The Effectiveness of Casual Group Learning in Introductory Finance Tutorials

Greg van Mourik, John Watson, Andrys Onsman

ABSTRACT

Many universities require introductory financial management for undergraduate business majors. This study measures whether classroom study groups have a more positive effect on student perceptions and performance than traditional teacher driven classes. As an alternative to traditional tutorial teaching, Classroom Study Groups is an application of casual group learning and is consistent with Constructivist learning theories. The study reports significant differences between the two approaches, with student engagement and satisfaction reported at higher levels amongst those students involved in the traditional, teacher-led approach, and no significant difference between the two in regard to student performance. Interesting relationships are found between dimensions of student engagement, gender, basis of qualification for university entry, selection of course major, and fluency in speaking the English language.

Introduction

Generally, classroom-style tutorials are used to complement large-scale, theatre style lectures in the design of Accounting and Finance courses at Australian universities. The expectation is that students use the tutorial sessions to discuss and make sense of the information presented in the lectures. The study aims to compare two distinct approaches to teaching in the tutorials, using student perception of engagement; student perception of satisfaction, and student learning as the criteria for comparison. The tutorial teaching approaches are referred to in this paper as “traditional” and “Classroom Study Group (CSG)”. Although there is significant literature that supports the assumption that small group work is effective in improving course grades and student attitudes towards instruction (Boylan, Bonham, & Bliss, 1994), there is relatively little comparative research about the effectiveness of specific teaching approaches in tutorials (Fritschner, 2000). It seems that because tutorials are assumed to be effective environments for learning, there is no need to discriminate between approaches to teaching used therein.

The traditional approach to tutorials centres on prescribed problems and exercises which students are assigned in advance of the tutorial. These problems and exercises relate to topics that have been covered in the corresponding lectures. Using the university in which the study was conducted as a guide, lectures are generally presented to between three and four hundred students at a time. Mostly information is presented as tenets, concepts and ideas illustrated by a worked example. By setting similar tasks and problems to be solved in the tutorial, the assumption is that students will gain better understanding of the solutions to the problems and exercises that were assigned when they have greater opportunity to ask questions. Typically tutorials are groups of approximately 20 students and tend to be tutor-led: the tutor explains the solutions whilst the students listen and make notes.

The CSG approach is one manifestation of casual group learning (Fink, 2002). In this approach the tutorials are centred on the same problems and exercises, have the same broad objectives and the same number of students as the traditional approach. However, within each tutorial class students are arranged into smaller groups, of approximately 4-6 students each. Materials are provided to each group with the intention that group members will interact with each other in the process of gaining a better understanding of the solutions. The tutor’s role is to facilitate the functioning of the small groups and to intervene with explanations only when groups have difficulty making progress.

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Generally, in relation to business-oriented courses, teaching staff perceive students as lacking engagement and satisfaction, and not performing as well as they might. In the larger picture, more than a decade ago the International Federation of Accountants argued amongst other things that Accounting graduates’ perceived inability to solve problems was primarily due to their lack of interpersonal skills (IFAC, 1996). Consequently Addler & Milne (1997) postulate that achieving more appropriate graduate attributes will depend upon adopting a more active learning approach and called for educators to use action-oriented learning tasks as the basis of their teaching in Accounting.

More than a decade later there is still little more than anecdotal evidence offered in support of the general assumption that a more action-oriented learning approach results in better learning outcomes than the traditional teacher-led lecture coupled with the tutor-led tutorial. The motivation for our research is that a comparison of the traditional approach with a more action-oriented one might provide evidence about each in terms of their impact on student engagement, satisfaction, and performance.

Whilst Constructivism was favoured over Behaviourism during the 1980s and 1990s, there is now the realisation that Behaviourist principles and approaches can more readily support the more pragmatically strategic aims of full-fee paying students of the twenty first century (Yorke, 2003). In pedagogic terms, the initial acceptance of Deep as more desirable than Surface learning was tempered by the realisation that a Strategic approach to learning would incorporate elements of both as individual learning events warranted. The present study is essentially a comparison between approaches to teaching based on Behaviourist and Constructivist theories of cognition (Leonard, 2002). The research aims to contribute empirically gathered and verifiable evidence to the literature comparing these theories.

**Literature Review**

Three terms have specific meaning for the purposes of the current study: student performance, student satisfaction and student engagement. Performance is determined by the degree of learning achieved by students as measured by final exam and mid semester test grades. Satisfaction is determined by the degree to which students believe the tutorial helped them master the unit of study. Engagement as defined by Haidet, O’Malley, and Richards (2002) is determined by both the amount and quality of student participation and the student’s enjoyment of class. The survey instrument developed by Haidet, Morgan, O’Malley, Moran, and Richards (2004) measures both dimensions of engagement.

The pedagogical distinction between traditional tutorials and CSGs is that traditional tutorials are mostly based upon a Behaviourist theory of learning whilst CSGs are underpinned by a Constructivist theory of learning. In practice, the Behaviourist and Constructivist theories correspond to Paul Ramsden’s (2003 p. 115) notions of “teaching as telling” and “teaching as making learning possible” respectively.

Behaviourism posits that given a controlled circumstance, students will inevitably learn in response to a specific set of stimuli (Leonard, 2002). As such, the learning process is teacher-centred, since teaching occurs in a process controlled by the teacher in which he tells what he knows and students will have learned when they remember what they have been told. Behaviourism conceives of teaching as being the transmission of information.

In contrast, Constructivism posits that students make sense of new information by associating it with what they already know (Lord, 1997). As such, learning is a process controlled by students in which students interact within social groups in order to assimilate new information. Once the information is assimilated, students can explain it effectively to others (Duffy & Jonassen, 1992). Instead of cognitively internalising whatever information is presented as a totality, learning occurs as the student finds an acceptable mental space for whatever information is presented. The process depends on cognitive links to information already internalised being recognised. The CSGs approach assumes that such links will be more readily recognised by talking, discussing and contesting. However, as mentioned earlier there is little in the way of verifiable data to support such an assumption.

There are many schools of thought broadly categorised as Constructivist (Tynjälä, 1999). Lorsbach and Tobin (1993) suggest that one of their common threads is the assumption that the interaction between the explainer and the listener causes “perturbation” which in turn forces the listener to make adaptations to their cognitive understandings in order to resolve the perturbation (Onsman & Paganin, 2006). Thus, attempting to explain one’s understanding to another helps that person assimilate the

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2 See Beattie, Collins & McInnes, 1997 for an overview.
matter. William Glasser for example, (cited in Biggs 1999: 78), suggests that whilst most people learn 10% of what they read and 20% of what they hear, they learn 70% of what they talk over with others.

Fink (2002) contrasts three forms of small group learning: casual use, co-operative learning, and team-based learning – each increasingly far-reaching in curriculum implementation. Team-based learning assumes that all learning will be done as project oriented learning, removing the need for a structured curriculum entirely. Implementation of team-based learning would change entirely the lectures and tutorials that are still typically used in large Australian universities. Johnson, Johnson, & Smith (1991) define co-operative learning as based on carefully planned and structured activities that pay attention to issues such as accountability and group formation. This approach accommodates a teacher-controlled structure in that goals are set, timetables are created and exams conclude the course, but students have an equal input into the decision making processes and define their own learning schedules. Casual use of small groups (CSG) is simply a structural alternative to a single group structure and potentially provides a means of breaking the tedium of routine classes and of moving students into an active cognitive mode. Lectures, tutorials and weekly schedules remain, but within the tutorials students have opportunities to form small clusters in order to discuss, question and contest specific topics.

CSGs provide students with opportunities to become active, to interact with other students, and to influence the course and focus of discussions. Teaching strategies which foster student interaction have been found to lead to more active engagement (Haidet et al., 2004). Lorsbach, Tobin, Briscoe and LaMaster (1992) found that students became more interested and more immersed in the learning process as students became involved in constructivist teaching formats. Lord (1997) found that an 86% majority of students in a Constructivist teaching environment indicated that the class was challenging and enjoyable whilst 58% in the traditional teaching group indicated the class was very difficult and overly demanding.

As explained previously, the meaning of engagement adopted within this study is that used by Haidet et al (2002) which comprises two separate dimensions of student participation and student enjoyment of class. It would therefore be expected that students would experience greater levels of participation and enjoyment in CSGs and thus the following hypotheses are tested:

**H1:** The level of participation of students who attend CSGs is higher than that of students who attend traditional classes.

**H2:** The level of enjoyment of students who attend CSGs is higher than that of students who attend traditional classes.

In Introductory Finance, and using a team learning approach, Byrd and Harman (1997) found students had a clear preference for team learning compared to standard lecture format. George Kuh and Gonyea (2003), amongst others, have argued that satisfaction with classroom activity is likely to be influenced by the student’s perception of the quality and nature of his or her engagement in the learning process. Generally, a perception of satisfaction is considered to be based upon a sense of involvement or participation (Tinto, 1997) and a sense of enjoyment (Chen & McGrath, 2003). Thus, it would be expected that CSGs have similarly positive effects on students’ satisfaction with tutorials. Therefore, the following hypothesis is tested:

**H3:** The level of tutorial satisfaction of students who attend CSGs is higher than that of students who attend traditional classes.

CSGs involving group discussion and organisation require collaboration amongst students in the learning process. Johnson, Maruyama, Johnson, Nelson and Skon (1981) found a positive effect of collaboration on student performance. Similarly, Tang (1990) found positive effects for students who cooperated in group discussions for assignments. Accordingly, students who are engaged and satisfied with their tutorials are more likely to perform well. Therefore, the following hypothesis is tested:

**H4:** The level of performance of students who attend CSGs is higher than that of students who attend traditional classes.

**Methodology and Descriptive Statistics**

The research took place in relation to Introductory Finance tutorials which are taught to primarily second and third year students at the Caulfield campus of Monash University. The Faculty of Business and Economics at Monash University is the largest business faculty in Australia with over 15,500
students and 600 staff. Student enrolments for core units such as Introductory Finance at the Caulfield Campus typically exceed 400 students each semester.

Students attend lectures as a single cohort in a large theatre environment and are allocated to tutorials in classroom settings of approximately 20 students. The tutorials are focused on the solutions to prescribed text book exercises which students are expected to have completed prior to attending class and for which solutions are published online in the following week.

This research setting provided the opportunity to compare two tutorial teaching approaches. In the traditional approach to tutorials, the tutor demonstrates solutions on the white board and students copy or make notes. Students sit at individual tables arranged in rows within the classroom. The tutor invites questions and seeks interaction but the resultant level of interaction is perceived by teaching staff to be poor.

In the alternative approach, CSGs, students are allocated into groups of 4 to 6. The groups tend to remain the same throughout the semester in order that the effectiveness of groups would develop over time as students, through repeated contact, become increasingly familiar with the other members in the group (Michaelsen, Black, & Fink, 1997). The students sit around clusters of small tables in order to facilitate conversation.

Each CSG is provided with written copies of the solutions at commencement of the tutorial and participants are expected to interpret and discuss the solutions together. To facilitate discussion, students are provided a list of ‘Check Questions’ which relate to specific concepts and phrases used in the supplied solution. The tutor encourages the students to appoint a lead discussant and to rotate the role of discussant as they work their way through the list of exercises. On occasion, the tutor convenes a plenary for brief periods of time to make connections between ideas and to contribute explanations where these needs are not satisfied within the small groups.

All forms of assessment are identical to those applying to students sitting in traditional tutorials except that CSG students are told their 5% participation score was dependent on their participation within the study group.

A field experiment was therefore established in which two cohorts of students were taught throughout the semester with different tutorial approaches and the opinions and performance of the cohorts were compared in the later stages of the semester. Two student cohorts were formed based on the classes allocated to two experienced tutors. Each teaching approach was used consistently throughout the semester to avoid complications that would result from a change in approach part way through the semester and attendance sheets were used to track student attendance at tutorials.

The teaching approach experienced by a student was determined by virtue of which of the two tutors were allocated to the student’s class. Therefore, assignment of a student to a particular teaching approach was random.

Hypotheses were tested using t-tests for two independent samples. Data was collected from two sources. Data describing student performance were collected from the results achieved by students in.

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4 The normal process by which students are allocated a time during the week to attend tutorials involves a computer-based registration system in which students express their preferred tutorial times. However, generally less than 20% of students are allocated their first preference which means that the allocation of students to tutorial classes is mainly system generated. Hence it is considered that the grouping of students was largely random.

5 Examples of check questions follow. A solution may rely on a term, eg ‘imperfectly correlated’ and a check question might be ‘what does ‘imperfectly correlated’ mean? Or a solution might include a mathematical expression and the check question might be ‘why is the mathematical expression used?’

6 There were three pieces of assessment with the subject: A comprehensive final exam (80%), A mid-semester test covering material in lectures 1-7 (15%), and preparation and participation mark (5%). The marks for preparation and participation were awarded on the following basis; Students who attend at least 10 of their allocated tutorial classes and show evidence of preparation in at least 9 tutorial sets will receive 5 marks for their participation; Students who attend at least 9 of their allocated tutorial classes and show evidence of preparation in at least 8 tutorial sets will receive 3 marks for their participation; Students who attend at least 7 of their allocated tutorial classes and show evidence of preparation in at least 7 tutorial sets will receive 1 mark for their participation; Students who do not attend at least 8 of their allocated tutorial classes will receive 0 marks for their participation.

7 This participation score, determined by the tutor, has no relationship to the participation variable under study in this research. The participation scored in this research is self-assessed by the student.

8 A copy of the survey instrument conducted in the field experiment is available upon request from one of the authors. Consent was obtained from willing participants during teaching week two of semester while the final survey instrument was conducted during teaching week 12.

9 The assignment of different tutors to each cohort is justified in that the experiment seeks to compare the difference in teaching approaches as exemplified by different tutors. Both tutors are regarded as capable of performing the teaching approach used by them. However, both tutors are considered similar in their introductory finance knowledge and their pedagogical ability. Both tutors involved in the research are recent recipients of the Deans Award for Excellence in Teaching. Analysis of data from previous semesters showed that there was no significant difference in student satisfaction and performance between the tutors’ cohorts when both tutors used the traditional tutorial teaching approach. Copies of teaching portfolios for both tutors are available upon request to the lead author of this study.
exams midway through and at the end of the semester. Exam results were collected for individual questions relating to specific topics as well as for the overall result in both exams.

Data describing student satisfaction and self-perception of engagement (i.e., participation and enjoyment) were collected by use of a survey in the penultimate week of the semester. It used a five-point Likert scale, from Strongly Agree through to Strongly Disagree and a sixth option was provided for “don’t know or not applicable”. The survey was also used to collect descriptive information about the cohorts in the form of student demographics, whether students qualified for university in Australia or internationally, the nature of their course major, and their self-perceptions of their proficiency in the English language.

The descriptive data is shown at Table 1. The Introductory Finance Unit is core to courses with both accounting and finance majors, and thus the cohorts are equivalent in this respect (82% of students in traditional class, compared with 86% of students in CSGs).

### Table 1 Initial Descriptive Data

<table>
<thead>
<tr>
<th></th>
<th>Traditional Class</th>
<th>CSG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=53</td>
<td>N=35</td>
</tr>
<tr>
<td>Gender Male</td>
<td>24 (53.3%)</td>
<td>13 (39.4%)</td>
</tr>
<tr>
<td>Female</td>
<td>21 (46.7%)</td>
<td>20 (60.6%)</td>
</tr>
<tr>
<td>Not advised (missing)</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Age &lt;20</td>
<td>15 (28.3%)</td>
<td>8 (22.9%)</td>
</tr>
<tr>
<td>20–23</td>
<td>38 (71.7%)</td>
<td>27 (77.1%)</td>
</tr>
<tr>
<td>Major Banking &amp; Finance plus Accounting</td>
<td>7 (14.0%)</td>
<td>9 (25.7%)</td>
</tr>
<tr>
<td>Banking &amp; Finance</td>
<td>8 (16.0%)</td>
<td>10 (28.6%)</td>
</tr>
<tr>
<td>Accounting</td>
<td>26 (52.0%)</td>
<td>11 (31.4%)</td>
</tr>
<tr>
<td>Other</td>
<td>9 (18.0%)</td>
<td>5 (14.3%)</td>
</tr>
<tr>
<td>Missing data</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Qualify VCE</td>
<td>26 (49.1%)</td>
<td>14 (41.2%)</td>
</tr>
<tr>
<td>Full fee paying international</td>
<td>24 (45.3%)</td>
<td>16 (47.1%)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (5.7%)</td>
<td>4 (11.8%)</td>
</tr>
<tr>
<td>Missing data</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1 provides a summary of number of responses to the student survey for both the traditional class and classroom Study Groups along with additional descriptive data about the student cohort within each classification.

Two variables, in the survey instrument, relate to overall student performance (refer to Table 2). The scores achieved by a student in the mid-semester test (MSTs) are represented by T1 and the final exam T2 respectively. The MSTs were scored by staff members who were not involved in the research project. Students must have attended a minimum number (six) of the ten tutorials prior to the week in which the survey was conducted in order for their scores to be included in the data.

Six performance variables T3 through T8, relate to the results achieved in three specific questions in each of the MST and the final exam. Each question was graded independently of the research team and students must have attended the corresponding tutorial in order for their scores to be included in the data. Details of the questions are shown in Table 2.

Student satisfaction was measured on a five point Likert scale as previously mentioned via the survey with the following question: Overall, I am satisfied with the way tutorials helped me master the Financial Management Unit. Measurement using the question: "I am satisfied with the way in which my tutor helped me learn during the tutorials” produced similar results and so is not reported separately in this paper.

In order to measure student participation and enjoyment (engagement) we adapted the Classroom Engagement Scale (CES) used by Haidet et al of the Team-Based Learning Collaborative at Baylor’s College (Haidet et al., 2002). Hence we are able to measure engagement in learning on two dimensions: ‘learner participation’ and ‘learner enjoyment of class’. The CES instrument involves eight

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10 Student consent to the use of assessment data and participation in a survey was obtained in advance of the survey. The survey was not anonymous since it was necessary to match the survey respondents with respondents’ exam results. All data were de-identified once the matching was completed. Appropriate processes to safeguard students’ interests and to ensure objectivity of data were approved by Monash University’s Committee for Ethics in Human Research and implemented accordingly.
items. Learner Participation is measured by the sum of scores on four items\(^\text{11}\) and Learner Enjoyment of Class is measured by the sum of scores on three other items\(^\text{12}\). The eighth item, a distracter question, was redundant and hence omitted because the instrument was included as part of a larger survey.

Table 2 MST and Exam Questions

<table>
<thead>
<tr>
<th>ID</th>
<th>Questions / Topics</th>
<th>Description</th>
<th>Tutorial Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Mid semester Exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>Capital Decision Rules</td>
<td>Define IRR method, list 4 problems with it and then discuss them.</td>
<td></td>
</tr>
<tr>
<td>T4</td>
<td>Financial Maths – annuities</td>
<td>Calculate monthly payments given a PV and an “interest rate”.</td>
<td></td>
</tr>
<tr>
<td>T5</td>
<td>Portfolio Theory</td>
<td>Qualitative question about systematic and non-systematic risk, diversification, covariance/correlation, etc</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>Final Exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T6</td>
<td>Cost of Capital</td>
<td>(2 \times) cost of capital calculations, project identification, appropriate decision criteria</td>
<td></td>
</tr>
<tr>
<td>T7</td>
<td>CAPM</td>
<td>Define/explain SML and Beta</td>
<td></td>
</tr>
<tr>
<td>T8</td>
<td>Capital Structure</td>
<td>Discuss economic implications of MM II ‘63</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 provides a description of the Mid Semester and Final Exam Questions that were identified as appropriate tools for measuring student performance. These measures are of self-evaluation rather than those of an objective third party. William G. Perry, in his foreword to Understanding Student Learning, (Entwistle & Ramsden, 1983) supported the use of students’ perceptions rather than a third party’s objective measures arguing that the self-evaluation measure is more relevant.

Principal component analysis was performed on the ‘learner participation’ and ‘learner enjoyment of class’ dimensions of the Classroom Engagement Survey. This confirmed the uni-dimensionality of the ‘learner enjoyment of class’ but two factors emerged in relation to ‘learner participation’. These factors can be interpreted as ‘Paying Attention’ and ‘Learner Contribution’, see Table 3. No items were discarded; rather two variants of Hypothesis 1 were tested.

\(H1A:\) The level of attention paid by students who attend CSGs is higher than that of students who attend traditional classes.

\(H1B:\) The level of ‘learner contribution’ of students who attend CSGs is higher than that of students who attend traditional classes.

Empirical Results and Discussion

In this section, we will firstly present the results of the hypothesis tests, discuss the specific findings in relation to each hypothesis, and then conduct a general discussion of findings.

The hypotheses were tested by comparing cohort means of the relevant variables using Student t for independent samples. There were only thirteen “don’t know” responses and 18 responses missing (ie unanswered), 10 of which related to the gender question shown in the Descriptive Data in Table 1. For the purpose of analysis, the “don’t know” responses were treated as missing. The results of the tests are shown in Table 4.

A significant difference between cohorts is found in relation to paying attention (Hypothesis 1A) but in the opposite of the direction predicted, ie the traditionally taught cohort agreed more strongly that they were paying attention in class than did the CSG cohort. Analysis of the data confirms this

\(^{11}\) The items were ‘I contributed meaningfully to discussions in most AFF2631 tutorial classes’, ‘most students were not paying attention in my AFF2631 tutorial classes’ (reverse scored), ‘I paid attention in AFF2631 tutorial classes most of the time’, and ‘I participated in AFF2631 classes most of the time’.

\(^{12}\) The items were ‘I had fun in most AFF2631 tutorial classes’, ‘I have not enjoyed the AFF2631 tutorial classes’ (reverse scored), and ‘I would like more tutorial classes to be like this one’.

\(^{13}\) We conducted the Bartlett’s sphericity test and found at the 1 percent level of significance the variables in the population correlation matrix were uncorrelated (Cooley and Lohnes 1971).
difference between cohorts regardless of student gender, selection of course major, basis of qualification for university entry (ie qualified within Australia vs. qualified overseas), and fluency in speaking the English language.

Table 3 Principal Component Analysis of ‘Learner Participation’

<table>
<thead>
<tr>
<th>Rotated Component Matrix (a)</th>
<th>Learner Contribution</th>
<th>Paying Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>I contributed meaningfully to discussions in most AFF2631 tutorial classes.</td>
<td>0.870</td>
<td>0.096</td>
</tr>
<tr>
<td>Most students were not paying attention in my AFF2631 tutorial classes.</td>
<td>0.030</td>
<td>-0.909</td>
</tr>
<tr>
<td>I paid attention in AFF2631 tutorial classes most of the time.</td>
<td>0.331</td>
<td>0.797</td>
</tr>
<tr>
<td>I participated in AFF 2631 tutorial classes most of the time.</td>
<td>0.851</td>
<td>0.131</td>
</tr>
<tr>
<td>0.851</td>
<td>0.131</td>
<td></td>
</tr>
</tbody>
</table>

(a) Rotation converged in 3 iterations

No significant difference was found between cohorts of different teaching approaches (Hypothesis 1B) in respect of Learner Contribution. However, analysis of partitioned data shows a significant difference in favour of the traditional approach, particularly amongst females. Additionally students who qualified for university entry overseas and those students who rate their own fluency in speaking the English language as adequate tended to favour the traditional mode of teaching over that of the CSG.

A significant difference between cohorts is found in relation to student enjoyment (Hypothesis 2) but in the opposite of the direction predicted, ie the traditionally taught cohort agreed more strongly that they enjoyed class than did the CSG cohort. Analysis of partitioned data shows, similarly to Hypothesis 1A, that the difference is significant amongst females but not males and amongst students who qualified overseas but not amongst those who qualified within Australia. The difference is also significant amongst non-finance majors at 1.2% but not significant at less than 5% amongst finance majors (6.4%).

A significant difference between cohorts is found in relation to student satisfaction (Hypothesis 3) but again in the opposite of the direction predicted, ie the traditionally taught cohort agreed more strongly that they are satisfied the tutorial helped them master the unit than did the CSG cohort. Analysis of the data shows this significant difference is independent of gender, basis of qualification for university, selected course major, and fluency in speaking the English language.

Results show in relation to hypothesis 4, that there is not any significant difference (at less than 5%) in the means for any of the eight measures used to test the hypothesis. There are differences in means of the performance in two of the mid semester exam questions significant between 5 and 7%. The traditional class performed better in the more quantitative question and CSGs performed better in the question requiring more explanation. However, there is no significant difference in the third question and overall, there is no difference in the means of total scores for the mid-semester exam.

In relation to the final exam, there is no significant difference in the means either in performance of the individual questions or in the overall scores.

The performance variables were measured at the times of the MST in week nine and the final exam. Hence measurement took place some considerable time after the teaching took place in the classrooms. Consequently, these variables measure the learning that took place inside the classroom in combination with the learning that subsequently took place in the form of self-study, consultation with the lecturer and potentially, collaboration with other students. These other potential determinants of performance are likely to have masked the effects of the difference in tutorial teaching approaches.

The direction of the differences in satisfaction, enjoyment, and participation was unexpected. Ramsden (2003) points out that, from the teacher’s point of view, the outcomes of different teaching approaches like CSGs are often unpredictable because they depend on the students’ perceptions of the teaching approach rather than the teacher’s intention. Many factors will influence the nature of students’ reaction to a change in teaching approach, and an unfavourable reaction may undermine

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14 Detailed tables reporting these findings can be obtained by contacting any of the authors by e-mail.
students’ achievement levels. Leonard (2002) notes that with constructivism, autonomy and self-motivation are critical elements of the learning process.

An unfavourable reaction to the CSG approach could be explained by students’ prior experience. The students typically were in their fourth semester of study at the university thus had substantial prior experience of the traditional tutorial approach. Reaction to the approach by students in their first semester may have been more favourable. Moreover, students’ lack of experience in small group learning likely resulted in students’ collaboration skills being weak.

In contrast, Haidet et al (2004) found students’ self perception of their engagement with content and each other to be higher in the constructivist approach than the behaviourist approach. However, the subjects of the research were medical residents at two academic medical institutions. Thus in their case, it is likely the maturity, self-motivation, interpersonal and collaborative skills and experience of the students were significantly different to the students in this case.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable(s)</th>
<th>CSG (mean)</th>
<th>Trad (mean)</th>
<th>Difference in means</th>
<th>Sig 2-tailed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Learner Participation:*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A Paying Attention</td>
<td>3.59</td>
<td>4.25</td>
<td>-0.66</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>1B Learner Contribution</td>
<td>3.46</td>
<td>3.64</td>
<td>-0.18</td>
<td>Not sig</td>
<td></td>
</tr>
<tr>
<td>2 Enjoyment of Class</td>
<td>3.45</td>
<td>3.96</td>
<td>-0.51</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td>3 Student satisfaction</td>
<td>3.6</td>
<td>4.34</td>
<td>-0.74</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>4 8 different exam results labeled T1 to T8 as follows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- T1 Mid semester Exam</td>
<td>53.17</td>
<td>57.75</td>
<td>-4.58</td>
<td>.126</td>
<td></td>
</tr>
<tr>
<td>- T3 Capital Decision Rules</td>
<td>5.016</td>
<td>5.683</td>
<td>-0.667</td>
<td>.273</td>
<td></td>
</tr>
<tr>
<td>- T4 Financial Maths – annuities</td>
<td>3.912</td>
<td>5.224</td>
<td>-1.3127</td>
<td>.054</td>
<td></td>
</tr>
<tr>
<td>- T5 Portfolio Theory</td>
<td>6.362</td>
<td>5.330</td>
<td>+1.0321</td>
<td>.082</td>
<td></td>
</tr>
<tr>
<td>- T2 Final Exam</td>
<td>63.77</td>
<td>64.63</td>
<td>-0.865</td>
<td>.785</td>
<td></td>
</tr>
<tr>
<td>- T6 Cost of Capital</td>
<td>7.39</td>
<td>7.36</td>
<td>+0.027</td>
<td>.967</td>
<td></td>
</tr>
<tr>
<td>- T7 CAPM</td>
<td>2.86</td>
<td>3.07</td>
<td>-0.214</td>
<td>.319</td>
<td></td>
</tr>
<tr>
<td>- T8 Capital Structure</td>
<td>2.40</td>
<td>2.34</td>
<td>+0.063</td>
<td>.830</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 presents the results of the hypothesis tests. No significant difference was found between teaching approaches in relation to student performance or learner contribution. Significant differences were found in relation to the other hypotheses but in the opposite direction predicted. The following 5 point likert scale was adopted: 5 Strongly favourable, 3 Neutral, 1 Strongly unfavourable. * Principal component analysis showed Learner Participation to consist of two factors.

Learners undertaking a surface study approach (Biggs, 1987) aim to memorise solutions for playback in exams. Because the constructivist approach requires more time per exercise than the
traditional approach, fewer tutorial exercises are covered in CSGs than in the traditional classroom. In
the traditional setting, surface strategy students may be able to focus more intently on the expert’s
interpretation of solutions and hence more effectively memorise key phrases and concepts. Students
adopting a surface approach may therefore find the CSG approach unproductive and distracting.

When undertaking a deep approach to study (Biggs, 1987), learners endeavour to make connections
between multiple ideas and relate new knowledge to experience and prior knowledge. The opportunity
to interact with other students has been argued to facilitate this (see, for example, Lave & Wenger
(1990)). However, in the highly competitive environment of higher education, especially within
business-oriented courses, students may perceive the interaction with expert instructors as more
valuable, and the CSG approach lessens the opportunity for students to interact directly with the expert
tutor. Thus, this study’s findings may reflect the possibility that many students may not value listening
to their peers, as was found by Digout and Harizanov (2004).

Ramsden argues that assessment methods drive student approaches to learning (Ramsden, 2003, Pg 67)
and Boud, Cohen, and Sampson (1999) found students’ perceptions of what is required to do well
can undermine peer learning. Assessment methods were not significantly altered for the purpose of
supporting the CSG approach; the only connection with assessment being that CSG students were
advised that the allocation of up to five marks in the final assessment would depend on their
participation in small group learning. A reward of up to five marks is unlikely to be a sufficiently large
incentive to motivate significant differences in students’ adoption of CSG practices.

Summary and Conclusion

Lack of student participation in tertiary classrooms has often been bemoaned by tutors. This paper
outlines an alternative approach to the conduct of tutorials that provides students the opportunity to
interact, be active, have more control over their learning, and to verbalise their understandings and
hence potentially learn more deeply. The results prove surprising in that they seem to suggest that
students prefer the traditional, behaviourist teaching approach. Regarding performance, whilst there is
little evidence of a difference between the two approaches, this potentially reflects the existence of
many confounding variables in the model as designed. Students were more satisfied and felt more
engaged in the traditional learning situation than they were in CSGs and possible explanations for this
were discussed.

The design of CSGs may be more effective if consideration is given to integrating assessment and
providing support for the development of collaborative skills with the approach. They will also be more
effective when linked to final exams which require deep understanding on the part of the students in
order for the students to achieve good grades. These considerations represent future research
opportunities. Interesting relationships of both learner contribution and enjoyment of class with student
gender, basis of qualification for university entry, selected course major, and fluency in speaking the
English language were observed. These relationships, within casual learning group settings, also
represent interesting future research opportunities.

Finally, whilst a strength of this research is that the experiment was set in the field rather than in a
laboratory, it does nevertheless have its limitations. Findings in the introductory finance setting may
not generalise to other disciplines, especially non-business disciplines. The setting for this experiment
was a course in which student interaction during tutorials was not rewarded because their level of
interaction did not significantly influence their assessments. Thus the findings may not generalise to
courses of different designs and assessment strategies.

References


dichotomy,” Accounting Education, 6(1), 1-12.

Council for Educational Research.

Press.


Michaelsen, Black, R. H., and Fink, L. D., 1997, What every faculty developer needs to know about learning groups. In D. DeZure (Ed.), To Improve the Academy: Resources for Faculty, Instructional, and Organizational Development. Stillwater, Oklahoma: New Forums Press.


