
ASSESSING STUDENTS' LEARNING IN GOVERNMENT ACCOUNTING

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ABSTRACT

Government Accounting and Reporting (GAR) is one part of the Financial Accounting and Reporting (FAR) section of the Certified Public Accountant (CPA) examination. The Board of Examiners (BOE) oversees the development of the CPA examination. GAR covers between 8% to 12% of the FAR section (BOE, 2009). Some topics in GAR include governmental accounting concepts; the format and content of a comprehensive annual financial report (CAFR); financial reporting entities; and specific types of transactions and events (BOE, 2009). Additionally, the Governmental Accounting, Financial Reporting and Budgeting (GAFRB) is a section of the Certified Government Financial Manager (CGFM) examination. The Association of Government Accountants oversees the development of the CGFM examination that covers the field of government financial management in the federal, state and local government environment.

Tools used to assess student learning in this course – a pretest, periodic examinations, utilization of a simulated accounting information system, a group research project and a posttest.

At the start of the Fall 2010 semester, a pretest was administered to all students in the BA401 “Government Accounting” course. The results were that 100% of the students failed (score of less than 70%) this pretest. At the end of the semester, the same test was administered, with the results being that 71% of all students passed (score of 70% and above) the posttest. Overall, there was an increase in students’ scores ranging from 18% to 68%. During Spring 2011 semester, this same instrument was used that resulted in 100% of the students failed (score of less than 70%) the pretest and 20% passed (score of 70% and above) the posttest.

The purpose of this assessment is to determine the effectiveness of various teaching strategies and assessment tools used in a government accounting course.

INTRODUCTION

The purpose of this analysis is to assess the effectiveness of the teaching strategies and tools used in a government accounting course. Government Accounting is an advanced level course for students in the accounting major program at the University of Guam School of Business and Public Administration (UOG SBPA). Students entering BA401 should be able and prepared to obtain greater knowledge in the principles of accounting as they apply to governmental and non-profit entities. BA401 Government Accounting is a course designed to

provide a framework for understanding the special accounting and reporting requirements of such entities, with particular emphasis on reporting concepts and budgeting principles.

Private sector entities are in the business of making profits, whereas governmental entities exist to provide services to the general public. Such services are deemed necessary to support the greater good of a community, and to do so in such a way as to maintain operations, while recovering costs without seeking or building profit margins. This stark difference provides the underlying basis for which people, especially those in the accounting field, must understand that, and how, government accounting differs from private sector accounting.

In the private sector, profits are commendable and expected, however in the government arena, profits are neither expected nor commendable (Granof & Khumawala, 2011; Wilson, Kattelus, & Reck, 2010). Any monies constituting a perceived “profit” for the government serves as a seeming signal to citizens that the full range of expected services are not being provided to the community or that taxes being paid are higher than they could be. This fundamental difference is explained to students on the first day of class. Students are informed that they will need to approach learning in BA401 with a mindset different from traditional, profit motive commercial accounting, to understanding how resources are used and managed in the government environment, with a goal of net-zero.

In contrast to commercial accounting courses, BA401 Government Accounting provides students with a working knowledge of all echelons of government accounting within the U.S. This assessment will use a static instrument: a sixty (60) question multiple-choice test, administered at the start and end of the course, to determine the variation in levels of student learning.

LITERATURE REVIEW

BA401 Government Accounting is an advanced level course of the accounting major program at UOG SBPA. All entering students are in their fourth year of undergraduate studies. Students at this level, the senior level of their program, are known to be more mature than those in the freshman level (Klein, Freedman, Shavelson, Bolus, 2008). By the time students reach this phase of their schooling, they are usually finishing their student careers and preparing to enter the workforce as full-time employees. Assessing their level of learning becomes increasingly important at this point in time, because they are exiting the academic arena and must rely on their developed skills and knowledge to succeed in the workforce.

According to the Center of Excellence in Teaching (n.d.), when conducting such assessments of student learning, there are several principles that are important to keep in mind: Assessments should always be linked to course objectives. Whatever techniques or approaches are taken, one should attempt to understand to what degree students are learning the material they are expected to master.

Assessments should be regular and on-going. A combination of formative and summative techniques should be used during the course to gain regular feedback on student progress. Assessments should be designed to facilitate learning – for instructors as well as students. Assessments should reflect on students' learning and provide instructors with signals as to what help students might need, as well as give instructors insight into what areas to cover in greater depth. An equally important principle for an instructor conducting an assessment is the instructors' willingness and openness to consider possible adjustments in teaching style.

Instructors should share with the students what has been learned after each assessment. Discussion questions may include "With what content did students struggle most?"; "What were common questions or misunderstandings?"; and "What will be done differently to facilitate student learning?"

Best Practices in Pedagogical Strategies Employed

Morgan (2006) identified best practices in pedagogical strategies that became successful projects involving assessment of student learning such as the (1) maximization of student engagement; (2) added emphasis of active learning; and (3) redesign of course activities.

The BA401 course is designed to incorporate three main components - written examinations, utilization of a simulated accounting information system, and a group research project. Written examinations are, of course, traditionally used as a tool to measure student learning and comprehension. The use of the simulated accounting information system provides students with the practical application of government accounting practices and principles to life-like scenarios in which they need to manage a small government. The group research projects require students to engage with each other which will aid in the development of communication and cooperation skills, as students are required to work together throughout the research phase and until the final presentation.

Chun (2010) stated, "The ultimate goal of teaching is the development in students of transferrable skills and knowledge. Arguably, if they complete a sufficient number of performance tasks, students will not only master the content knowledge and skills for a particular course, but they will also gain the practice they need to be better critical thinkers when they face novel scenarios or problems, either within the same domain or across domains" (p. 24). Shavelson and Huang (2003) stated, "We believe that by linking knowledge and various kinds of abilities in a single framework, we can perhaps begin to speak to one another coherently about the relative merits of assessing different kinds of learning with different kinds of tests" (p. 13). Michaels (1999) conducted an assessment using the pre- and posttests. In his findings, he found that using this type of instrument was easy to collect the before and after data. The pretest and posttest method allows the instructor to assess students' knowledge of different portions of the course content in different sections of the same course.

Accounting Program at the University of Guam

Prior to Fall 2006, the University of Guam School of Business and Public Administration (UOG SBPA) offered accounting as a concentration degree program. This degree required students to take twelve (12) credit hours in accounting as part of the total requirement of one hundred twenty-four (124) credit hours. To earn the accounting concentration degree, students were required only to take courses as high as the 300-level such as Intermediate Accounting I, Intermediate Accounting II, Individual Income Tax and Cost Accounting I. Advanced level courses, such as BA401 Government Accounting, were not required. Table 1 is a summary of the requirements for the Bachelor of Business Administration (BBA) degree with a concentration in accounting.

Curricular Component	Credit Hours
General Education	55
BBA Foundation	51
BBA Concentration	12
Upper-Division Free Electives	6
Total Semester Credit Hours	124

In Fall 2006, the Bachelor of Business Administration in Accounting (BBAA) was offered as a new major under the School of Business & Public Administration. Students seeking the BBAA major were required to obtain a total of thirty (30) credit hours of accounting courses, inclusive of the twelve (12) credit hours from the concentration program. The additional accounting courses included six (6) 400-level courses, one of which was BA401 Government Accounting. The University's established prerequisite for BA401, is BA301 with a grade of "C" or better. Tuttle (2011) study indicated that only 20% of small public universities (enrollment of fewer than 10,000) require governmental accounting in their accounting program, 40% offered this course as an elective and 40% did not offer a government accounting course. UOG's enrollment is less than 4,000, therefore is categorized as a "small" public university. Table 2 is a summary of the requirements for the BBAA degree program.

Curricular Component	Credit Hours
General Education	55
BBA Foundation	51
BBAA Major	30
Total Semester Credit Hours	136

Students entering 400-level courses should have already developed a strong grasp of fundamental accounting principles, including a mastery of all aspects of the accounting cycle (e.g., analyzing, journalizing, posting, adjustments to accounts, preparation of financial statements and closing of the accounting period).

Students exiting the accounting program are expected to be prepared with the level of knowledge and understanding necessary to take the CPA or CGFM exam.

Characteristics of Governmental Entities

Characteristics of the governmental accounting environment include service, lack of profit motive, dependence on legislative authorities, taxes as source of revenue, responsibility to citizens, and restrictions and controls (Granof, 2011; Bisk, 2010; Wilson, 2010). These characteristics can be described as follows:

Service

A government provides to its citizens services deemed necessary to support the greater good of a community, such as public safety, education, healthcare, environmental protection and infrastructure.

Lack of profit motive

In contrast to private sector entities, governments do not seek profit in the services they provide. Instead, only seek to cover operating costs or to recover losses.

Dependence on legislative authorities

Governments are dependent on, and guided by, legislative authorities. In most cases, governments are required to seek legislative approval for spending for their general operations; or acquiring loans and obligations with a maturity of longer than one year.

Taxes as source of revenue

Taxes are the primary source of revenue for governments. Governments have the power to tax their citizenry. Wilson et al. (2010) defines taxes, “compulsory charges levied by a government for the purpose of financing services performed for the common benefit” (p. 766).

Responsibility to citizens

Since the primary source of revenue for governments is taxes paid by the citizenry of a particular community, governments are, and must be, held accountable to the citizens and must always demonstrate good stewardship over its financial resources.

Restrictions and controls

In ensuring and assisting governments in exercising fiscal responsibility, there are restrictions and controls in the use of government resources. Many restrictions are provided for through legislation, such as procurement, expenditures and financial borrowing abilities and authorities.

DISCUSSION

BA401 is designed to prepare students for the “Government Accounting and Reporting” (GAR) part of the “Financial and Accounting and Reporting” (FAR) section of the Certified Public Accountant (CPA) examination and the Governmental Accounting, Financial Reporting and Budgeting (GAFRB) section of the CGFM examination (Association of Government Accountant, 2011).

For the student, the pretest administered at the start of the term is meant to expose students to what the government course will cover, and more importantly, what students will be expected to know in the GAR part of the FAR section of the CPA exam and the GAFRB section of the CGFM examination. For the instructor, the pretest also serves as a tool to assess the level and range of knowledge of entering students.

Course Objectives

Students will learn how to utilize a government accounting software. This objective is assessed using a computerized simulation program.

Students will analyze the relationship between Government Accounting Standard Board (GASB) and Financial Accounting Standard Board (FASB). This objective is assessed through a posttest.

Students will analyze financial data of a government and nonprofit organization’s financial data. This objective is assessed through a posttest, research paper and group presentation.

Students will analyze the budgeting control, revenues, and expenditures in the government environment. This objective is assessed through a posttest, research paper and group presentation.

Students will understand the issues of reporting and disclosure requirements of government and nonprofit organizations. This objective is assessed through a posttest, research paper and group presentation.

Students will apply various management accounting tools and techniques for measuring and evaluating operating performance and financial conditions which may be affected by external circumstances. This objective is assessed through a posttest and research project.

Students will understand the ethical consideration in the government and not-for-profit environment. This objective is assessed through a posttest, research paper and group presentation.

Assessment Categories

Table 3 provides the breakdown of the weight each assessment category carries in the determination of a student's final grade.

Activity	Fall 2010 Grade %	Spring 2011 Grade %
Periodic Exams	55	45
Simulation	20	20
Research Project	20	20
Post Test	5	5
Participation	0	10
Total	100	100

During the Fall 2010 semester, participation was not included in the students' overall grade, however, in Spring 2011, this activity was required. In addition, the research project used in the Fall 2010 semester was not as intense as compared to the Spring 2011 semester.

Assessment Tools

The assessment tools used to measure student learning in this course included the (1) administration of periodic examinations; (2) oversight of a semester-long simulation project using an automated accounting information system; and (3) a group research project. The analysis presented herein is the first of this type, performed using a pre- and posttest as additional instruments to measure the level of student learning. Note, however, that students in the Fall 2010 semester did not participate in the usual research project, whereas students in Spring 2011 did complete this project.

Periodic examinations

The examination format used was a set of multiple-choice questions, which were based on materials covered from prior weeks. One chapter was covered each week: the first exam occurred in week 4, after the students completed the respective simulation chapters; exam 2 occurred in week 8; exam 3 occurred in week 15; and the posttest at week 16. Before each exam occurred, a review was conducted to help students prepare for the exam. According to Dotson, W. H., Sheldon, J. B., & Sherman, J. A. (2010), students perform better when a review occurs before an examination.

Accounting Information System

The simulation project used an automated accounting information system that provided the students with life-like access to, and practical experience with, managing a government-wide financial system. According to Wilson, et al. (2010), “the dual-track approach captures both government-wide and fund accounting information at the same time an event is recognized, thereby allowing for the direct production of both government-wide and fund financial statements”. This activity is intended to teach students how to utilize a government accounting software, which is one of the BA401 course objectives, as described earlier. Students were required to submit this project in three parts throughout the semester; before each exam, a section of the simulation project was due. For example, since the first examination occurred in week 4, the first part of this simulation project was due at the end of week 3.

The simulation used in this course helped to assess students’ knowledge, skills, and critical thinking in an environment similar to the actual accounting information system used by many governments. The recording of these transactions differs from profit-seeking organizations. Many students mutually agreed that they learned from the simulation project. It helped them to more easily and clearly understand the different components of government accounting. This supports previous finds of others that simulation as a teaching strategy has been found successful (Rauen, C. 2004; Rauen C. 2001; Eaves, RH, Flagg AJ. 2001; Issenberg SB, McGahie WC, Hart IR, et al., 1999).

Research Project

The group research project required that students work with each other over the course of the semester to prepare a report, for future presentation, detailing (1) the purpose of existence for the particular government or not-for-profit organization; (2) an analysis of the organization’s revenue sources and expenses; and (3) the identification of significant financial issues and discussion of recommended solutions to the identified issues.

During the Fall 2010 semester, the research project was modified in such a way that required students to compile and analyze prior research work completed by previous semesters rather than to carry out a research project themselves. This change was mainly due to the fact that students needed more time to complete the simulation project. Therefore, in order to assist student learning in this course, the instructor modified the course activities in order to motivate and help students to better learn the concepts (Smith, nd.; Davis, 1999).

In the Spring 2011 semester, students were required to research a government or not-for-profit organization that identified their revenue and expenditures sources, financial issues (where applicable) and make recommendations to address the organization's financial issues based on best practices. The research project is intended to provide students with real-world transactions and requires students to engage with each other which will aide in the development of communication and cooperation skills.

Pretest and Posttest

The pretest was comprised of sixty (60) multiple-choice questions, taken from the GAR part of the FAR section of the CPA review (Bisk, 2010). This pretest provided the students with a preliminary review as to the subject matter of BA401. The results of the pretest were also useful in allowing the instructor to gauge each student's level of understanding of general accounting practices upon entering the course. In addition to one essay question, this same test was again administered at the end of the semester. The comparison of results between the pretest and posttest provide the foundation for the assessment presented in this report.

Participation

During Fall 2010, participation was not weighted in the calculation of students' semester grades. In Spring 2011, however, this activity was weighted at ten percent (10%) of students' semester grade. Participation activities included weekly journals and weekly discussion questions. Although students were always required to read the assigned chapter before meeting in class, the instructor was unable to determine if students were meeting this requirement. Therefore, in Spring 2011, students were additionally required to respond to one to two discussion questions before the class meeting. This provided a more clear indication to the instructor that students did read the assigned chapter for the week.

INSTRUMENT

The instrument used for this assessment was a written examination consisting of sixty (60) multiple-choice questions, which were randomly taken from the GAR part of the FAR section of the CPA review (Bisk, 2010). The value and validity of this instrument is upheld based

on the premise that the question used were actual questions appearing in CPA exams administered in previous years. The Committee on Human Research Subjects has approved this study (Murphy, 2010).

The instrument was the same for the pretest and posttest, with the exception of the added essay question on the posttest. The pretest and posttest were administered using a hosted online testing software. This course does not teach to the test, although, students are informed about the posttest, which is included in their semester grade calculation.

METHODOLOGY

The test was administered to all entering students at the start of the Fall 2010 and Spring 2011 semesters for BA401. At the end of the each semester, this test was re-administered. In addition to the sixty (60) multiple-choice questions, students were also given one essay question that asked the students to list two to five of the most significant things they learned during the course (Eder, 2005).

The participants used in this assessment were students who remained enrolled in BA401 Government Accounting during the entirety of both the Fall 2010 and Spring 2011 semesters.

DATA ANALYSIS

To analyze the data gathered in this assessment, Microsoft Excel spreadsheet software was used to determine the change in students' scores from the pretest to posttest. Across the board, there were measureable and notable increases in the students' scores ranging from an 18% to 68% improvement. There were no decreases in scores.

The instrument used in this assessment has a direct relationship to the course objectives, in that students are tested for evidence of knowledge of the concepts presented during the semester. Furthermore, according to Wilson et al. (2010), the textbook is well suited for seniors in an undergraduate program who plan on participating in the CPA exam or the CGFM exam.

Student	Fall 2010			Spring 2011		
	Pretest %	Posttest %	Change %	Pretest %	Posttest %	Change %
Student #1	21	39	18	55	77	22
Student #2	16	54	38	32	65	33
Student #3	28	73	45	27	47	20
Student #4	28	73	45	23	65	42
Student #5	23	78	55	17	65	48
Student #6	28	86	58			
Student #7	13	81	68			

The minimum change in score during the Fall 2010 semester was 18% and the maximum change in score was 68%. In the Spring 2011 semester, the minimum change in score was 22% and the maximum change in score was 48%. Note, “Student #1” took the course during Fall 2010 and repeated this course in Spring 2011.

Table 5				
Pretest and Posttest Results				
Description	Fall 2010		Spring 2011	
	Pretest	Posttest	Pretest	Posttest
Mean	22.43	69.14	30.8	63.8
Std. Dev.	6.43	16.69	14.6	10.73
Maximum	28	86	55	77
Minimum	13	39	17	47
Count	7	7	5	5
t-statistic		7.68		6.05
p-value		0.00026		0.0078
t critical value (5%) two tailed distribution		2.45		2.78
Fall 2010 and Spring 2011 Posttest Results				
t-statistic				0.67
p-value				0.51553
t critical value (5%) two tailed distribution				0.52

During Fall 2010, the average score for the pretest was 22.43% and the average score for the posttest was 69.14%. During Spring 2011, the average score for the pretest was 30.80% and the average score for the posttest was 63.80%. The calculated t-statistics show that there is evidence of improvement in the average scores between the pretest and posttest. This result is statistically significant at a 5% level. The posttest results between the Fall 2010 and Spring 2011 semesters show that there is no significant difference at a 5% level.

The increase in students’ scores may be attributed to the required simulation project. This project, also known as the “City of Bingham” or “City of Smithville” simulation contains continuous computerized problems. According to Wilson et al. (2010), the following is a description of the simulation used in this course:

“A greater conceptual understanding of governmental financial statements also makes it easier for students to understand the reclassification approach when it is encountered. The dual-track pedagogy can help students see the short- and long-term effects of the decisions made by government managers and oversight bodies from the perspective of all stakeholders” (The Dual-track Accounting Approach para. 5).

Additionally, this project requires the student to create, monitor and prepare financial statements of more than one accounting cycle of a government, similar to assessment tasks (Chun, 2010). A partial attribution of the score increases to the simulation project is supported by

this philosophy. In any arena in which students are exposed to practical applications of the knowledge gained in a classroom, or out of a textbook, one will find evidence of a better understanding of learned concepts.

CONCLUSION

The strategies used in this course are administering periodic examinations, maintaining a *government* accounting information system, researching our local government entities and administering the pre- and posttests. In Fall 2010, because students had a difficult time with the simulation project, the research project was modified based on the type of projects used by prior semesters. Like in other fields, government accounting is an upper division course, therefore, students were expected and required to use their skills and knowledge gained from the lower division courses of the accounting major program. The simulation required that students analyze and record, via journal entry, each transaction. After transactions were recorded, financial statements were then prepared. The simulation project required students to recall the accounting cycle previously learned from their lower division courses. Many students from both semesters shared with the instructor that the simulation project was a useful tool used in this course as it made them aware of how a government accounting information system works.

Periodic examination is the norm for assessing student learning. However, not all students perform well under exam conditions. The simulation and research project contributes in the assessment process as it provides students with real-life scenarios and provides additional learning activities in the classroom (Murphy, 2005; Thatcher, D. C., 1990). In order to motivate students to learn, the instructor used other activities to measure student learning in the classroom.

This assessment was made with some limitations, more specifically, that only a single professor teaches government accounting at UOG and this one course is required only to students in the accounting major program. Other limitations include insufficient literature available that focused on assessing upper division courses of an accounting major program.

Using the data gathered during the Fall 2010 semester, this assessment revealed that one hundred percent (100%) of the students failed (score of less than 70%) the pretest, while seventy-one percent (71%) of the students passed (score of 70% and above) the posttest. Overall, there was a positive change in students' scores, with the lowest variation being eighteen percent (18%) and the highest being sixty-eight percent (68%), a range which is both measurable and notable. Additionally, this also indicates that none of the students' scores decreased at the time of the posttest, when compared to the pretest.

Using the data gathered during the Spring 2011 semester, this assessment revealed that one hundred percent (100%) of the students failed the pretest, while twenty percent (20%) passed the posttest. Overall there was a positive change in students' scores, with the lowest variation being twenty-two percent (22%) and the highest being forty-eight percent (48%). The fact that in Fall 2010, students did not complete the usual research project used in this course, whereas in

Spring 2011, students did complete the research project, may have attributed to the decrease in the number of students that passed the posttest.

During Spring 2011, students were required to complete more activities than in the Fall 2010 semester. Due to the low percentage of students passing the posttest in the Spring 2011 semester, the instructor will continue collecting data for comparison to determine if a pattern exists to justify a change in activities for this course. One consideration could be, for example, “will students pass the posttest if fewer requirements are set for this course?” In Fall 2010, a higher number of students passed the posttest when fewer activities were required during the semester. In Spring 2011, fewer students passed the posttest when a greater number of activities were required for this semester.

This analysis will continue in the future semesters of government accounting and the results of such analyses will be tracked, and can be provided, over time. It is expected that such analysis will continue to be carried out using the same, or similar, instruments. However, should future results continue to illustrate that student performance decreases depending on the number of required assignments, the instructor will have to take this into consideration when designing future syllabi. More specifically, the instructor may be faced with deciding whether to include or how much to weigh one assignment over another, like the research project, for example, if a simulation project requires more time for the students, but also proves to be most effective tool in capturing interest and increasing student learning. Most notable for the instructor and other instructors, programs or universities, is the value of using the pre- and posttest methods to gauge the level, and range, of knowledge and to measure student learning. While the overall number of students who passed the test decreased, all students’ scores increased from the pre- to the posttest. This situation is beneficial in that it illustrates that students did in fact learn; and also affords the instructor an opportunity to review indications of the effectiveness of teaching strategies, methods, and structure, which can be revisited, if necessary, when designing syllabi for future classes.

FUTURE RESEARCH

Additional research for consideration is to cover the review of various teaching methods of government accounting. Research may also include discussion of how to assess student learning in intermediate level courses in the UOG SBPA Accounting Program. As mentioned earlier, students entering advanced accounting courses are expected to come prepared with a mastery of basic accounting principles. However, when students do not possess this level of knowledge, there is a forced diversion from the course syllabi, which is initially designed to focus on advanced areas of accounting.

While this diversion results in increased classroom time spent on review of intermediate accounting which may prove beneficial in the short-term, doing so takes away from the

opportunity to thoroughly address advanced level accounting concepts, which are important in the long-term.

The method of the pretest and posttest analysis will likely continue into future semesters of BA401, with possible variations. For example, several pretests may be administered throughout the semester prior to discussion on various sections of the course syllabus. This method can provide a more clear indication of student learning as the course progresses.

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