

# AN ACTIVE-LEARNING EXERCISE FOR TEACHING TAX TOPICS AT FIVE UNIVERSITIES

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## ABSTRACT

An elaboration technique (Project) is presented in which the students at five universities (large urban, western regional, historic African-American, mid-west regional, and southwest regional) are required to actively participate in the learning process by organizing information on two technical tax topics. The results from a Quiz and Final Exam are used to examine the short-term and long-term effects of the Project. At all five universities, this self-generated elaboration Project appears to be as effective in learning the assigned topics as either reading the textbook or reviewing the textbook examples. Also, the Project allows the students to organize information and to develop their writing skills.

**Keywords:** Active-Learning Exercise, Tax, Self-Generated Elaborations

## INTRODUCTION

Various organizations have made recommendations for change in how accounting courses are taught. Albrecht and Sack [AAA, AICPA, IMA, “Big 5”] (2000) emphasize that accounting educators need to help students to develop the ability-to-learn skills. The self-generated elaboration technique used in this research should give students an opportunity to start to develop or expand their ability to “learn to learn.”

The AICPA (1999) has established a set of core competency objectives considered necessary for entry into the accounting profession [Framework]. Previously, the American Accounting Association [The Bedford Committee] (1986); American Institute of Certified Public Accountants (1988); “Big 8” (now Big 4) CPA firms [“Perspectives . . .”] (1989); and the Accounting Education Change Commission [AECC] (1990), all have advocated change in accounting education. These committees emphasize the need for the accounting curriculum to place more emphasis on writing skills and critical thinking skills. The self-generated elaboration project utilized in this research study requires the students to use their writing skills and to think critically about how to organize complex income tax topics.

The AECC (1990) asserts that accounting students should not just be passive recipients of information but should actively participate in the learning process. The Commission states that accounting programs “should lay the base on which life-long learning can be built.” The Quality Assurance Agency for Higher Education [QAA] (2002) suggests that accounting students should have the capacity for independent and self-managed learning. This elaboration project exposes the students to self-managed learning.

The AICPA (1999) in the Framework (Functional Competencies category under Decision Modeling) indicates the need for entry-level accounting professionals to be able to organize and evaluate information. Albrecht and Sack (2000) also emphasize the importance of “teaching students how to find

answers and how to learn.” The self-generated elaboration project in this research study requires the students to locate and organize income tax information.

According to Jackson and Durkee (2008), the instructor’s role must shift from being just the presenter of facts to facilitator of active learning. Hutton (2001) suggests that active learning exercises be implemented to supplement existing tax course materials. She contends that active learning exercises assist the students in bridging the gap between tax theory and practice. This bridge should help the students in making the adjustment into the accounting profession.

This research study presents an elaboration technique that requires the students to actively participate in the learning process by obtaining and organizing information on selected technical tax topics [education, moving, and home office expenses (EMHO) and travel, transportation, and entertainment expenses (TTE)]. The objective of this written elaboration method is to encourage students to “learn to learn.” This study contributes to the existing accounting literature by investigating the effects of outside of class elaborations on tax topics that are conceptually relatively complex. This elaboration technique is investigated at five different types of universities (large urban, western regional, historic African-American, midwest regional, and southwest regional).

## THEORY

### Learning-to-Learn

Cognitive researchers [Anderson (1970); Gage and Berliner (1984); Ross (1983); and Glaser (1984)] imply that learning is an active process involving several steps. The first step requires the students to be attentive. Secondly, the students must encode the information into their own words in a meaningful way. Finally, the students must associate the new information with their previously learned related knowledge. Annis (1985) suggests 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) finds that the learning process might be enhanced by utilizing elaborations. Anderson (1983) defines an elaboration as any information that explains or clarifies some to-be-learned (target) information. Elaborations can be considered as the link that permits the new target information to be incorporated into the learner’s existing knowledge. Types of elaborations include self-explanations, summaries, examples, and analogies. In addition, several cognitive research studies [Anderson (1983), Stein *et al.* (1984) and Reder *et al.* (1986)] suggest that elaborations can facilitate memory.

Self-generated elaborations are generally superior to externally presented information because they can be better integrated with the learner’s existing knowledge [Hite and Parry (1994); Schadewald and Limberg (1990); Pressley *et al.* (1987); Jacoby (1978); Slamecka and Graf (1978); and McFarland, Jr., *et al.* (1980)]. These research studies involve the encoding of topics that are relatively basic or not very complex.

The self-generated concept is consistent with the “discovery learning” method (Davidson 1990). Davidson explains that the learners are able to retain more because they discover the knowledge themselves. Cottell, Jr., and Millis (1993) find that the learners are more likely to retain the information when they experience ownership by generating their own solutions. Our research investigates whether the elaboration project improves students’ quiz (exam) scores.

Researchers [Anderson (1995), Driscoll (1994), Gagné and Medsker (1996), Gredler (1997), and Schunk (1996)] suggest that instructors need to establish different learning opportunities to accomplish different types of learning objectives. Boh *et al.* (2001) indicate that lecture-based training may not be an adequate transfer technique when complexity of knowledge is high. Bonner (1999, p. 11) suggests 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 the students are required to organize complex tax topics using an active-learning elaboration technique.

### **Writing-to-Learn**

The ability of the accounting students to write is important to the profession. The AICPA (1999) in the Framework project lists communication as an element of “Personal Competencies.” Beginning accounting professionals should be able to organize and effectively communicate information so that it can be readily understood by the receiving party. According to Hite (2001), when large quantities of information need to be taught (as is the situation in an income tax course), there should be active reinforcement of the material. She recommends that active reinforcement could be accomplished by requiring writing exercises. This research study gives the students an opportunity to write on an income tax topic.

Stocks *et al.* (1992) comment that writing-to-learn is as important as learning-to-write. Scofield and Combes (1993) imply that written assignments allow the students to individualize the learning process, thus creating their own unique versions of the concept. Zinsser (1988) suggests that writing across the curriculum helps organize and clarify students’ thoughts. He also states that writing helps students determine what they do know and do not know. In our research, the students are required to organize and write on the education, moving, and home office expenses (EMHO) and travel, transportation, and entertainment expenses (TTE) topics.

In summary, prior literature suggests that self-generated elaborations can enhance the learning process and that writing assignments can be used as a learning tool. As Hite and Parry (1994) suggest the benefit of elaboration techniques may have a greater short-term effect than a long-term effect. The following hypotheses are used to test these effects:

- H<sub>1</sub>: The distribution of Quiz scores on the EMHO (TTE) expense questions are the same for the students who prepared an outside of class project on this topic as the students who did not prepare an outside project for this topic.
- H<sub>2</sub>: The distribution of Final Exam scores on the EMHO (TTE) expense questions are the same for the students who prepared an outside of class project on this topic as the students who did not prepare an outside project for this topic.

### **Five Different Universities**

One of the limitations of educational research that is conducted at only one university is whether the results will apply to other university settings. Accounting instructors are interested in teaching techniques or methods that might be successfully utilized in different university environments. The researchers investigate if there would be different quiz and exam score results when the outside of class self-generated elaboration project is used at five different state universities (large urban, western regional, historic African-American, midwest regional, and southwest regional).

## **RESEARCH METHODS**

Individual income tax classes taught by one of the researchers at five different categories of state universities (large urban, western regional, historic African-American, midwest regional, and southwest regional) are used in the experiment. On the first day of these courses, the students are requested to

prepare a personal data sheet (e.g., classification, university GPA, accounting GPA, credit hours enrolled, work hours, number of accounting course(s) enrolled in during the semester, number of previous accounting courses, and gender). There are no significant differences between the two experimental groups (EMHO expenses and TTE expenses) on the reported demographic information at these universities.

## **Project**

At the large urban university, the experiment involves two back-to-back sections of the Tax I course. At the western regional university, the historic African American (H-A-A) university, the midwest regional university, and the southwest regional university, the one section of Tax I is divided into two groups. At the large urban university, one section is assigned the Group A Project and the other section is given the Group B Project. At the other four universities, one-half of the students in the class are assigned the Group A Project and the other students are delegated the Group B Project.

At all five universities, the students in Group A are asked to prepare a project (Project EMHO) to assist them in learning about education, moving, and home office expenses. On this same day, the other students (Group B) in the class (or other section) are asked to prepare a project (Project TTE) to assist them in learning about travel, transportation, and entertainment expenses. The students in both groups A and B at all five universities are told they can use a checklist, chart, graph, grid, flowchart, mapping, outline, tree, or other approach that would help them understand the topics.

The AICPA (1999) in the Framework indicates the need for accounting professionals to express information and concepts in a clear and concise written manner. As a result, the project is limited to 1 and 1/2 pages in length. The students are given one week to prepare the project outside of class. To persuade the students to complete the project, the project is assigned 25 points, which represents about 4 percent of their course grade. The students are instructed to make copies of their projects, which are to be used in preparing their homework assignments related to the topics. Both groups at all five universities receive the same type of class discussion and are assigned the same homework problems for these topics.

## **Testing**

In the class period following the discussion of the homework problems on these topics at all five universities, a common quiz is given. During the class period prior to the quiz, the students are reminded to use their projects to help them study for the quiz. On this quiz there are 14 points related to EMHO expenses and 14 points pertaining to TTE expenses. Because the universities are located in different regions of the country, basically the same quiz is given at all five institutions. The results of the quiz are used to measure the short-term effect of this teaching technique.

In order to examine the long-term effect of this teaching technique, there are two multiple-choice questions and a short essay question for each of these topics on the common final exam. Once more, the same questions are utilized at all five universities. The questions on the final exam are different from the ones given on the quiz. During the last class period of the semester, the instructor recommends that the students review their projects to help them study for the final exam.

## **RESULTS**

The quiz mean scores are used to measure the short-term effect of the self-generated elaboration project. The long-term effect of this project is assessed using the mean scores on the final exam. For the TTE Project, the students in the experimental group score as well as or higher than the students in the control

group on the quiz. However, the chi-square test indicates that the only significant difference is for the Western Regional TTE (WR-TTE) students at  $p = .05$ . There are mixed results with the Urban EMHO (U-EMHO), the Midwest Regional EMHO (MR-EMHO), and Southwest Regional (SW-EMHO) students scoring higher than their respective control group without the EMHO expense project. However, the historic African-American EMHO (H-A-A-EMHO) and the Western Regional (WR-EMHO) students have lower scores than their respective control group. The chi-square test indicates that the MR-EMHO experimental students' scores are weakly significantly higher than the control group scores at  $p = .10$ . But, the WR-EMHO experimental student scores are weakly significantly lower than the control group scores at  $p = .10$ . There are no significant differences between the experimental and the control groups for U-EMHO, H-A-A-EMHO, or SW-EMHO.

For the TTE Project, the students in the experimental group score as well as or higher than the students in the control group on the final exam. The students in the TTE Project at the Midwest Regional University (MR-TTE) score significantly higher than the control group at  $p = .05$ . There are no significant differences at the other four universities. Only the U-EHMO students score higher than the control group on the EMHO questions on the final exam, but the chi-square test indicates that there is no significant difference. For the other four universities the control groups score higher than the experimental groups, but there are no significant differences.

The different results between the two project groups may have occurred because the travel, transportation, and entertainment tax rules (TTE) more closely relate to each other than do the education, moving, and home office tax rules (EMHO). As a result it might be easier or more beneficial for the students to organize topics in a self-generated elaboration project that are closely related topics than more diverse topics.

## **SUMMARY AND CONCLUSIONS**

The quiz mean scores are used to measure the short-term effect of the self-generated elaboration project. The long-term effect of this project assignment is assessed using the mean scores on the final exam. The self-generated elaboration project, in which the students actively participate in the learning process, is generally equally as effective in learning the EMHO and TTE expense topics as either reading the textbook or reviewing textbook examples. Therefore, it appears that the self-generated elaboration project is a good alternative method for teaching these relatively complex tax topics.

Furthermore, the elaboration project does permit the students to learn how to organize information as recommended by the AECC (1990) and the AICPA (1999) Framework. In addition, the project encourages the development of analytical and conceptual thinking skills as suggested by the then "Big 8" CPA firm study (1989). Also, as suggested by the AICPA (1999) Framework, the students have an opportunity to apply their critical thinking and writing skills during the preparation of their self-generated elaboration project.

There should be further research to determine if more than one self-generated elaboration project per semester would increase the effectiveness of this learning technique. There also should be research to determine if self-generated elaborations would be a useful technique that could be used in accounting subject areas other than income taxes.

## **REFERENCES**

References are available upon request from Judith A. Sage, A. R. Sanchez, Jr. School of Business, Texas A & M International University, 5201 University Blvd., Laredo, TX 78041, 956-727-1999, lloydsage@aol.com