The Challenge: Teaching Accounting Concepts to Students of the Built Environment

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Abstract

Accounting Concepts are considered crucial for the successful operation of any business or profession. Therefore, many undergraduate degrees include an individual subject for accounting. Consequently, lecturers are faced with the daunting task to teach accounting to non-accounting students, usually within a short space of time, and yet with the expectation that the students will immediately grasp all the key concepts and adequately maintain books and records to comply with relevant Accounting Standards.

The purpose of the research paper is to ascertain the effectiveness of different teaching styles for students in the built environment. The research methodology in this paper analyses results from four groups of students, over two years, who were enrolled in property and or construction undergraduate degrees. The undergraduate degrees comprised of one shared accounting subject which was taught over one semester. Two groups of students (Groups A and D) were taught with a "modified" approach towards accounting "language", with integrated examples relating purely to the built environment, and the other two groups (Groups B and C) were taught with the traditional accounting language found in an accounting degree and with the use of examples relating to a variety of industries, but not including the built environment.

The results indicate a superior learning outcome, outstanding results, and a higher pass rate for groups A and D.

KEYWORDS: Accounting, Built Environment, Case Studies, Education

1. Introduction

Accounting concepts are considered a critical aspect of the knowledge fields which complement good management and business skills, and are also considered crucial for the successful operation of any business or profession. Consequently, the Built Environment has experienced a demand for business subjects, with many undergraduate degrees including a subject for accounting. As a result, lecturers are faced with the daunting task to teach accounting to non-accounting students, usually within a short space of time, and yet

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with the expectation that the students will immediately grasp all the key concepts and adequately maintain books and records to comply with relevant Accounting Standards.

Traditionally, accounting subjects are assessed via an assortment of quizzes, class tests and formal exams. This method of assessment can be viewed as being inflexible and does not offer the student the opportunity to develop "problem solving skills". Similarly the lecture style of teaching followed by tutorial classes might be considered too rigid with an emphasis on the mathematical calculations as a key component of the learning objectives, rather than embedding theoretical structures as a desired knowledge field. In addition, the traditional accounting language found in an accounting degree with mathematical examples relating to various industries such as retail and manufacturing, are not relevant to the property and construction disciplines. Ideally, accounting language and examples applied to the Built Environment would offer a practical and meaningful application for students to grasp the core elements and application of accounting and good business management skills.

The purpose of the research paper is to ascertain the effectiveness of different teaching styles for students in the built environment. The first section of the paper commences with a discussion on the literature for teaching accounting in the accounting and non-accounting disciplines, and the various best practice approaches applied within these disciplines. The discussion is complemented with data and an analysis of the assessment results relevant to the selected groups of students enrolled in property and undergraduate degrees. The pass rate results from these four groups are compared, and the paper concludes with an overview of the effectiveness of the different teaching styles.

2. Literature Review

There is vast literature in accounting education journals, which acknowledges the need to improve student interaction and learning outcomes within the disciplines of accounting. In contrast there is minimal literature published with regards to teaching accounting to non-accounting students. Research undertaken in this field, has acknowledged the difficulty and restrictions in teaching accounting subjects and Lloyd and Abbey (2009) were of the opinion that a "central recurring theme in business education is the optimal strategy for improving introductory accounting" (pp23) followed by a desire to engage in active learning processes to maintain the students interest.

During the 1990s, faculty members who taught accounting to accounting students were surveyed, and the results indicated that lectures were the most favoured style of teaching followed by the seminar/tutorial format (Brown and Guilding, 1993). A criticism of this trend was the observation that students "are not being encouraged to exercise and express independant thought". This notion was also earlier reiterated by Dent 1986, Richardson 1988, Subotnik 1991. In addition, the importance of communication skills was highlighted by Zaid, Abraham (1994), where it was observed that accounting graduates were lacking in the written report style required to disseminate information to their clients.

Other suggestions during the following years included the need to set goals and objectives for the students to master, and for the lecturer to provide immediate feedback of

assessments to the students. (Borja 2003). The specific accounting language was also highlighted as an issue, and sometimes viewed by students as a "foreign" language. Borja (2003) also recommended that at the beginning of each class, a review be undertaken of the accounting vocabulary discussed previously to assist the students with increasing their comprehension level. Other considerations included the introduction of role play simulation to engage students interest and learning (Beardean 2004), and the development of "analytical thinking, decision making, and communication" skills (Francisco et.al. 2003). A comparison of teaching styles by Leveson (2004) concluded that the quality of teaching could be improved with technical and procedural information, with the addition of providing the student with a conceptual process of accounting which contained clearly specified learning objectives. A similar observation was noted by Buckhaults and Fisher (2011), who identified students learning and interest could increase if the lecturers were more familiar with the course material!

The introduction of technology has also seen a new approach to teaching many subjects and accounting is no exception. Can et al (2012) evaluated the effectiveness of conducting accounting lectures with the use of power point presentations and concluded that students who were taught via the blackboard gained a deeper understanding of the subject if this was integrated with the use of the application of the subject. However, Holtzblatt and Tschakert (2011) favoured the use of digital technology for accounting students to increase student motivation and fully engage student learning. Potter and Johnston (2006) explored the application of interactive on-line learning systems and noted a positive association with exam performance. Therefore, over the years, research indicates a need to improve the teaching style of lecturers, who teach accounting within the business discipline; for that reason, of tremendous challenge is the concept of teaching an accounting subject to students of the built environment, i.e. teaching accounting to non-accounting students.

So the question arises on how we can improve the teaching delivery to maintain adequate interest and engagement with the built environment students, and simultaneously achieve the desired learning outcomes and pass class tests and exams. As mentioned earlier in the literature review, research has focused on teaching accounting to the business accounting discipline, with very little research undertaken for teaching accounting to non-accountants, and in particular within the Built Environment.

In the wider context, it is generally accepted that accounting has numerous capabilities and end results. For instance, a criticism of the accounting discipline is the perception of the "rules-based procedural approach" (Lucas 2002), with little emphasis on the macro issues which underpin the conceptual understanding of the accounting principles. This imbalance of micro and macro accounting was also noted by Boyce (2004) who observed students were readily able to perform the technical calculations only. Therefore, it could be assumed, that students from the Built Environment, would benefit from selective examples inclusive of property and construction themes, instead of retail and manufacturing. This suggestion of applying accounting skills to related topics in their undergraduate degree, would greatly enhance the students' practical application of accounting and position the subject in the context of real-life examples, and provide a more meaningful outcome for the students.

The enhancement of student learning can be analysed with different approaches. For instance, Curtis (2011) suggested the introduction of formative assessment, whilst Frakes and Lathen (1985) analysed the difference in the exam mark when students were tested with the use of multiple choice-equations or problem based questions, and concluded that there were no significant differences with the score but did note however there would be limited grade variation with multiple choice questions. This observation could suggest that multiple choice assessments can provide the student with a higher opportunity of selecting/guessing the correct response to the question!

Historically, accounting education research favours a variety of teaching styles, such as innovative problem solving (Howieson 2003, Stanley & Marsden 2012) and integrated case studies (Kolb et al 1986). Case studies can improve a student's ability to identify problems and develop a rational constructive approach to aid the research of the relevant issues. The student needs to be engaged and stimulated and particularly with accounting, this can be very challenging for the lecturer! It is also important to align the student with a connection of the accounting topics to their field of discipline, such as the Built Environment. As mentioned in the earlier section of the literature review this approach is also favoured by Lloyd and Abbey (2009)

Other considerations which are noteworthy, includes student preferences for class handouts to supplement information (Farrelly & Hudson 1985); and problem solving, lecture/discussion format for classes (Smith & Usry 1989) which were relatively unchanged during the preceding 25 years. Additionally, Inglis et al (1993) compared an intensive summer-school in seminar format, with the traditional weekly lecture and tutorial format and concluded students in the intensive format had higher grades and a greater knowledge of retention of the information, even 2 years after the subject had been taught. Also, Lucas (2000) identified the importance for students to "recognise the different contexts in which accounting is used and the different terminologies". Furthermore, Thomas and Bebbington (2004) noted that it was important to consider "what" we teach and "how" we teach, and Kowalcz (2001), concluded that students were provided with a "richer contextual environment" by the introduction of case studies relevant to the students' field of study.

Therefore, It is interesting to note that the detail and contents of the case study plays an important role with the student's involvement and enthusiasm. In conclusion, if the accounting examples and the accounting terminology were adapted to the Built Environment, this would have a more meaningful learning outcome for the students, as opposed to learning how to manage a pharmaceutical retail business.

Ideally, short answer problems and questions, to demonstrate the application of accounting concepts in the initial stages of the subject, lays the conceptual foundation of knowledge for the students (Dockter 2010). The student would then progress to more complex problems with the assistance and guidance of their lecturer through on-going interaction and online support. At this stage the lecturer could attempt to engage the student in case studies which were more relevant to their discipline. This was further reiterated by Lehman (2001), who also considered it was necessary to "make the learning process challenging" and suggested

the use of the role play approach, with a case study, as an activity to stimulate and engage the student's interest and learning.

So whilst literature acknowledges the introduction of case studies, and integrated examples relevant to the discipline of study, which provides the student with the opportunity to engage in complex problem solving skills, the question arises as to why this mode of teaching is not more widely adopted when teaching accounting to non-accountants? There are a number of possible answers, such as the specialised knowledge of the lecturers in that subject, the lecturer's level of experience in teaching, their ability to modify the students learning experience, different learning styles and students' special requirements can all contribute to the final decision of how a subject will be delivered and taught. Interestingly, Buckhaults and Fisher (2011), stated that it was necessary for the lecturer to have a complete understanding of the material relevant to the subject and to keep introducing new methods of teaching to make the subject interesting. Therefore, this is an important link between the lecturer's depth of knowledge and the ability to prepare a challenging case study for the students to research.

In conclusion, the literature reviewed in this research paper has identified the need to modify accounting subjects taught to accounting and non-accounting students, so as to demonstrate the relevance of the accounting theories and concepts, to the discipline selected by the student.

3. Research Method and Limitations

The research methodology in this paper analyses results from four groups of students, over two years, who were enrolled in property and or construction undergraduate degrees. The undergraduate degree comprised of one shared accounting subject which was taught over one semester. Two groups of students (Groups A and D) were taught with integrated examples relating purely to the built environment, and with a modified approach to accounting "language". For example, the accounting term *"inventory"* was substituted with the equivalent term commonly known in construction as *"materials".*

The other two groups (Groups B and C) were taught with the traditional accounting language found in an accounting degree and with the inclusion of examples relating to a variety of industries, such as retail and manufacturing, but did not include the Built Environment.

The purpose of the research paper was to ascertain the effectiveness of different teaching styles for students in the built environment. These teaching styles included problem solving skills relating to case studies, modification of accounting language and the integrated examples which related to the built environment and other unassociated industries. All four groups of students were assessed using an identical mix method of quizzes, class tests and a formal exam. All assessments had similar weighting for each topic in the accounting subject. A matrix which identifies the assessment criteria, plus data relating to class sizes and exam results is also provided to support the conclusions in this research. All groups participated in workshop/tutorial classes; additionally, all four groups were provided with on-line tutorial questions and answers.

4. Discussion and Analysis

As discussed earlier in the paper, teaching accounting principles to non-accounting students can be very challenging. Particularly when the elementary concepts must be grasped first before more complex problems are considered. However, it is crucial that learning outcomes and the delivery of these topics are within an acceptable learning environment framework, with academic rigour maintained.

The four groups of students discussed in this research, were from either the Property or Construction Project Management undergraduate degrees within the discipline of the Built Environment. The accounting subject was a compulsory shared subject for both undergraduate degrees with a couple of students from either Architecture or Design selecting the subject as an elective.

Table 1 below, identifies the group of students analysed. Each cohort is listed with the relevant method of assessment and teaching delivery. In particular Groups A and D were primarily taught with the use of a white board, as opposed to Groups B and C who were taught with the aid of power point presentations.

TABLE 1: COHORT GROUPS – IDENTIFIED AS GROUPS A, B, C, D,

GROUP A – Application to the Built Environment	GROUP B – Application as an accounting discipline	GROUP C – Application as an accounting discipline	GROUP D – Application to the Built Environment
Quizzes	Quizzes	Quizzes	Quizzes
Class Test	Class Test	Class Test	Class Test
Formal Exam	Formal Exam	Formal Exam	Formal Exam
Weekly Lecture/Tutorial	Weekly Lecture/Tutorial	Weekly Lecture/Tutorial	Weekly Lecture/Tutorial
On Line Tutorials	On Line Tutorials	On Line Tutorials	On Line Tutorials
Built Environment examples	No Built Environment examples	No Built Environment examples	Built Environment examples
Modified language	Accounting language	Accounting language	Modified language
No Power Point	Power Point	Power Point	No Power Point
Weekly Lesson Overview	None	None	Weekly Lesson Overview

The analysis above in Table 1, provides a snap shot of the assessment and teaching delivery for the four groups of students. Furthermore, all groups of students were assessed using the identical assessment matrix which appears below in table 2:

TABLE 2: MARKING CRITERIA FOR THE ACCOUNTING SUBJECT

CRITERIA FOR ASSESSMENT	WEIGHTING
Application of accounting theory	25%
Application of business decisions skills	25%

Mathematical calculations - process	40%
Creative thinking - alternative solutions	10%
	100%

The marking criteria deliberately removed the focus from the mathematical aspect, in an attempt to draw out the students' ability to use theoretical concepts to solve problems and to develop high-quality business making decision skills. Whilst the accuracy of the mathematical component is important, there is also the acknowledgement that computer programs and software such as excel can provide support for the student in the area of mathematical knowledge; hence, in Table 2 above, the allocation of 40% marks were primarily driven towards the accuracy of the "correct technical process" for the calculation.

The examples and problems selected for groups A and D, were specifically relevant to the Built Environment industry and inter-related with their other core subjects in their discipline. Additionally the students were introduced to the accounting language systematically with weekly review and examples of the application of the terminology relevant to the Built Environment. During class time, all groups of students practiced their accounting and decision making skills with small case studies, and were taught to break down the various key components and to consider the application of various possible solutions to solve the case studies presented in the class exercises. This required the students to use both analytical and critical thinking skills. The students were given the option to work individually or with another student, and were able to practice small style case studies as a follow-up with the online tutorial questions made available throughout the semester.

After the first half of the semester, the students were encouraged to develop their research skills in combination with their accounting and decision making skills. This approach allowed the student to individually develop answers to intricate case studies and check their answers progressively against the on-line tutorial sessions, which provided a suggested solution. However, as mentioned earlier in the paper, only Groups A and D were using specific examples relating to the Built Environment, and furthermore Groups A and D, were provided with a modified approach to accounting language and during each lecture/workshop, these two groups, were given the opportunity to assimilate the accounting language in context with the Built Environment. In contrast Groups B and C, used primarily non Built Environment examples, and were taught in the mode of teaching accounting within the accounting discipline. All assessments for the four groups, contained a similar weighting for each topic in the accounting subject.

This diversity of case studies, lectures and workshops, and online tutorials, gave students the opportunity to develop and learn at their own pace and seek assistance as required. This forced the students to participate in active learning and take responsibility for their progress with their studies for this subject. By providing the solution to each of the exercises and case studies progressively, the students were able to evaluate their own answers, critically reflect and finally compare their written answers with the final solution. This also improved the students' critical thinking skills and written communication which was measured by using the same matrix for all groups of students. For example, in some cases there were different possible solutions to the complex problems and the students were

assessed on their ability to think outside the “square box”. It was important to integrate their skills though out this subject so there could be a meaningful outcome.

Below, in Table 3, are the final results achieved within the different groups. These groups were assessed using the same assessment matrix as identified in Table 2, earlier in this paper. Students who did not attempt any assessments for this subject, and discontinued attendance were removed from the analysis. There could be varying reasons for not continuing with the subject, ranging from work commitments which caused the student to have no time to attend class, or perhaps a heavy study load and not being able to keep up with the class work.

Table 3: RESULTS FOR ALL GROUPS

GROUPS	DETAILS	NO. OF STUDENTS	Students not continuing	Mark under 50	Mark over 50	Percentage Failed	Percentage Passed
GROUP A	Undergraduate Autumn 2010	83	7	14	69	9.21%	90.79%
GROUP B	Undergraduate Autumn 2011	69	5	16	53	17.19%	82.81%
GROUP C	Undergraduate Spring 2011	63	1	21	42	32.26%	67.74%
GROUP D	Undergraduate Autumn 2012	44	0	2	42	4.55%	95.45%

The identical assessment matrix listed in Table 2 was used to assess the results for all 4 groups. Therefore, Table 3 analysis indicates that Groups A and D had a higher pass rate in comparison to Groups B and C. For instance, the pass rate for Groups A and D was 90.79% and 95.45% respectively, whilst Groups B and C recorded 82.81% and 67.74% respectively. Further analysis of the results indicated that Groups A and D achieved a better learning outcome experience with 39.47% and 47.73% of the class achieving a score of 75 and above, whilst with Groups B and C, 21.88% and 9.68% of the class achieved a score of 75 and above.

In conclusion, the results from the analysis indicates that teaching accounting concepts with Built Environment examples, and a modification of the accounting language, provides the student with an opportunity to improve their performance and enhance their learning outcome.

5. Conclusion

Teaching an accounting subject, within the discipline of the Built Environment, does not provide the student with sufficient exposure to comprehend the accounting concepts and their relevance within the organisational aspects of various industries. However, the integration of specific examples in the appropriate context, and the application of modified accounting language, gives the students the opportunity to understand and comprehend the accounting concepts as applied to the students’ core discipline.

This is evidenced with the analysis discussed earlier in the paper, where Table 3 indicated a superior learning outcome and a higher pass rate for Groups A and D who were taught within these prescribed methods. The discussion within the literature review also highlighted

the issues faced by the accounting disciplines, in particular the technical and procedural processes were equally important as the application of the conceptual theories. This is evidenced with the disparity of results between Groups A and D who had superior learning outcomes in comparison to Groups B and C who did not apply accounting concepts to their discipline and therefore were unable to conceptualise many of the core accounting concepts.

In conclusion, the selected students of the Built Environment achieved a superior learning outcome, with outstanding results, and a higher pass rate when the accounting theories and concepts were integrated with examples from their core discipline.

References

Buckhaults, J., Fisher, D. (2011), Trends in Accounting Education: Decreasing Accounting Anxiety and Promoting New Methods. *Journal of Education for Business*, 86:31-35.

Bearden, C., (2004), Old professor + new tricks = great results. *Business Education Forum,* Vol 59, No. 1, pp. 20-22

Borja, P.M., (2003), So you've been asked to teach principles of accounting, *Business Education Forum,* Vol 58, No. 2, pp. 30-32

Boyce G (2004), "Critical Accounting Education: teaching and learning outside the circle", *Critical Perspectives on Accounting,* Vol 15, pp. 565-586

Brown R.B., Guilding C., (1993), A survey of teaching methods employed in university business accounting courses, *Accounting Education*, Vol. 2, No. 3, pp. 211 – 218

Buckhaults, J., Fisher, D., (2011), Trends in Accounting Education: Decreasing Accounting Anxiety and Promoting New Methods, *Journal of Education for Business,* Vol 86, pp. 31-35

Can, A.V., Karaca, N., Akyel, N., Demirci S.D., (2012), Evaluating the Fitness of Lecturing with Powerpoint Presentations for Accounting Education-Research at Sakarya University, *Procedia – Social and Behavioral Sciences,* Vol. 55 (2012) pp. 128-137

Curtis, S.M., (2011) Formative assessment in accounting education and some initial evidence on its use for instructional sequencing, *Journal of Accounting Education,* Vol. 29 pp. 191-211

Dent, J.F., (1986), Organization research in accounting: perspectives, issues and commentary, *Research and current Issues in management accounting* (edited by M Bromwich and A G Hopwood), Chapter 9, pp. 143-178, London

Dockter, D. (2010), Taking the Student's Lead in Teaching Tax. *American Journal of Business Education*, Vol 3, No. 7.

Farrelly, G.E., Hudson, E.J., (1985), How to teach introduction accounting: Student Views,

Journal of Accounting Education, Vol. 3, No. 1.

Frakes, A.H., Lathen, W.C., (1985), A Comparison of Multiple-Choice and Problem Examinations in Introductory Financial Accounting, *Journal of Accounting Education,* Vol. 3, No. 1.

Francisco, W., Kelly, J.A., Parham, A.G., (2003), Skills development in accounting education: Is everyone on the same page? *Business Education Forum*, Vol 57, No. 4, pp. 28-31.

Holtzblatt M., Tschakert, N., (2011), Expanding your accounting classroom with digital video technology, *Journal of Accounting Education,* Vol. 29 pp.100-123.

Howieson B., (2003), Accounting practice in the new millennium: is accounting education ready to meet the challenge?, *The British Accounting Review,* Vol. 35, pp. 69-103.

Inglis, R., Broadbent, A., Dall'Alba, G., (1993), Comparative evaluation of a teaching innovation in accounting education: intensive learning in a seminar format, *Accounting Education,* Vol. 2, No. 3, pp.181-199.

Kolb, D. Lublin, S., Spoth, J., Baker, R., (1986), Strategic Management Development: Using Experiential Learning Theory to Assess and Develop Managerial Competencies, *Journal of Management Development*, Vol 5, No. 3, pp. 13-24.

Kowalczyk, T., (2001), Single-case technique for teaching the tax research process, *Accounting Education*, Vol 10, No. 1, 15-25.

Lehman, M. W. (2001), Teaching Internal control and fraud preventation through role-play. *Business Education Forum*, 56 (1), 18-21, 67.

Leveson, L., (2004), Encouraging better learning through better teaching: a study of approaches to teaching in accounting, *Accounting Education,* Vol 13, No. 4, pp. 529-548.

Lloyd, C.B., Abbey. A., (2009), Teaching Elementary Accounting to Non-Accounting Majors, *American Journal of Business Education*, Vol. 2, No. 2, 23-30.

Lucas, U., (2000), Worlds Apart: Students' Experiences of Learning Introductory Acocunting, *Critical Perspectives on Accounting,* Vol. 11, pp. 479-504.

Lucas U., (2002), Contradictions and Uncertainties: Lecturers" conceptions of the teaching introductory accounting, *British Accounting Review,* Vol. 34, pp. 183-203.

Potter, B.N., Johnston, C.G., (2006), The Effect of interactive on-line learning systems on student learning outcomes in accounting, *Journal of Accounting Education,* Vol. 24, pp. 16-34.

Richardson, A.J., (1988), Accounting knowledge and professional privilege, *Accounting Organizations and Society,* Vol. 13, No. 4, pp. 381-396.

Smith, J.M., Usry, M.F., (1989), Changes in Accounting Education, *Journal of Accounting Education,* Vol. 7, pp. 1–7.

Stanley T., Marsden S., (2012) Problem-based learning: Does accounting education need it? *Journal of Accounting Education*. Article in Press

Subotnik, D., (1991), Knowledge preservation in accounting: does it deserve to be preserved? *Abacus,* Vol 27, No. 1, pp. 65-71

Thomson, I., Bebbington, J., (2004), It doesn't matter what you teach, *Critical Perspectives on Accounting,* Vol 15, pp. 609-628.

Zaid, O. A., Abraham, A., (1994), Communication skills in accounting education: perceptions of academics, employers and graduate accountants, *Accounting Education,* Vol.3, No. 3, pp. 205-221.