THE USE OF AN ACTIVE-LEARNING PROJECT FOR TEACHING INTERMEDIATE ACCOUNTING II TOPICS

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ABSTRACT

An Intermediate Accounting II active-learning project was examined, which permitted the students to organize and prepare a report on moderately complex topics (bonds payable and debt extinguishment, notes payable, and troubled-debt restructuring). Also, the students' exam scores for similar topics (with/ without project) for Exam II/Final Exam were matched with the students' learning preferences (**V**isual, **A**ural, **R**ead/Write, and **K**inesthetic sensory modalities) to determine the projects' impact on the students with different learning preferences. The exam results improved/remained the same for the Visual and Read/Write preference students. It appears that this project is a good teaching method for students with various learning preferences.

INTRODUCTION

Revision of accounting education has been recommended by various committees over the last three decades. In 2012 the Pathways Commission suggested that accounting educators have responsibilities that entail both curricular dimension (what we teach) and pedagogical scope (how we teach). Apostolou *et. al.*, (2013) stated that accounting research needs to identify the best ways to teach or to learn core professional competencies (e.g., communication skills). The purpose of this research is to evaluate whether a written self-generated elaboration project is a good technique to teach students relatively complex Intermediate Accounting II topics.

Earlier, Gammie and Kirkham (2008) stated that the ability to "learn to learn" is a key competency in order for accountants to adapt to the rapidly changing business environment. Previously, Albrecht and Sack (2000) emphasized that accounting educators need to help students to develop the ability-to-learn skills. The active-learning project (self-generated elaboration) used in this research should give students an opportunity to develop or expand their ability to "learn to learn." Also, this research investigated how certain accounting topics can be taught in an Intermediate Accounting II course.

To assist students in obtaining the needed skills for their careers in the accounting profession, the instructor's role must shift from being the presenter of facts to facilitator of active learning according to Jackson and Durkee (2008). Specifically, Helliar (2013) indicated that teaching techniques that engage accounting students should be incorporated into accounting education. Also, Wessels (2010) suggested that the instructor's fundamental task is to encourage students to utilize learning activities that will most likely result in the students accomplishing the desired learning outcomes for the course. In addition, Bandure and Lyons (2012) recommended that instructors should provide different learning approaches (e.g., lecture, problem-solving, or active-learning) in teaching because students do not all learn using the same technique. An active-learning project was utilized to encourage the students in learning selected Intermediate Accounting II course topics.

Albrecht and Sack (2000) indicated that there is a need to change the delivery method of accounting education. Specifically, in order to assist instructors in teaching, Shanahan and Meyer (2001) recommended that research be conducted to facilitate a better understanding of what, why, and how students learn. A survey was used in our study to determine whether students considered the Project, textbook readings, and the textbook examples to be useful in understanding the appropriate Intermediate Accounting II topics. Also, to investigate how students believe they learn best, the researchers classified the written presentation methods (e.g., outlines, flowcharts, etc.) that were selected by the students in their active-learning (elaboration) projects.

The Pathways Commission (2012) indicated that accounting students must possess both technical knowledge and professional skills such as the ability to communicate effectively. Also, PricewaterhouseCoopers in Educating for the Public Trust (2003) concluded that among other curriculum changes there should be an emphasis on a higher level of interpersonal and communication skills. In addition, the International Federation of Accountants (IFAC) identified the essential skills that are needed by individuals desiring to enter the accounting profession in its International Education Standard 3 (IES3), Professional Skills and General Education (2008). The IFAC in IES3 emphasized that interpersonal and communications are necessary skills for accountants entering the profession. Further, the Institute of Chartered Accountants in Australia (ICAA) and Certified Practicing Accountants of Australia (CPA Australia) in their International Accreditation Guidelines for Accounting Degree Programs (ICAA/CPA Australia, 2009) emphasized that cognitive skills (e.g., writing skills and thinking critically) and behavioral skills (e.g., interpersonal skills) are needed by accounting graduates.

Bui and Porter (2010) found in a survey of students, employers, and accounting educators that employers considered communication skills to be essential for accounting graduates. Despite educators best attempts there still appears to be a disparity between practitioners desired communication skills of accounting graduates and what is possessed by new graduates according to Conrad and Newberry (2012). The active-learning project used in this research study required the students to write.

The AECC (1990) asserted that accounting students should actively participate in the learning process and not be just passive recipients of information. The Quality Assurance Agency for Higher Education [QAA] (2002) suggested that accounting students should have the capacity for independent and self-managed learning. Further, Albrecht and Sack (2000) emphasized the importance of "teaching students how to find answers and how to learn." Our active-learning project introduced the students to self-managed learning.

Our study presented an elaboration technique that required the students to actively participate in the learning process by organizing information on selected technical Intermediate Accounting II topics [bonds payable (BP) and debt extinguishment, notes payable, and troubled-debt restructuring (DENPTDR)]. This written self-generated elaboration technique should help the students to learn how to organize information. It also should encourage them to "learn to learn."

This study contributes to the accounting literature by investigating the effects of self-generated elaborations in an Intermediate Accounting II course. Also, the effects of self-generated elaborations related to both short-term and long-term knowledge retention were explored. In addition, student opinions of the self-generated elaboration technique were obtained and analyzed.

THEORY

Annis (1985) suggested that student-generated paragraph summaries seem to help the students in executing the vital encoding process more efficiently than either note-taking or only reading the information. Levin [1988] found that the learning process might be enhanced by utilizing elaborations. Anderson [1983] defined an elaboration as any information that explains or clarifies some to-be-learned (target) information. An elaboration can be thought of as the link that allows the new target information to be integrated into the student's present knowledge. In addition, several cognitive research studies (e.g., Anderson [1983], Stein *et al.* [1984] and Reder *et al.* [1986]) suggested that elaborations can facilitate memory. Types of elaborations include summaries, examples, analogies, and self-explanations.

Past research has indicated that self-generated elaborations tend to be generally superior to externally presented information (Hite and Parry 1994; Schadewald and Limberg 1990; Pressley *et al.* 1987; Jacoby 1978; Slamecka and Graf 1978; and McFarland, Jr., *et al.* 1980). Bransford *et al.* (1982) found that self-explanations tend to facilitate memory because self-generated elaborations assist the memory to reconstruct the target information, which permits later recall. Cottell, Jr., and Millis (1993) indicated that when the learners generate their own solutions, they experience ownership and are more likely to retain the information. Our research investigated whether the self-generated elaboration project improved students' short-term and long-term knowledge retention (i.e., as measured by Exam II and Final Exam scores).

The role of leaners is to actively participate in activities that construct their knowledge according to the constructive learning theory. Under this theory the learning environment should be aligned with learning outcomes, which develop into independent learning. According to Seifried (2012) and Tan and Ferreira (2012), constructive alignment occurs when learning outcomes, teaching and learning activities, and assessment are carefully coordinated. Students need to learn to learn so that in their professional careers they will be able to discover needed tacit knowledge. Our active-learning project permitted the students to participate in an activity that should help them construct their own knowledge base.

Various researchers [Anderson (1995), Driscoll (1994), Gagné and Medsker (1996), Gredler (1997), and Schunk (1996)] suggested that instructors should provide different learning opportunities to accomplish different types of learning objectives. Boh *et al*. (2001) indicated that lecture-based training/education may not be an adequate transfer technique when complexity of knowledge is high. Bonner (1999, p. 11) suggested that "learning objectives involving complex skills require teaching methods that promote active learning on the part of students, while learning objectives involving simpler skills can be achieved with more passive teaching methods." In this research study the students were required to organize moderately complex Intermediate Accounting II topics using an active-learning elaboration technique.

In summary, the literature suggests that self-generated elaborations can enhance the learning process and can be used as an effective learning tool. As Hite and Parry (1994) suggested the benefit of elaboration techniques may have a greater short-term effect (e.g., as measured by Exam II scores) than a long-term effect (e.g., as measured by Final Exam scores). The following hypothesis was used to test these effects (using the chi-square test):

H_1: The distribution of the Exam II (Final Exam) scores on the BP (DENPTDR) questions are the same for the students who prepared an outside of class project on the assigned topic as the students who did not prepare an outside project for this topic.

As mentioned previously, Shanahan and Meyer (2001) recommended that research be conducted to facilitate a better understanding of what, why, and how students learn. Doran, *et. al.* (2011) stated that student evaluations of a teaching activity are an important factor in determining how successful an activity was in learning the subject matter. To better understand factors affecting the learning process, the student's perception of reviewing textbook examples and reading the text in the textbook were examined.

In summary, the literature suggests that student active-learning exercises (e.g., self-generated elaboration projects) can enrich the learning process and can be utilized as a learning tool. Therefore, it is necessary to determine whether the students perceived any benefits (e.g., usefulness in understanding Intermediate Accounting II topics) from the self-generated elaboration projects [Project]. Like the Stone and Shelly (1997), Ramsay *et al.* (2000), and Sawyer *et al.* (2000) studies, our research study used survey questions to measure student perceptions of this active-learning technique. The following hypothesis was used to test whether the students considered the Project, reading the text in the textbook, and reviewing the textbook examples to be useful in understanding the appropriate Intermediate Accounting II topics:

H_2: In understanding the appropriate Intermediate Accounting II topics, the students will consider the self-generated elaboration (Project) to be as useful as reading the textbook (as reviewing the textbook examples).

Students should be able to apply their newly acquired knowledge. A good elaboration project should help the students in this process. The preparation of homework assignments is probably the first time the students apply their recently acquired knowledge. When students take an exam they also are applying their knowledge. The following hypothesis was used to ascertain if the students believed that the Project was most helpful in (1) understanding the topics, (2) doing homework or (3) preparing for Exam II/Final Exam:

H_3: The students will consider the Project to be as useful in understanding (in preparing for Exam II/ Final Exam on) the appropriate Intermediate Accounting II topics as doing the homework on these topics.

RESEARCH METHODS

An Intermediate Accounting II class taught by one of the researchers was used in the research experiment. Every other student in the Intermediate Accounting II class was assigned to Group A. The Group A students were asked to prepare a project (Project A) to assist them in learning about bonds payable (BP). The remaining students in the class (Group B) were asked to prepare Project B to assist them in learning about debt extinguishment, notes payable, and troubled-debt restructuring topics (DENPTDR). The students were told they could use a checklist, chart, graph, grid, flowchart, outline, or other approach that would help them understand the topics. The project was not to be more than 1 1/2 pages in length. There were no significant differences between the two Intermediate Accounting II experimental groups (BP topics and DENPTDR topics) on the reported demographic information. Both groups received the same class discussion and were assigned the same homework problems for these topics.

In the class period following the discussion of the Intermediate Accounting II homework problems on the appropriate topics, Exam II was given. The results of this Exam were used to measure the short-term effect of this teaching technique (Project). Several weeks after Exam II, the Final Exam was administered. The questions used on the Final Exam were different (but equal level of complexity) from the ones given on Exam II. The Final Exam results were used to measure the long-term effect of this teaching technique.

Just prior to the students receiving the results of Exam II, the students were requested to complete a survey to determine their opinions on the usefulness of the Project in: (1) understanding the appropriate Intermediate Accounting II topics, (2) preparing the homework assignments, and (3) studying for Exam II. In addition, other questions were included, which pertained to the usefulness of both the textbook readings and examples in: (1) understanding the appropriate topics, (2) preparing the homework assignments and (3) studying for Exam II. After completing the Final Exam, the Intermediate Accounting II students were requested to complete another questionnaire related to the BP/DENPTDR projects (e.g., usefulness of these Projects in studying for the Final Exam).

RESULTS

For Project A (BP topics), the students with the project scored slightly higher on Exam II than the students without the BP project. The Exam II score spread was greater between the students who prepared Project B (DENPTDR) than the students who did not prepare this project. But the chi-square test indicated that the effect of the self-generated project results was not statistically significant. For the Final Exam the results differed depending on the project assigned. For Project A the students with the project scored higher than the students without the project on the BP questions, but for Project B the students without the project (DENPTDR topics) scored slightly higher than those students with the project. However, there was no significant difference for either group.

The students were surveyed after Exam II to obtain their opinions on the usefulness of the Project, the textbook readings, and textbook examples. On the survey, the students in Project A (BP topics), generally, found that their Projects were more beneficial than either reading the textbook discussion or reviewing the textbook examples in understanding the BP topics and in doing their homework assignments. But, the Project A students considered their project to be least helpful in studying for Exam II with reviewing textbook examples being the most helpful. Conversely, the Project B (DENPTDR topics) students indicated that their project was equally or more beneficial in preparing for Exam II than the textbook discussion or the textbook examples. However, the preparation for Exam II is the only time the Project B students felt their project was more beneficial than either the textbook discussion or the textbook examples. But, there were no significant differences for either group.

The Group A students indicated that their Project was more helpful in understanding the BP topics than either doing the homework on the topics or preparing for Exam II. The Group B students also found that their Project was the most helpful in understanding the DENPTDR topics. The majority of the students in both Groups indicated that they “strongly agreed” or “agreed” that their projects greatly assisted them in preparing for the Final Exam.

The outline and summary approaches were the most common methods used by the students in both groups (BP/DENPTDR) for preparing their Projects. Other approaches that were used quite often were journal entries, examples, checklists, and grid techniques. Less common approaches utilized were the flowchart, equation, and timeline techniques.

CONCLUSION

The self-generated elaboration Project, which required the students to be active participants in the learning process, was generally equally as effective in learning the selected Intermediate Accounting II topics (BP and DENPTDR) as either reading the textbook discussion or reviewing the textbook examples. Thus, it appears that the self-generated Project is a good supplemental method of teaching Intermediate Accounting II topics that are moderately complex.

In the preparation of this Project, the students were active participants in the learning process as advocated by the AECC (1990). The self-generated Project was beneficial because the Project did give the students experience in organizing information as recommended by the AECC (1990). In addition, the active-learning project introduced the students to self-managed learning as endorsed by the Quality Assurance Agency for Higher Education [QAA] (2002). Further, the Project gave the students an opportunity to improve their communication skills as suggested by the Pathways Commission (2012), the International Federation of Accountants in IES3 (2008), and PricewaterhouseCoopers in Educating for the Public Trust (2003).

REFERENCES

The references are available upon request.