ABSTRACT

A student self-managed learning Project was investigated at five universities (large urban, western regional, historic African-American, midwest regional, and southwest regional) that required the students to actively participate in their learning process by organizing relatively complex tax topics. A Quiz and Final Exam were used to examine the short-term and long-term effects of this Project. A Survey was used to obtain student opinions regarding usefulness of the Project. At all five universities, this Project appeared to be as effective in learning the assigned topics as either reading the textbook or reviewing the textbook examples.

KEYWORDS: Self-managed learning, Student opinions, Effective in learning

INTRODUCTION

For more than half of a century, various committees have recommended revision of accounting education. Recently, the Pathways Commission (2012, 37) indicated the need to “connect the accounting body of knowledge to a map of competencies.” The Institute of Management Accountants (IMA) and the Management Accounting Section (MAS) of the American Accounting Association formed a curriculum task force (Raef A. Lawson, Chair) to formulate curriculum suggestions for accounting majors. This IMA-MAS Curriculum Task Force issued a report (Lawson, et. al., 2014) recommending that the “map of competencies” (i.e., accounting education) should be concerned with accountants’ long-term career goals/demands and not simply entry-level accounting professional skills. Our research introduces Tax I students to a teaching method that could help them to develop their ability to learn-to-learn, which should assist these students in transitioning to long-term competency development and integration education as suggested by the IMA-MAS Curriculum Task Force (2014).

Further, the Pathways Commission (2012) suggested that accounting educators have responsibilities that include both curricular dimension (what we teach) and pedagogical scope (how we teach). Specifically, the Pathways Commission (2012, 75) called for “curricular models for the future.” 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). Another purpose of our research is to evaluate whether a written self-generated elaboration (i.e., self-managed learning) project is a good technique to teach students relatively complex individual income tax topics. The effects of this research project was investigated at five diverse universities.
In 2008 Gammie and Kirkham 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 self-managed learning project (self-generated elaboration) used in this research should give the students an opportunity to develop or expand their ability to “learn to learn.” Also, this research investigated how certain tax topics can be taught in an individual income tax course.

According to Jackson and Durkee (2008), the instructor’s role must shift from being the presenter of facts to facilitator of active learning in order to assist students in obtaining the needed skills for their careers in the accounting profession. 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 self-managed learning) in teaching because students do not all learn in the same manner. A self-managed learning project was utilized at five geographically diverse universities to encourage the students in learning selected individual income tax accounting topics.

There is a need to change the delivery method of accounting education according to Albrecht and Sack (2000). 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 the students considered the self-managed learning project (Project), textbook readings, and the textbook examples to be useful in understanding selected individual income tax accounting topics.

A set of core competency objectives considered necessary for entry into the accounting profession was developed by the AICPA (1999) identified as the “Framework.” More recently, Frecka and Reckers (2010) surveyed practicing auditors to determine the relevant knowledge and skills needed in practice. They found that accounting professionals need critical thinking, problem analysis, and written communication skills (like the 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 expounded the need for change in accounting education. These committees have consistently recommended that accounting education should place more emphasis on writing skills and critical thinking skills. To integrate these skill sets, it may be helpful to explore the learning process of the accounting students.

The Pathways Commission (2012) suggested 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 communication skills are necessary 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 graduates and what is possessed by new graduates according to Conrad and Newberry (2012). The self-managed learning project used in this research study required the students to write so that the topics could be understood by a third party.

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

One of the skill sets that the AECC recommended is that students should possess the ability to organize information. Also, the AICPA (1999) in the Framework (Functional Competencies category under Decision Modeling) indicated the need for entry-level accounting professionals to be able to organize and evaluate information. Further, Albrecht and Sack (2000) emphasized the importance of “teaching students how to find answers and how to learn.” The self-managed learning project utilized in our research required the students to organize selected individual income tax accounting topics.

Our self-managed learning technique required students to actively participate in the learning process by organizing information on selected technical individual income tax accounting topics [education, moving, and home office expenses (EMHO) and travel, transportation, and entertainment expenses (TTE)]. This written self-managed learning 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 an outside of class self-managed learning project involving tax topics that are relatively complex. Also, student opinions of the self-managed learning exercise (i.e., an elaboration technique) were obtained. This self-managed learning technique was investigated at five different types of universities (large urban, western regional, historic African-American, midwest regional, and southwest regional).

As previously discussed, Shanahan and Meyer (2001) recommended that research should be conducted to facilitate a better understanding of how students learn. To better understand how students learn, the students in our study completed a survey to determine their opinions of the usefulness of the self-managed learning project in (1) understanding the topics, (2) doing the homework, and (3) preparing for a quiz/exam.

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) 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. According to Anderson (1983) an elaboration is 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. In addition, several cognitive research studies (Anderson [1983], Stein et al. [1984] and Reder et al. [1986]) suggested that elaborations can facilitate memory. Types of elaborations include self-explanations, summaries, examples, and analogies.

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). Bransford et al. (1982) stated that self-explanations tend to facilitate memory because self-generated elaborations assist the memory to reconstruct the target information, which permits later recall. These research studies involved 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 explained that the learners are able to retain more because they discover the knowledge themselves. Cottell, Jr., and Millis (1993) found that the learners are more likely to retain the information when they experience ownership by generating their own solutions. Our research investigated whether the self-managed learning project improved students' short-term and long-term knowledge retention (i.e., as measured by Quiz and Final Exam scores).

Various researchers [Anderson (1995), Driscoll (1994), Gagné and Medsker (1996), Gredler (1997), and Schunk (1996)] have suggested that instructors need to establish different learning opportunities to accomplish different types of learning objectives. Boh et al. (2001) indicated that lecture-based training 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 our research the students are required to organize moderately complex tax topics using a self-managed learning elaboration technique.

In summary, the literature suggests that self-generated elaborations can enhance the learning process and that writing assignments 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 (as measured by Quiz scores) than a long-term effect (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 Quiz (Final Exam) scores on the EMHO (TTE) 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.
Learning from Examples

VanLehn (1996) suggested that learning from worked-out examples is a good source of learning. Thus, working-out (i.e., reviewing) examples in a tax textbook should be an important source of learning. According to Anzai and Simon (1979) and Sweller and Cooper (1985), it is possible to learn from working-out examples.

In fact, Anderson, et.al. (1984) and Recker and Pirolli (1995) indicated that the preferred learning mode of novices is to work-out examples. Zhu and Simon (1987) noted that learning is quicker using worked-out examples than from lecturing if the examples are appropriate. They also indicated that participants using the worked-out examples acquire not just rote learning but in-depth understanding of the subject. Other cognitive researchers [Anderson (1987), Tarmizi and Sweller (1988), and Ward and Sweller (1990)] have demonstrated that the utilization of worked-out examples is normally a very effective method of learning.

The students in our research study completed a survey to determine their opinions of the usefulness of reviewing the textbook examples related to the EMHO and TTE topics in: (1) understanding these topics, (2) doing the homework on these topics, and (3) preparing for the Quiz/Final Exam on these topics. In addition, this research study compared the students’ opinions associated with reviewing textbook examples to solely reading the text in the textbook.

Perceived Usefulness

As previously discussed, in order for a learning method to be effective, students need to be attentive. The utilization of elaborations should encourage students to become more attentive. Feldman (1986) indicated that attitudes influence the extent an individual recognizes the need to learn. Ennis (1987) stated that attitudes strongly determine the ability to realize the need for learning and the ability to apply intellectual skills (e.g., written communication skills). Stout and Rebele (1996) indicated the need to examine student attitudes toward a teaching method. If students do not have positive attitudes toward a teaching method, desired learning outcomes (e.g., intellectual skills) may not occur. Goleman (1998) stated that if an individual is unmotivated, training will not work. Goleman also found that employees learn to the degree that they are motivated. These principles can also be applied in educating students.

Smith (2004) concluded that without feedback about teaching techniques U.S. accounting students will continue to be deficient. Therefore, we should investigate whether a teaching technique is perceived by the students to be helpful in learning a topic. As a result, this research investigated whether the students perceived any benefit (e.g., usefulness in understanding the EMHO/TTE topics) from the self-managed learning method utilized. Also, the students’ perception of reviewing textbook examples was examined.

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. DeMong, Lindgren, and Perry (1994) considered outcome assessment as a method to be used to ascertain the impact or effectiveness of an activity, class session, course or a program. They also suggested that student surveys are very good sources of information on student satisfaction for a program. A survey can also be used to determine student satisfaction from a class activity (e.g., elaboration technique or self-managed learning exercise).
Stone and Shelley (1997) used survey questions to measure student perceptions of the instructional processes. Ramsay et al. (2000) utilized a survey to determine students’ preferences for a cooperative learning method. Bourner et al. (2001), Dyball et al. (2007), and Mills (2003) reported the means of responses based on a Likert-scale, which served as the basis for their conclusions.

In this research study, students’ opinions of the usefulness of the self-managed learning project in (1) understanding the topics, (2) doing the homework, and (3) preparing for a quiz on the EMHO and TTE topics were measured (Likert-scale) using a survey. Also, the survey was used to determine the students’ perceptions of the usefulness of reviewing the textbook examples as compared to only reading the text in the textbook related to the EMHO and TTE topics in (1) understanding the topics (2) doing the homework, and (3) preparing for a Quiz/Final Exam on these topics.

As suggested by Shanahan and Meyer (2001), the researchers investigated how students learn. To accomplish this, the researchers compared student perceptions of the self-managed learning project to reading the text in the textbook or reviewing the textbook examples. Also, the researchers desired to determine if the students found that reviewing examples in the textbook was more beneficial than solely reading the text in the textbook.

Like Stone and Shelly (1997), this study used survey questions to measure (Likert-scale) student perceptions of the learning techniques. The following hypotheses were used to test whether students considered the Project, textbook, and the textbook examples to be useful in understanding the appropriate tax accounting topics:

**H₂:** In understanding the appropriate tax topic, the students will consider the Project to be as beneficial as reading the textbook (as reviewing the examples in the textbook).

**H₃:** In understanding the appropriate tax topic, the students will consider reviewing examples in the textbook to be as beneficial as only reading the text in the textbook.

Students should be able to apply their newly acquired knowledge. A good elaboration 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 a quiz (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 the homework, or (3) preparing for a quiz:

**H₄:** The students will consider the Project to be as useful in understanding the topics [preparing for the quiz on the topics] as doing the homework on the topics.

**Five 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 wanted to determine if there would be different quiz and exam score results when the outside of class self-managed learning project was used at five
different types of state universities (large urban, western regional, historic African-American, midwest regional, and southwest regional). They were also interested in determining whether the student-perceived benefits from using the outside of class self-managed learning project varied between these five different types of universities.

RESEARCH METHODS

Individual income tax accounting classes taught by one of the researchers at five state universities (large urban, western regional, historic African-American [H-A-A], midwest regional, and southwest regional) were used in the experiment. The experiment was conducted at three of the universities during the spring semester and at the other two universities during the fall semester. On the first day of classes, the students were 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 that semester, number of previous accounting courses, and gender). There were no significant differences between the two experimental groups (EMHO and TTE topics) on the reported demographic information at these universities.

Projects

At the large urban university, the experiment involved two back-to-back sections of the individual income tax accounting course. At all of the other participating universities, the single section of this course was divided into two groups. At the large urban university, one section was assigned the EMHO Project and the other section was given the TTE Project. At the other four universities, one-half of the students in each of the classes were assigned the EMHO Project and the other students were delegated the TTE Project. At all five universities, the EMHO Project students were asked to prepare a project to assist them in learning about education, moving, and home office expenses. On this same day, the other students in the class (or other section) were asked to prepare the TTE Project to assist them in learning about travel, transportation, and entertainment expenses.

The students in both the EMHO Project and TTE Project at all five universities were told they could 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 project indicated the need for accounting professionals to express information and concepts in a clear and concise written manner. As a result, the project was limited to 1 1/2 pages. The students were given one week to prepare the project outside of class. To persuade the students to complete the project, the project was assigned 25 points, which represented about 4 percent of their course grade. It was recommended that the students should retain copies of their projects so that the projects could be used in preparing their homework assignments. Both groups at all five universities received the same type of class discussion and were 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 was given. During the class period prior to the Quiz, the students were reminded to use their projects to help them study for the Quiz. On this Quiz there were 14 points related to EMHO topics and 14 points pertaining to TTE topics. Because the universities were located in different regions of the country, basically the same Quiz was
given at all five institutions. The results of the Quiz were used to measure the short-term effect of this teaching technique.

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

**Student Survey**

Just before the students received their Quiz results, the students at all five universities were asked to complete a survey to obtain their opinions on the benefits of the project in (1) understanding the topics, (2) preparing the assigned homework, and (3) studying for the Quiz. Also, the survey included other questions that pertained to the benefit of both the textbook readings and examples in (1) understanding the topics, (2) preparing the assigned homework, and (3) studying for the Quiz.

**RESULTS**

The Quiz and Final Exam results for both Projects at all five universities were analyzed. In addition, student opinions on the usefulness of (a) the textbook readings, (b) the textbook examples, and (c) the Project for (1) understanding the topics, (2) doing the homework, and (3) preparing for the Quiz were examined for both Projects for all of the universities.

**Project EMHO**

The Project EMHO students at all five universities were asked to prepare a project to assist them in learning the education, moving, and home office expense topics. The purpose of this Project was to encourage the students to participate in a self-managed learning process. They were required to obtain and organize information on these relatively complex tax topics.

**Quiz – EMHO**

At all five universities a Quiz (14 points) was administered during the class period after discussing the problems on the EMHO expense topics. See Table 1 for a comparison of the results. There were mixed results with the Urban (U-EMHO), the Midwest Regional (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 (H-A-A-EMHO) and the Western Regional (WR-EMHO) students had lower scores than their respective control group (see Table 1).

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Quiz Mean Scores</th>
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<tbody>
<tr>
<td>EMHO Project</td>
<td>TTE Project</td>
</tr>
<tr>
<td>Exper.</td>
<td>Control</td>
</tr>
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</table>
The chi-square test indicated that the MR-EMHO experimental students’ scores were weakly significantly higher than the control group scores at p = .10. But, the WR-EMHO experimental student scores were weakly significantly lower than the control group scores at p = .10. There were no significant differences between the experimental and the control groups for U-EMHO, H-A-A-EMHO, or SW-EMHO.

**Final Exam – EMHO**

A Final Exam at the five universities was used to examine the long-term effect of the EMHO Project. On the Final Exam there were six points related to the EMHO expense topics. The results are shown in Table 2. Only the U-EHMO students scored higher than the control group on the EMHO questions on the Final Exam, but the chi-square test indicated that there was no significant difference. For the other four universities the control groups scored higher than the experimental groups, but there were no significant differences (see Table 2).

**Project TTE**

The Project TTE students at all five universities were instructed to prepare a project to assist them in learning about the travel, transportation, and entertainment expense topics. Like the EMHO Project, this project also permitted the students to actively participate in the learning process by obtaining and organizing information on these relatively complex tax topics.

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Final Exam</th>
<th>Mean Scores</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>EMHO Project</td>
<td>TTE Project</td>
</tr>
<tr>
<td></td>
<td>Exper.</td>
<td>Control</td>
</tr>
<tr>
<td>Urban University</td>
<td>5.310</td>
<td>5.000</td>
</tr>
</tbody>
</table>
Quiz – TTE

In the class period following discussion of the problems on the TTE expense topics, a Quiz was administered with 14 points related to these topics at all five universities. A comparison of the results is shown in Table 1. For the TTE Project, the experimental group students scored as well as or higher than the students in the control group on the Quiz. However, the chi-square test indicated that the only significant difference was for the Western Regional (WR-TTE) students at $p = .05$.

Final Exam – TTE

To examine the long-term effect of the TTE Project, Final Exam questions were used at all five universities. On this exam there were six points related to the TTE topics. The results are shown in Table 2. For the TTE Project, the students in the experimental group scored 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) scored significantly higher than the control group at $p = .05$. There were no significant differences at the other four universities.

Comparison of Universities

At the urban university, the midwest regional university, and the southwest regional university, the experimental groups for both the EMHO and TTE Projects had mean scores for the Quiz (short-term effect) equal to or higher than the control groups. At the western regional university and the H-A-A University the experimental group scored higher on the Quiz and the Final Exam for the TTE Project than the control group. However, the control group outperformed the experimental group at both the western regional university and the H-A-A University for the EMHO Project. There were significant differences for the WR-TTE ($p = .05$) and for the MR-EMHO ($p = .10$) topics. Even though the Quiz scores were higher for the control group for the EMHO Project at two of the universities, there was a weak significant difference at $p = .10$ only for the WR-EMHO group.

For the TTE Project the experimental groups at all five universities had mean scores for the Final Exam (long-term effect) equal to or higher than the control groups. There was a significant difference only for the midwest regional university at $p = .05$. However, for the EMHO Project the control group scored higher than the experimental group except at the urban university, but there were no significant differences for this project. The different results between the two Projects could have resulted 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 that are closely related topics than for more diverse topics.
Student Survey

Just prior to returning the Quiz, the students at all five universities were required to complete a survey to determine their opinions on the usefulness of (1) the Project [EMHO or TTE], (2) the textbook readings, (3) the textbook examples in helping them (a) to understand their Project topics, (b) in doing the homework related to their Project topics, and (c) in preparing for the Quiz related to their project topics. In addition, other questions were included on the survey related to the usefulness of both the textbook readings and examples in understanding the appropriate topics. The survey responses were strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1). The results of the survey are shown in Table 3.

The researchers had hoped that the students would find the self-managed learning projects to be more useful in (a) understanding the topics, (b) doing homework, or (c) preparing for the Quiz than reading the textbook and reviewing the textbook examples. However, there were mixed results related to the usefulness of the projects.

Quiz Preparation

The U-TTE (p = .10), H-A-A-EMHO (p = .05), MR-EMHO (p = .05), and SW-EMHO (p = .05) groups significantly indicated that their respective projects were more beneficial than reading the textbook in preparing for the Quiz (see Table 3). The U-TTE (p = .05), MR-EMHO (p = .001), and SW-EMHO (p = .5) students suggested that their projects were significantly more beneficial than reviewing the textbook examples. Generally, the groups felt that the Project (EMHO/TTE) was equally or more helpful than either the textbook readings or textbook examples in preparing for the Quiz.

When comparing textbook reading to reviewing the textbook examples, the groups considered the review of examples to be more helpful than reading the textbook in preparing for the Quiz except for the U-EMHO and U-TTE students (see Table 3). However, only the H-A-A-TTE students indicated that reviewing the examples was significantly more helpful than reading the textbook (p = .05).

<table>
<thead>
<tr>
<th>TABLE 3</th>
<th>Student Survey – Quiz Mean Scores</th>
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<tbody>
<tr>
<td></td>
<td>EMHO TTE</td>
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<tr>
<td></td>
<td>The textbook gave me a thorough understanding of EMHO (TTE) expenses.</td>
</tr>
<tr>
<td>Preparing Project</td>
<td>4.125 4.000</td>
</tr>
<tr>
<td>Preparin</td>
<td>g greatly assisted me in understanding</td>
</tr>
<tr>
<td>EMHO (TTE) expenses.</td>
<td>Reading the textbook was very helpful in doing the homework on EMHO (TTE) expenses.</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>The Examples in the textbook were very helpful in doing the homework on EMHO (TTE) expenses.</td>
</tr>
<tr>
<td></td>
<td>My Project 1 was very helpful in doing the homework on EMHO (TTE) expenses.</td>
</tr>
<tr>
<td></td>
<td>Reading the textbook greatly assisted me in preparing for the quiz on EMHO (TTE) expenses.</td>
</tr>
<tr>
<td></td>
<td>The Examples in the textbook greatly assisted me in preparing for the quiz on EMHO (TTE) expenses.</td>
</tr>
<tr>
<td></td>
<td>My Project 1 greatly assisted me in preparing for the quiz on EMHO (TTE) expenses.</td>
</tr>
</tbody>
</table>

<sup>a</sup>Significant difference Reading > Project for homework at p = .10
<sup>b</sup>Significant difference Reading > Project for homework at p = .05
<sup>c</sup>Significant difference Reading > Project for understanding at p = .01
<sup>d</sup>Significant difference Reading > Project for homework at p = .05
<sup>e</sup>Significant difference Reading > Project for understanding at p = .05
<sup>f</sup>Significant difference Reading > Project for homework at p = .05
<sup>g</sup>Significant difference Reading > Project for understanding at p = .05
<sup>h</sup>Significant difference Reading > Project for homework at p = .05
<sup>i</sup>Significant difference Reading > Project for homework at p = .05
<sup>j</sup>Significant difference Reading > Project for homework at p = .05
<sup>k</sup>Significant difference Reading > Project for homework at p = .05
<sup>l</sup>Significant difference Reading > Project for homework at p = .05
<sup>m</sup>Significant difference Reading > Project for homework at p = .05
<sup>n</sup>Significant difference Reading > Project for homework at p = .05

**Homework Preparation**

In the preparation of assigned homework, the MR-EMHO (p = .05) and MR-TTE (p = .10) students believed that their respective projects were significantly more helpful than only reading the textbook (see Table 3). But, most of the groups indicated that the Project was less useful than reading the textbook when preparing their homework. Specifically, two groups [U-EMHO (p = .10) and SW-TTE (p = .05)] significantly preferred reading the textbook to using their Projects when doing the homework assignments.

When preparing their homework, the students in four of the ten groups indicated that the Project was less useful than reviewing the textbook examples (see Table 3). Specifically, the SW-TTE (p = .05) students significantly preferred reviewing the textbook examples to their Project in preparing the homework assignments. However, the MR-EMHO (p = .05) students significantly preferred their Projects to reviewing the textbook examples (p = .05). When comparing the textbook reading to the review of the textbook examples for homework preparation, there were mixed results. However, there were no significant differences.
Understanding the Topics

The groups at all five universities appeared to find that their Projects were equal to or more beneficial in understanding the topics than only reading the textbook, except for the U-EMHO (p = .05) and SW-TTE (p = .05) students. In fact, the H-A-A-TTE (p = .05), MR-EMHO (p = .05), and MR-TTE (p = .05) groups found their respective Projects to be more beneficial than reading the text in the textbook for understanding their topics.

Except for the WR-EMHO, WR-TTE, and SW-TTE (p = .05) groups the students indicated that the Project was equally or more helpful than reviewing the textbook examples for understanding the topics (see Table 3). Specifically, the H-A-A-EMHO (p = .05) and MR-EMHO (p = .05) groups felt that the project was more effective than reviewing the textbook examples.

In understanding the topics there were mixed results when examining student preferences for reading the text in the textbook or reviewing the textbook examples. But, there were no significant differences.

SUMMARY AND CONCLUSIONS

The Quiz mean scores were used to measure the short-term effect of the self-managed learning Project. The long-term effect of this Project assignment was assessed using the mean scores on the Final Exam. The results showed that the mean scores on the Quiz were higher for the students with the TTE Project than the students without this Project at all five universities. The chi-square test showed that there was a significant difference at p = .05 for the western regional university. However, for the EMHO Project there were mixed results on the Quiz. At the midwest regional university, the EMHO experimental group scored significantly higher (p = .10) than the control group. However, at the western regional university, the EMHO control group had significantly higher scores (p = .10) than the experimental group.

For the TTE Project the mean scores on the Final Exam were equal to or higher than for the students without the Project. But, there was a significant difference only for the midwest regional university group. However, the mean scores on the Final Exam with the EMHO Project were higher than the students without this Project only for the urban university group, but there were no significant differences.

The students were surveyed after the Quiz to obtain their opinions on the usefulness of their Projects, the textbook readings, and the textbook examples in (1) understanding the topics, (2) doing the homework, and (3) preparing for the Quiz. All but the U-EMHO, SW-EHMO, and SW-TTE groups felt that the project was equal to or better than solely reading the text in the textbook for understanding the topics. These projects were significantly more beneficial than reading the textbook for the H-A-A-TTE (p = .05), MR-EMHO (p = .05), and MR-TTE (p = .05) students. When comparing these Projects to reviewing the textbook examples for understanding the topics, there were mixed results with the H-A-A-EMHO (p = .01) and MR-EMHO (p = .05) students significantly preferring their Projects, but the SW-TTE (p = .05) students preferred the textbook examples.

The results were mixed when comparing the Projects to reading the text in the textbook and reviewing the textbook examples related to preparing the homework assignments. The MR-EMHO group significantly preferred their Projects to reading the textbook (p = .05) and to reviewing the textbook examples (p = .05). The MR-TTE students indicated that they significantly preferred their Projects to reading the textbook (p = .10). The only instance in
which reading the textbook was significantly better than either reviewing the textbook examples or the assigned Projects occurred when evaluating the preparation of homework assignments. The SW-TTE students significantly preferred reading the text to reviewing textbook examples (p = .05) in preparing their homework. The U-EMHO students found that reading the textbook was significantly better than their Projects (p = .10) for preparing their homework. The SW-TTE students significantly preferred reviewing examples to the Project (p = .05) in preparing their homework assignments.

Generally, the students at all five universities indicated that they preferred their Projects to either reading the textbook or reviewing the textbook examples when preparing for the Quiz. The Projects were significantly better than reading the textbook according to the U-TTE (p = .10), H-A-A-EMHO (p = .05), MR-EMHO (p = .05), and SW-EMHO (p = .05) students in preparing for the Quiz. The projects according to the U-TTE (p = .05), MR-EMHO (p = .001), and SW-EMHO (p = .05) students were significantly better than reviewing the textbook examples in preparation for the Quiz. The H-A-A-TTE students found reviewing the textbook examples to be significantly more beneficial than reading only the text in the textbook (p = .05) when preparing for the Quiz.

These self-managed learning Projects, in which the students actively participated in the learning process, were generally equally as effective in learning the EMHO and TTE expense topics as either reading the textbook or reviewing the textbook examples. Therefore, it appears that the self-managed learning project was a good alternative method for teaching these relatively complex tax topics.

Furthermore, the Projects did permit the students to learn how to organize information as recommended by the AECC (1990) and the AICPA (1999) Framework project. In addition, the Projects encouraged 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 project, the students had an opportunity to apply their critical thinking and writing skills during the preparation of their Projects.

Further, this Project introduced the students to self-managed learning as advocated by the Quality Assurance Agency for Higher Education (2002). Also, the Project gave the students an opportunity to improve their technical knowledge and professional skills (e.g., writing) as recommended by the Pathways Commission (2012). There should be further research to determine if more than one self-managed learning project per semester would increase the effectiveness of this learning technique. There also should be research to determine if self-managed learning would be a useful technique that could be used in accounting areas other than income taxes.

REFERENCES

References available upon request.