnamese students' grades in Auditing?" the research question and focus of this study.

Students' attitudes to learning can be influenced by the way the content is delivered. In order to encourage a deeper approach to learning the delivery of the auditing course required that students participated and engaged in order to give them opportunities to discuss and compare their understanding with each other (Biggs, 1999). Researchers described the inter-teaching model as an effective engagement tool which will deliver an improved academic performance, but further studies are required to understand why it is successful. It also requires an examination of whether inter-teaching will be as effective in different student engagement settings and populations such as Vietnam (Saville, Zinn & Elliott, 2005; Saville & Zinn, 2009; Saville et al., 2011). Studies of inter-teaching have previously been conducted predominantly in psychology courses; hence the need to examine inter-teaching in a non-psychology programme to determine whether inter-teaching can produce similar positive outcomes. To the best knowledge of the researchers, there are no known studies of inter-teaching in auditing, a non-western context or where the native language is not English. The study provided new evidence with regard to the advantages of inter-teaching over the lecture method. Inter-teaching may provide a promising approach to accounting education and is strong justification for the present study. In the next section is a review of the literature in relation to the lecture model and inter-teaching, accounting education, student engagement and learning theories that support the pedagogy of inter-teaching.

⁴ This teaching method is variously referred to as 'teacher-centered'; 'doctrinal'; 'rote teaching', 'banking method'; 'didactic' teaching, Ewang (2008).

2. Literature Review

A number of accounting studies in America (American Accounting Association, 1986; Albrecht & Sack, 2000; The Pathways Commission, 2012) and Australia (Mathews, Jackson & Brown, 1990; Capellatto, 2010; Evans, Burritt & Guthrie, 2010) have documented the deficiencies of accounting education. A study by Palm and Bisman (2010) who investigated accounting education in 21 higher education institutions in Australia noted that first year Australian accounting courses are poorly delivered and assessed. Watty (2007) conducted a survey concerning the quality of accounting education with accounting academics in Australia during 2003. She noted that the majority of respondents (54%) thought the quality of accounting education had declined. She argued that excessive dependence on the lecture model and assessment tasks that are heavily reliant on memory recall delivers a poor accounting education experience for students.

The earlier work by Mathews, Jackson, and Brown (1990) and Watty (2007), still reflects the systemic problems in accounting education today, according to De Lange and Watty (2011). This is supported by a recent study Wygal, Watty and Stout (2014) which noted insufficient improvement in the effectiveness of accounting education instruction. It is clear, through teacher-centric instruction, that accounting students are experiencing inadequate accounting education today.

2.1. *The Lecture Model*

The lecture model is still predominately the pedagogy for teaching undergraduate accounting students today (Coetzee & Schmulian, 2012; Jarvis et al., 2014). As early as the 1970's researchers demonstrated that teaching pedagogies that are teacher-centric (lecture model) will only produce surface or fragmented understanding for students (Marton & Säljö, 1976). Biggs (1979, 1989, 1999 and 2012) extensive studies of student learning realised that meaning cannot be conveyed through the mere transfer of information in a lecture, but is shaped by the students own involvement in learning. While researchers have highlighted the benefits of students working together in the classroom it appears that few accounting educators have changed their teaching methods from the lecture model (Palm & Bisman, 2010; Wygal et al., 2014). Inter-teaching is adapted from behavioural theories in respect to the classroom and may remedy the short-comings of the lecture model. It is discussed next.

2.2. *Inter-teaching*

Boyce and Hinline define the pedagogy of inter-teaching as a “mutually probing, mutually informing conversation between two people” (2002, p. 22). A characteristic of inter-teaching is that tutorials are scheduled ahead of lectures, this informs the lecturer about where the students are having the most difficulties and the lecture is then focused on the specific areas requiring most assistance (Boyce & Hinline, 2002). They developed inter-teaching to specifically focus on tutorials that were engaging and interesting to the student and pave the way for clarification by the lecturer.

2.3. *What is inter-teaching?*

Inter-teaching (Boyce & Hinline, 2002) is a relatively new, multi-component method of classroom instruction that has its roots in B. F. Skinner's operant psychology, or as it is more commonly known today as behaviour analysis. According to Kienhuis (2013) the following are pivotal characteristics in inter-teaching:

- guided independent learning
- student-paced small group tutorial discussion
- a distinctive feature of the model is that tutorials precede clarifying lectures
- the preparation guide directs students through the week's learning outcomes with questions that test comprehension and ability to apply and synthesise the material
- peer discussion is facilitated by the teacher, who also provides reinforcement (including marks towards class discussion grades) for engaging in effective discussion
- student feedback regarding problems experienced by students is used by the teacher to develop content for subsequent clarification which occurs immediately after the discussion session (Kienhuis, 2013).

2.4. *Inter-teaching literature*

In a quantitative study of psychology under-graduate students in the USA, Saville, Zinn and Elliott (2005) tested the effectiveness of inter-teaching, compared to the lecture model of higher education instruction, and observed a statistically significant difference in test scores. They also discovered that both students and lecturers were more motivated with inter-teaching. Saville et al. (2006) investigated the usefulness of inter-teaching, and remarked that inter-teaching might be an effective substitute to the lecture model of instruction. They determined that the combination of characteristics, for example, "active learning, immediate social reinforcement from peers and a cooperative learning environment likely facilitates learning and results in better retention than the other methods tested" (Saville et al., 2006, p. 162).

In a large study Kienhuis (2013) conducted an analysis of inter-teaching in five courses across three colleges, at RMIT, an Australian university, during 2012. Ethics in Professional Accountancy was one of the inter-teaching courses. It is the only known study researching the impact of inter-teaching in an accounting course. It was ascertained in this course that students preferred inter-teaching because they found the opinions of their peers offered a different perspective and the emphasis on self-study gave them a better understanding of the content. The fact that accounting students positively accepted this method of teaching justified an evaluation of inter-teaching effectiveness in the Vietnam setting with auditing students.

The review of inter-teaching as an alternative to the lecture model reveals several shortcomings in the literature. Most of the studies are related to psychology courses using small, convenient samples and, with a few exceptions, inter-teaching studies are confined to tertiary institutions in the United States. It is noted that the current study addresses all of the literature gaps identified above.

A major area of interest in this study is how interactive teaching models like inter-teaching improved accounting students' academic performance, as compared to passively listening to a lecture or working alone solving tutorial questions. What is not clearly understood is why students engaged in class improved their grades. Inter-teaching is a classroom instruction based on the principles of behaviour theory and is discussed next.

2.5. *Behavioural Theory and Student Engagement*

Skinner (1953) developed his behavioural theories from observing animal behaviour and found it necessary to use reinforcement to change their behaviour. There were many supporters of Skinner's theories in respect to their application in the classroom (Lindsley, 1964; Keller, 1968; Fantuzzo et al. 1989; Boyce & Hineland, 2002). Boyce and Hineland (2002) sought to change the behaviour of students by introducing preparation, discussion and feedback components to alter the traditional scenario of a student working alone in tutorials or sitting passively listening to a lecture. It is argued that inter-teaching makes a difference to student learning because most of their time in class is spent being engaged with other students in solving discussion questions. Student engagement definitions and models developed in the past twenty- five years have been related to student involvement and participation in their own learning. However, none of the research reviewed for this study explains a theoretical model of student engagement. Researchers acknowledged that Astin's (1984) theory of involvement and Finn's (1993) theory of participation and identification are influential in the understanding of student engagement, however, they do not explain why students engaged with their peers produce better results than students working alone. It is contended that we must look to the research of Deutsch (1949a, 1949b,) and Johnson and Johnson (1974, 1988 and 2009) to fully understand student engagement.

3. Student Engagement and Cooperation and Competition Theory

The theoretical roots of cooperation and competition lie in the theory of social interdependence developed by Koffka (1935), who noted that groups acted with varying degrees of interdependence (Johnson, Johnson & Smith, 2014). Deutsch's (1949a), research, which developed from the work of Koffka and Lewin (1935; 1947), established a series of hypotheses which linked small group performance with cooperation and competition and examined how different people in a group interrelated for their common and individual objectives. In contrast, Deutsch (1949a, 1949b, 2003) viewed competitive behaviour by individuals as not contributing to successful inter-group relationships. Deutsch (1949b) tested the effects of his theory in a study of group processes at his university, Massachusetts Institute of Technology. He concluded that cooperative group individuals worked more frequently together than competitive group individuals and the difference was statistically significant at 0.01. It is considered that Deutsch's theories are essential to understanding why engagement of individuals in a group setting performed better than individuals working alone. Johnson and Johnson (1988) conducted meta-analysis studies that compared cooperation, competitive and individual learning pedagogies from 1924 to 1980 (122 studies). Their findings indicated that cooperation learning strategies in the classroom were by far the most successful in academic achievement, as compared to students in competitive and/or individual learning situations. Cooperation and competition theory is supported by a clear theoretical foundation and thorough rigorous research studies, which has been validated and confirmed in the educational setting (Johnson, Johnson & Smith, 2009; Johnson & Johnson, 2014). Although beyond this study, at the cognitive level, Wegner, Giuliano and Hertel (1985) postulated that group members discovered the varying talents of its other members through collaborative discussion and it is the memory system (trans-active memory) of the group that deciphers and interprets new knowledge more effectively than the individual

members can manage alone. This is considered further evidence of the group theory following on from the works of Koffka, Lewin, Deutsch and Johnson and Johnson.

4. Research Questions and Hypotheses

The literature review confirmed an urgent need to modernise accounting education. Springer and Borthick (2007), Coetzee and Schmulian, (2012) and Jarvis et al., (2014) all noted that the lecture model is primarily teacher-centric, and negative perceptions of accounting were common among accounting students (Mladenovic, 2000).

The general hypothesis was concerned with a comparison of failed grade distributions between both teaching models over a period of 12 semesters. Reference is made to inter-teaching research that has found improvement in student grades in psychology courses (Saville, Zinn & Elliott, 2005; Saville et al., 2006; Saville et al., 2012). However, there are no known studies that specifically compare failed grade distribution in undergraduate auditing courses between two teaching methods. To address this research gap the failed grade performance of students under both methods of teaching were examined. The chi-square test of independence was used to test for equality of proportions between populations⁵. The null and alternative hypotheses are written, as follows: If p_1 = the proportion of the failed auditing student population (lecture model) and p_2 = the proportion of the failed auditing population (inter-teaching) then we are interested in testing the null hypothesis:

$$H_0: p_1 \geq p_2$$

against the alternative hypothesis:

$$H_1: p_1 < p_2$$

In a psychology course examined by Saville et al. (2006) with 84 students, which compare grade results of inter-teaching and the lecture model, they noted significantly higher grades on average for inter-teaching. It is considered important to test H_0 because there is a significant gap in the research understanding in relation to changing the delivery method of content improves academic performance for accounting students, in this case specifically auditing students.

5. Research Method

The two independent variables are inter-teaching and the lecture models. The independent variables causal relationship and differences with the dependent variable of failed grade distributions are of interest for each semester.

⁵ Chi-square was adopted because it is used in research for pooled cross sections and the variables are categorical and dependent on one and another (Woodridge, 2013). The semester (time) effect should not have materially impacted the results because there were no material changes. That is, the course material did not change, teachers were the same, assessment were same level of difficulty and student requirements were similar within the six semesters for each teaching method other than the random variations.

The data on failed grades came from 12 semesters between semester 1 2011 and semester 3 2014 (Table 1 and Table 2). The lecture groups are students who took the course during 2011 and 2012, while the inter-teaching groups are those who took the course during 2013 and 2014. The lecture group and the inter-teaching group each covered six semesters. Because these groups are seemingly independent, although there were repeating students, they were spread over several semesters; it will be possible to conduct a chi-square test of failed grades. The chi-squared test will confirm that the two sets of data were proportionally equal or not equal at the 1% significance level. Graphs of the failed grade distributions (Table 2) are presented to help argue that inter-teaching method is more successful in terms of lower fail grades.

5.1. Participants

Over the 12 semesters (12 weeks each) the average cohort of undergraduate auditing students was 94 per semester. The maximum number of students enrolled in auditing were 128 students in semester 2 2011 and the minimum number was 44 in semester 2 2014.

5.2 Procedure, Assessment and Content

The average tutorial class size in the lecture mode of instruction was 25 students who all participated in a lecture of 1.5 hours per week from semester 1 – 2011 until semester 3 2012 (six semesters reviewed). This was followed by 1.5 hour tutorial during the week where students usually working alone solving problem based questions set by the instructor. Personal response clickers were introduced in semester 2 - 2012 to provide immediate feedback to students during the lecture. During the six semesters under review for the lecture model several changes were made to content and assessment procedures. During semester 1 - 2012 the final exam changed from 3 hours to 2 hours. Two assignments instead of one assignment in previous semesters were introduced but reverted back to one assignment in semester 2 - 2012. The introduction of a 1 hour midterm test in week 6 semester 2 2012 replaced one of the assignments. The inter-teaching semesters commenced during semester 1 2013 from week 6 where it was piloted for the last six weeks and fully introduced from semester 2 2013 (six semesters were reviewed until semester 3 2014). Five online tests were introduced to provide regular feedback to students throughout the semester. Inter-teaching questions were changed for semester 1 2014 with emphasis on students applying their learning to real business case studies with embedded theoretical concepts. Randomly two students were chosen to present to the class on a specific topic at the beginning of each lesson. The final exam weighting was reduced from 60% to 50% and a number of online tests reduced from 5 to 2 during semester 1 2014. All inter-teaching class discussions were assessed with an overall contribution of 20% counting towards a student's total grade for the semester. Students were assessed on preparation, contribution to discussion groups, presentations and questions presented for clarification. A standard marking rubric was used by all teachers across all classes each semester. The teaching faculty were experienced instructors with industry or professional auditing background. They had taught in the accounting program for several years. The same two teachers taught auditing throughout the period of analysis. More importantly, they had both received training in inter-teaching because it is very different to the lecture model. The training consisted of workshops which were conducted by staff from Australia with experience in inter-teaching. The author did not teach auditing during this period. The final exam throughout the 12 semesters covered similar content. The grade results are as follows:

Table 1 Fail and Other Grades of students and Chi-Squared tests

		Types of students		Total
		Failed	➤ Pass	
Period 1	Lecture	202	483	685
	Inter-teach 2	60	376	436
Total		262	859	1121

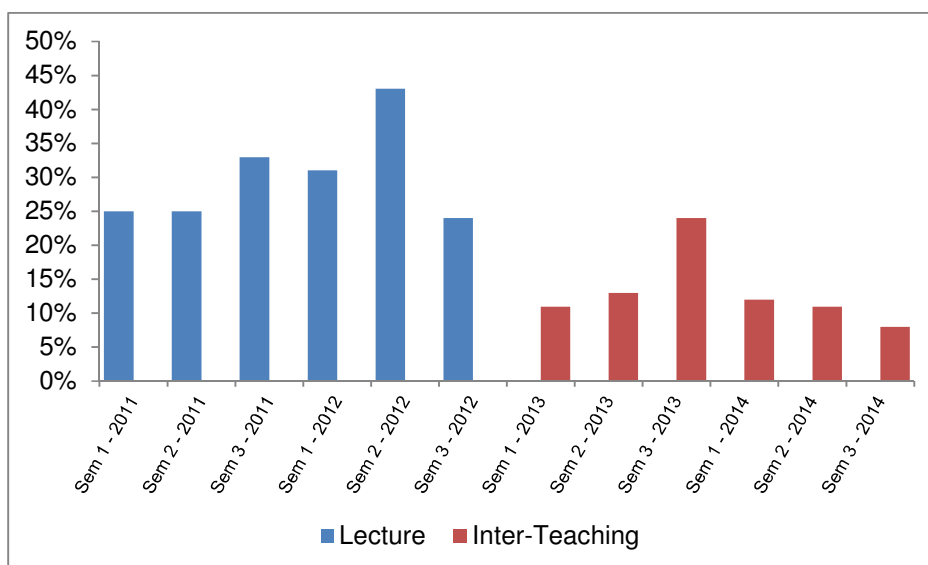
Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	36.797 ^a	1	.000		
Continuity Correction ^b	35.924	1	.000		
Likelihood Ratio	38.848	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	36.764	1	.000		
N of Valid Cases	1121				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 101.90.

b. Computed only for a 2x2 table

Table 2: Comparison of Failed Grades over the 12 Semesters



6. Results

Pearson’s Chi Square test: was used to gauge the difference between the observed and expected values. One of the assumptions of Chi Square test is ‘no more than 20% of cells have expected values less than 5. The footnote for Table 1 demonstrates ‘0 cells have expected values less than 5’. This is a positive sign. Since $p\text{-value} = 0.000 < 0.01 = \alpha$, the null hypothesis is rejected. A chi square test of proportion showed enough evidence to conclude that there is a significant difference in student fail grades. The analysis revealed that students in the inter-teaching groups had a significantly lower fail rate compared to students in the lecture group.

7. Discussion

The statistical evidence in this study confirmed that inter-teaching may have improved student grades for Vietnamese students in the Auditing accounting course. The interest in this study was to correlate the examination outcomes with the findings of Kienhuis (2013) and the several studies of Saville, Zinn and Elliott, (2005), Saville et al. (2006), Saville, Lambert and Robertson, (2011), Saville, Pope, Truelove and Williams, (2012), where student grade performance in all of these studies improved, with the adoption of inter-teaching. The findings are encouraging for auditing accounting students when the inter-teaching model of instruction is adopted.

While not the focus of this study discussions with the lecturers involved in teaching Auditing have witnessed a substantial change in the behaviour of students with the introduction of inter-teaching including students being better prepared and more engaged in classroom discussion and this is consistent with Boyce and Hineland’s (2002) inter-teaching findings.

8. Limitations

Potential factors that may have introduced a bias were timetabling for classes did vary between semesters. Teaching instructors' quality of delivery may have varied between semesters with teachers taking inter-teaching and the lecture model classes. Variation in the quality of students between semesters may have also affected the final results. The data was non-identifiable so it was not possible to exclude repeating students. It would have been useful to consider the standard of incoming students each semester however because the data was anonymous grade point averages of each student could not be obtained. Despite these limitations the current study advances our understanding of the link between engagement, teaching models and improved academic performance in auditing courses.

9. Conclusion

The research question was concerned with a comparison of failed grade distributions between both teaching models over a period of twelve semesters. The chi square test was used to test for equality of proportions between the lecture model and inter-teaching population of students. The analysis revealed that students in the inter-teaching groups had a significantly lower fail rate compared to students in the lecture groups. The results suggested that inter-teaching might be an effective alternative to the traditional lecture model of instruction for auditing classes. The combination of features that requires inter-active learning, a discussion group environment, pre-class preparation, regular testing or feedback likely facilitates student learning and grades through better retention than the lecture model (Saville et al., 2006). Inter-teaching also gives students the opportunity to choose the areas of difficulty they are experiencing for clarification by the instructor. Saville et al., (2006) found that involving students is more beneficial for their learning because they will be more likely to listen and take in information from the clarifying sessions because it contains information they have explicitly requested. Deutsch's (1949a) research has linked small group performance with cooperation in a group interrelated for their common and individual objectives. Johnson and Johnson (2014) have found that engagement learning strategies in the classroom were by far the most successful in academic achievement, as compared to students passively learning, such as is the case with the lecture model.

A consistent theme in the accounting education literature is the lack of progress in the development of innovation, especially teaching methods for accounting courses, and this exacerbates the poor quality learning experience for accounting students. Research suggests that where the learning environment adopts a surface approach students will be passive in their learning. However, where the learning environment is engaging students' learning will be deeper and they may take more responsibility for their learning. This is consistent with the extensive research of Biggs who asserted that an engaging learning style heightens students' involvement and cognitive levels of learning. Inter-teaching, a tested pedagogy that improves student grades may be the solution for improving accounting education.

In conversation with the lecturers about their experiences of inter-teaching compared to teaching the lecture model, they emphatically say that inter-teaching is their preferred method because it engages students in the learning process and the fail rate of students has decreased significantly, therefore, they feel more positive about teaching the course.

Although beyond this study, Jarvis et al.'s (2014) recent research developed the concept of the Large Class Engagement model which investigates the integration of engagement in large flipped classes. Kienhuis' (2013) inter-teaching model, which led to better student engagement, was also associated with larger classes. Future research is anticipated to investigate the large class approach for inter-teaching. Additionally, inter-teaching research should be conducted in advance courses in other business disciplines examining more variables. For example other variables that might affect the effectiveness of inter-teaching, like demographic factors, teaching skills and grade point average should be considered in future research. At the cognitive level, trans-active memory can stimulate group members with informed knowledge to a greater degree than an individual could access on their own, according to Wegner, Giuliano and Hertel (1985). Future research should be concentrated at the cognitive level, Deutsch, Astin and Biggs, in their investigations of student learning, all cite better retention and faster conception of problem solving when students work together in groups.

This study challenges the status quo, advocating student learning practises in accounting education that engage students in their own self-directed learning, through the teaching model known as inter-teaching. A major contribution to the literature is that inter-teaching is a formidable substitute to the lecture model for teaching the accounting course auditing. Largely because it is an all-encompassing teaching model as this study found; inter-teaching engages students from preparation, being involved in small class discussion groups and getting feedback from every lesson.

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