

## **Enhancing the understanding of government and nonprofit accounting with THE PUZZLE GAME: A pilot study**

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### **ABSTRACT**

Nontraditional teaching aids such as crossword puzzles have been successfully used in the classroom to enhance student learning. Government and nonprofit accounting is a confusing course for students since it has strange terminologies and contradicts the accounting concepts learned in other courses. As such, it is an ideal course for a non traditional teaching aid. The PUZZLE GAME was developed to address this need by helping students understand the key terminologies and concepts in the government and nonprofit accounting course. The paper describes THE PUZZLE GAME and the pilot study that was conducted in a government and nonprofit accounting class. The study participations reported that THE PUZZLE GAME was fun and interesting and helped improve their learning

Keywords: Teaching aids, puzzles, games, governmental accounting, student learning

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## **INTRODUCTION**

Government and nonprofit accounting (GNP) is part of most accounting programs (graduate and/or undergraduate levels). It is either offered as part of another course such as advanced accounting course or as a separate stand-alone course. However, the core concepts of government accounting such as modified accrual and encumbrance accounting are confusing for students to understand. This challenge is especially true since the terminology “contradicts” concepts learned in previous accounting classes.

It is important for students to understand government accounting concepts since it serves as a springboard for careers in the public sector and for success on the CPA examination. Currently, GNP comprised approximately 20% of the financial section of the CPA examination and candidates self report a disproportionate amount of questions from this area on the exam. THE PUZZLE GAME for Government and Nonprofit accounting was developed to assist students and CPA candidates bridge the knowledge gap. It is a non traditional teaching aid that will assist students in mastering core concepts of government and non profit accounting. Other nontraditional teaching aids, specifically Jeopardy, have been used in the GNP classroom with positive results (Murphy, 2005). However, THE PUZZLE GAME is a novel and unique idea designed to enhance the student learning experience.

## **BACKGROUND**

A variety of games, such as crossword puzzles, have been used in the classroom and had a positive effect on student learning. Lippincott & Pergola (2009) effectively used a job cost simulation to engage students in an introductory accounting course. Whisenand & Dunphy (2010) used crossword puzzles in an introductory information systems course and found that they helped first year students build and maintain their vocabulary of technology related terms encountered in the course. Gupta et al (2006) used the PUZZLE GAME in introductory accounting and noted that student course grades were significantly correlated to the average score on the puzzles as well as the number of puzzles attempted. Massey et al (2005) used crossword puzzles for homework assignments and a web-based jeopardy game for in-class review sessions in information systems courses and noted a positive effect on student learning.

Rotter (2004) noted that the “Jeopardy!” game can be modified by teachers to assess knowledge. Benek-Rivera & Mathews (2004) also used “Jeopardy!” in the classroom and found that for some students the competition got them more involved in the class, although at times their enthusiasm caused them to take the game too seriously. Bailey, Hsu and DiCarlo (1999) developed educational puzzles as supplemental materials to complement and enhance the information presented in the traditional lecture. Tanner and Lindquist (1998) used the Monopoly game as part of a business simulation and cooperative learning exercise in a junior level accounting course. Lewis and Mierzwa (1989) observed that games such as charades, crossword puzzles, and others, are effective teaching aids when used in the right situation.

## **THE PUZZLE GAME FOR GOVERNMENT AND NONPROFIT ACCOUNTING**

The PUZZLE GAME with its focus on crossword puzzles is another type of game. It was developed to assist student in achieving two main outcomes:

1. Understand the key terminologies and concepts in governmental accounting at all levels, i.e., federal, state and local.
2. Understand the key terminologies and concepts in nonprofit accounting, including the special accounting for colleges and universities and health care organizations.

## **DESCRIPTION OF THE PUZZLE GAME**

This section provides a description of THE PUZZLE GAME, its rules and grading criteria.

### **Background**

THE PUZZLE GAME FOR GOVERNMENT AND NONPROFIT ENTITIES consists of 17 topical crossword puzzles and three BIG PUZZLES<sup>1</sup> based on material presented in a specialized accounting text (some puzzles are optional). Within recent years, textbooks have become too cluttered with a great deal of supporting details and, consequently, the key points are often lost within the information presented. THE PUZZLE GAME targets the primary points within each chapter. Initially, this game was developed as a learning delivery system for distance education through closed-circuit television. Additionally, THE PUZZLE GAME, as an html file, is highly adaptable to web-based teaching. This exercise is also highly effective in the traditional classroom setting.

### **Goals**

THE PUZZLE GAME FOR GOVERNMENT AND NONPROFIT ENTITIES provides a "fun" method that energizes students to rely upon them selves to learn the assigned material as it is being developed in class by the Instructor. THE PUZZLE GAME is just like an energetic quiz show that rewards participants who are both knowledgeable and lucky. THE PUZZLE GAME is more than just fun because it reflects real life challenges such as the importance of knowledge, self-reliance, and timing. And, as in "real life," despite one's best efforts, the results may not always seem fair.

THE PUZZLE GAME focuses on the personal development of the individual student. The goals of THE PUZZLE GAME include, but are not limited to, the following:

1. Encourage students to read actively their textbook, with all of its supplementary features, in preparation for class.
2. Teach students the importance of self-discipline and self-reliance in developing good study habits to achieve success.
3. Show students how the rules of THE PUZZLE GAME are similar to situations in life where success depends upon the extent of one's preparedness, knowledge and luck.
4. Require students to exercise good ethics and honesty as Ethics Monitors when grading the puzzles.
5. Demonstrate the importance of honest record keeping.

If the Instructor agrees, the results noted on the PERFORMANCE TALLY and THE BIG PUZZLE SCORESHEET can be the basis for a grade or, perhaps, extra credit added to the final average.

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<sup>1</sup> State and Local Government Only, Nonprofit Accounting only, and All Government and Nonprofit Accounting

## **Group Size**

At least two students are needed to play THE PUZZLE GAME. A large number, such as a 100, may play. The Instructor will determine the size of the group eligible to play THE PUZZLE GAME.

## **Time Required**

A maximum of five minutes is needed to complete THE PUZZLE. The grading process and discussion of the answers normally takes an additional five minutes. On occasion, administrative issues concerning THE PUZZLE GAME, such as discussion of the procedure, may consume an additional five minutes of class time. The term's BIG PUZZLE, the activity that is drawn from all the clues used throughout the term, is limited to fifteen minutes.

## **Physical Setting**

Ordinarily, a regular classroom should be sufficient for playing THE PUZZLE GAME or completing THE BIG PUZZLE.

## **Materials**

Seventeen puzzles have been created, one for each major topic or theme (chapter) in a government/nonprofit text, and there are BIG PUZZLES containing clues that had previously appeared in the chapter puzzles. The PERFORMANCE TALLY and THE BIG PUZZLE SCORESHEET are provided to keep score.

## **Process**

Each student is given a puzzle on the recently assigned material. THE PUZZLE consists of ten clues on the fundamental points covered within the text. An example of a Chapter Puzzle is provided in Appendix 1 (see App 1: Fund Types).

When requested by the Instructor, the student will mark on the back of THE PUZZLE either heads or tails prior to the Official Coin Toss. The Instructor then flips the Official Coin, a designated quarter (your state, if available) and calls the outcome. Students with the correct choice have five minutes to complete THE PUZZLE; while, those students who choose incorrectly have only three minutes for the same task. As in business and life, sometimes, poor luck can make competitive situations unfair.

When the time has elapsed, puzzles are exchanged among students, who now serve as Ethics Monitors, in grading the puzzles as the answers are reviewed. The Ethics Monitor initials the Ethics Monitor's block on the PERFORMANCE TALLY and also makes the following notations under the appropriate puzzle number. The Minutes block is filled as either 3 or 5 and the block indicating the score is initialed. As an alternative, an instructor can also assign the completion time without using the coin toss.

Normally, THE PUZZLE GAME consists of ten puzzles and one BIG PUZZLE but this number may be increased or decreased at the Instructor's discretion. The Instructor also decides whether absent students have the opportunity to complete a missing puzzle upon their return. An

Instructor may choose not to do so allowing only those students with steady attendance to benefit fully from THE PUZZLE GAME.

Individuals must keep their own Performance Tallies or the Instructor may keep them instead. The Instructor will assign a test grade or extra credit points to the final grade based upon the total number of points earned throughout the term.

### **THE PUZZLE GAME: THE BIG PUZZLE**

On the last class day, the Instructor will distribute to each student THE BIG PUZZLE (selected from the three provided), which is comprised of clues drawn from the pool of puzzles used throughout the term. Students will have fifteen minutes to complete this exercise, which is then reviewed and graded by the Ethics Monitor. The results are then posted on each student's BIG PUZZLE SCORESHEET. An example of a BIG PUZZLE is provided in Appendix 2 (see App 2: Big Puzzle – NFP).

#### **Grading**

The Instructor may decide to scale THE PUZZLE GAME results and accordingly give a grade. Or, the Instructor may add all the scores for each student and award extra credit to the final grade, as the Instructor sees fit.

#### **Assessment**

THE PUZZLE GAME is a simple exercise but potentially a powerful assessment tool. The Instructor may use THE BIG PUZZLE as a pre-test at the beginning of the course and as a post-test at the end of the term to measure any gains attributed to student learning. This academic experience goes beyond the added knowledge gained from the assigned material because it includes ethical consequences.

### **IMPLEMENTATION AND EFFECTIVENESS**

THE PUZZLE GAME was class tested in a graduate government and nonprofit accounting class during summer 2010 at a school located in the southeastern United States. Anecdotal evidence and qualitative measures supported our assumption that students would find it interesting and useful. Overall, students (n=17) reported that they enjoyed using the game and recommended that it be used in other semesters.

Among the testimonials was one student who said “I felt the puzzles were worth doing. They help highlight the key concepts. They were great test review tools.” Another student said that “The Puzzle Game really helped students understand the key terms for the chapters. I had to study the terms before-hand to make sure I understood the material so that I could fill in the puzzle in the allotted time in class...The puzzle game was a great experience! I wish more classes would engage in such learning tools.” A student remarked that “I liked the exercise as it provided a good review of the chapter concerned and reiterated the main points. Plus, I haven't done this in any of my other classes. Innovation is key to interest!”

Finally, a student noted that “Even if I had already read through the chapter, going back and locating the puzzle clues often highlighted some concepts from the chapter that I may have

missed. I really enjoyed working on the puzzles, and I feel that the puzzles are a very constructive supplement to the class lecture. Plus, the extra points earned from completing the puzzle assignments are always helpful!”

## CONCLUSION AND IMPLICATIONS

THE PUZZLE GAME for GNP is an interesting and fun way of teaching a subject matter that is often confusing for students. In the pilot study, students reported that they enjoyed using THE PUZZLE GAME in class and recommended its use in future semesters. The authors believe that THE PUZZLE GAME will help students to bridge the knowledge gap needed to be successful in the GNP course and also on the CPA examination. THE PUZZLE GAME provides instructors with flexibility in terms of class usage and textbook, with minimal preparation time.

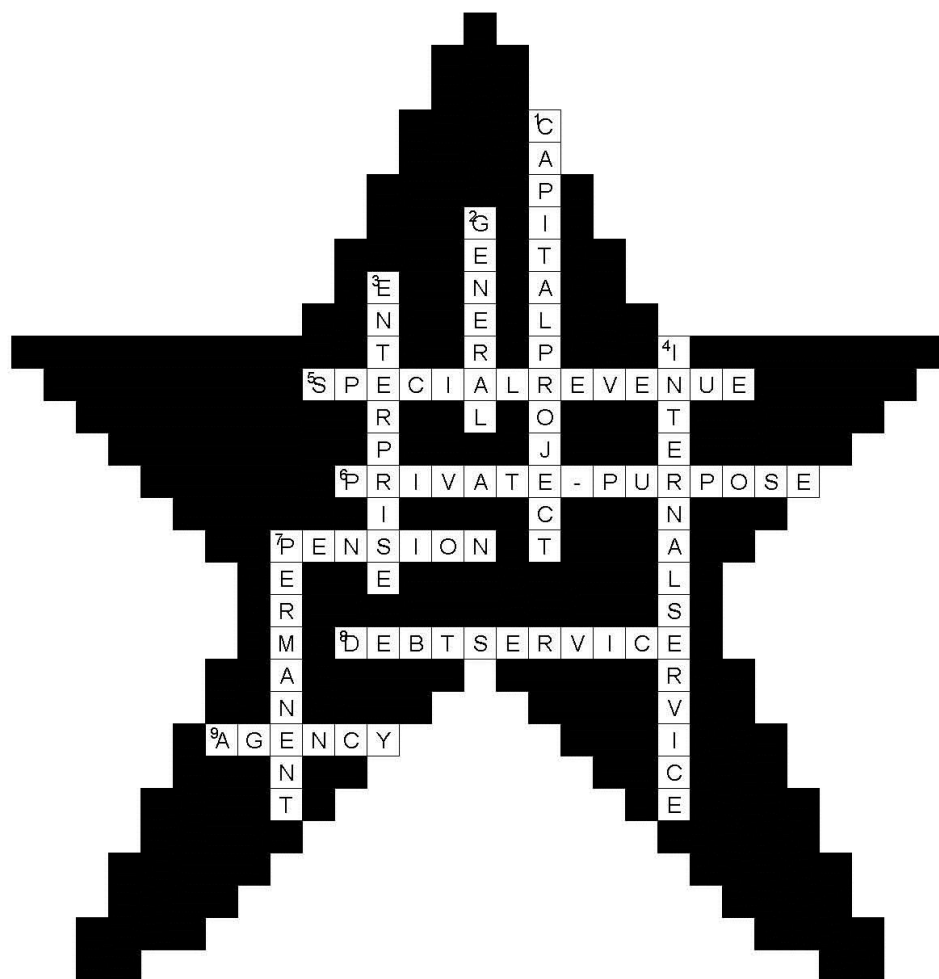
As noted earlier, the conclusions are based on a pilot study involving a small number of students at one university and from inferences drawn from using other versions of THE PUZZLE GAME. Other researchers might wish to empirically test the use of THE PUZZLE GAME for GNP to assess its effectiveness.

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### App.1: Fund Types



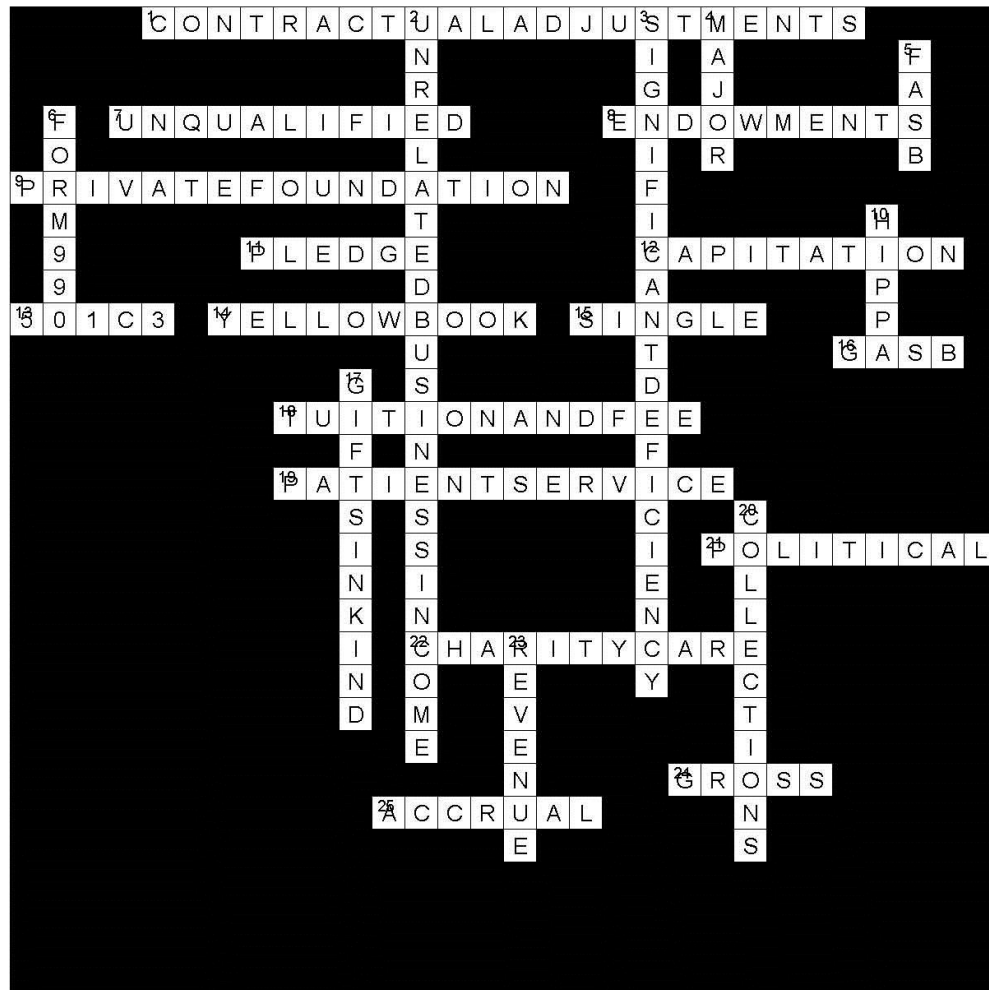
#### Across

- |   |   |
|---|---|
| <p>5. A private gift legally restricted for the operation of a library (2 words).</p> <p>6. Principal from gifts must be invested but earnings used to provide scholarships for kin of police killed in the line of duty (hyphenated words).</p> <p>7. Assets held in trust to provide retirement benefits for state workers.</p> | <p>8. Principal and interest payments on general long term debt (2 words).</p> <p>9. Taxes collected on behalf of another government.</p> |
|---|---|

#### Down

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|--|---|
| <p>1. Construction of highways, buildings, bridges or parks (2 words).</p> <p>2. Usually only one per government and most departments' operating activities are recorded within it.</p> <p>3. Revenue and expenses of a city owned parking garage.</p> | <p>4. Revenue and expenses of a motor pool or centralized data processing (2 words).</p> <p>7. Gifts in which the principal must be invested but the investment earnings can be used for public purposes.</p> |
|--|---|

### App 2: Big Puzzle -- NFP



#### Across

- The difference between gross patient services revenue and the negotiated third party payment rates (2 words).
- Type of opinion used when the financial statements contain no material departure from GAAP.
- Donor or restricted resources received by the institution that are or can be invested to produce income.
- These entities are supported by a small number of individuals or other organizations (2 words).
- Another name for an unconditional promise to give.
- Fixed fees per person paid periodically to provider, regardless of services provided.
- Charitable organizations are tax exempt under this IRS code provision (4 numbers and 1 letter).
- Another name for Government Auditing Standards (2 words).
- This type of audit focuses on the organization as a whole, not just on a single grant.
- This body has jurisdiction over the accounting and financial reporting for public colleges and universities (acronym).
- Payments received by a college or university from students for classes attended is reported in this revenue account (3 words).
- Room, board and general nursing service are classified as this type of revenue (2 words).
- NPO could lose its tax exemption if it engages in these activities.
- Services provided to individuals with a demonstrated inability to pay (2 words).
- Revenues and expenses are usually reported at this amount.
- Basis of accounting used by not for profit organizations for external reporting.

#### Down

- The income received by NPOs that could be subject to taxation (3 words).
- This indicates that there is more than a remote possibility that a significant misstatement could occur in the financial statements (2 words).
- This type of federal award program would normally be audited.
- This body has jurisdiction over the accounting and financial reporting for private colleges and universities (acronym).
- Primary tool used by the federal government to collect information from nonprofit organizations (1 word and 3 numbers).
- Major regulation passed by Congress to protect the privacy and confidentiality of patient information (acronym).
- Contributions of non-cash tangible assets (3 words).
- Works of art and historical treasures are referred to by this term.
- This term is used for amounts received from bilateral exchange transactions, e.g. membership dues.