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Bridging the gap between governmental accounting education and practice

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ABSTRACT

Preparing well educated accounting students for future, involve teaching using high techniques, will benefit all public and private organizations. Accounting educators and practitioners are pressured by the industries, globalization and the professions to generate graduates with accountancy skills that meet the changing needs. In this survey, a questionnaire was conducted and distributed randomly to ascertain the views of accounting academics and practitioners on the contents of governmental accounting courses and the personal skills and competencies of recent graduates. The results show that practitioners placed an emphasis on traditional accounting techniques, while academics placed an emphasis on contemporary techniques. Both groups were in agreement on some skills and characteristics required of recent graduates. The main finding is the existence of a real gap between education and practice of governmental accounting. The implications of the results are that academics cannot ignore the teaching of traditional governmental accounting techniques and may need to increase the coverage of the issues involved in implementing contemporary governmental accounting techniques.

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1. Introduction

Public and private organizations put a high pressure on accounting educators and practitioners around the world from developed to developing countries to generate graduates with accountancy skills that meet the changing needs. Preparing well educated students for future which involve teaching using high techniques will benefit the organizations for present and future. The need to meet now-stringent government regulations combined with an aging workforce and expanding global market has made this a great time to look for competent accountants in the public and governmental units. The well-known bridge between accounting education and practice is the one in which the work of academics and practitioners both effectively influence on the other. However, this bridge is less well constructed and less effective than it could be. As a member of a professional discipline, it is important for accounting academics, the practitioner community and professional accounting organizations to reflect on the relevance of the accounting academy's research to practice. For programs related to the public affairs education, identifying a mission, explicitly stating public sector values, and identifying outcomes tells us where we "want to get to," and assessing outcomes tells us which way we "ought to go from here."

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The forces driving the change in the philosophy underlying the accreditation process were not internal to the field. Now our focus is to apply what we teach in all accounting courses. Accounting leaders and practicing accountants believe that accounting education, as currently structured, is outdated, broken, and in need of significant modification. The status quo of accounting education looks bleak. At best, educators may be able to avoid changes as long as the economy stays strong and university budgets remain healthy. However, this indecision will result in a downward spiral beginning with fewer qualified students, reduced budgets, and decreasing faculty positions and eventually leading to the elimination of some accounting programs. Department chairs responded that budget and faculty allocations at their colleges are based on the number of students enrolled a criterion that does not contribute well to an education program experiencing declining enrollment.

Academicians have not considered the governmental accounting curriculum for debate but practitioners faced a knowledge gap when they come to practice governmental accounting. Our objective is to investigate whether a gap exists between the theory and the practice. An early US study (Deakin & Summers 1975) surveyed practitioners to determine what management accounting topics they thought were useful. Knight and Zook (1982) reported in their study of CPAs' and controllers' ratings of management and financial accounting topics that the two groups differed in their emphasis on the list of topics. Their study provided further insights into the topics that have the greatest relevance for management or financial accounting. Scapens (1983) focused on the "gap between theory and practice" in management accounting and created sophisticated mathematical techniques appearing in textbooks as having limited adoption in practice. Practitioners, he argued, must be able to see the relevance and understand the results of academic research. He believed that more studies that are academic must be conducted on management accounting in practice in order to be relevant to practitioners.

This paper is organized as follows: section one is an introduction; section two, three, and four present the problem, objectives, and literature respectively; section five covers the methodology, and data collection; section six presents the analysis and findings, and section seven provides a conclusion of the study.

2. The Statement of the Problem

Based on our survey of previous studies, we can generalize that little development had occurred in governmental accounting techniques since the mid-1980s. The reliance of governmental accounting academics on findings based on economic models rather than examples from 'real' organizations, has contributed to a gap between academia and practice. When researchers get involved with 'real' organizations, they will be credited with several innovations in management accounting. Existence of a possible 'gap' in governmental accounting between theory and practice may indicate that academics are not teaching the latest techniques or are not teaching the traditional methods still in use. The identification of the existence of a 'gap' may assist practitioners and academics in determining the nature of that gap and how to close it.

3. The Objectives

This paper aims are twofold: first, to identify whether or not a gap exists between governmental accounting education and practice by evaluating the perceptions of academics and practitioners as to what is important in governmental accounting courses, and secondly, to identify the skills that practitioners and academics consider are important for recent graduates.

There is a literature gap as very few studies have been carried out about accounting education in the Gulf Countries or the region and no study investigated the gap between theory and practice of governmental accounting in the UAE.

4. Literature Review

Chikwendu (2013) defined education as "the total process of human learning by which knowledge is imparted, facilities trained and skills developed". A more informative accounting system performs two functions: it supplies comprehensive and reliable information on public finance, and it provides a basis for improved financial control of government activities. According to Norman-Major (2011, 2012) Learning outcomes or competencies are "statements regarding skills, knowledge, and values or attitudes that students should possess after completing a program". Subsequent stages of the process—data collection, data analysis, and use of the findings from the analysis to guide program improvements are all predicated on a clearly defined competency.

Faculty, students, alumni, and advisory board members provide information used to guide the program. The assessments tools applied by UAE academic institutions have led to changes in the curriculum, assignments, and general orientation. These changes have been derived directly from our iterative efforts with course embedded assessment to align the curriculum with learning goals and competencies. The use of competencies as a foundation for curriculum development is well supported in the literature, but challenges associated with real or perceived resource constraints and the selection and development of competency models confronts programs as they seek to meet the new standards (Getha-Taylor et al., 2013). Because a robust competency model can help to align practice and academic priorities, programs in public and business administration are working to develop and adopt such models, along with program specific competencies, curricula, and courses. Conceptually, competency-based programs provide students with the knowledge, skills, and attitudes necessary for successful careers.

Carrizales (2010) posits, "Working with communities has critical benefits that should first be explored in academia". The incorporation of community into classroom learning works to make connections between theory and practice. Furthermore, it serves as a critical introduction to diverse populations; but more importantly, it is an introduction to the practice of working with the community. According to Lightweis (2014) "the problem is accounting courses are taught by lecture and through the which learning activities challenge students to understand what lies ahead in the accounting profession".

Although diversity, social equity, and cultural competence are intermingled and overlapping, they represent separate ideologies and meanings. Diversity refers to personal primary and secondary characteristics that often represent the demographic changes occurring in the United States population—evidenced by increasing numbers of Asian, African American, and Latino populations (Riccucci, 2012). Beginning in 1979, the National Council on Governmental Accounting (NCGA) issued a series of statements to improve financial reporting standards and to make the annual report (the complete annual report to be called the Comprehensive Annual Financial Report or CAFR) more comprehensive and somewhat "user friendly" (Giroux et al., 1995; Douglas, 1995).

In 1984, the GASB was established under the Financial Accounting Foundation (FAF) with a structure similar to the Financial Accounting Standards Board (FASB). The GASB was built on the framework of the NCGA statements and issued 38 GASB statements by the end of 2001, as well as interpretations, technical bulletins and concept statements. The GASB has given the concept of governmental GAAP more prestige and authority (Freeman & Shoulders, 1999).

The accountancy staffs of some countries are dominated by individuals trained in private or public sector accounting, while in others the positions are occupied by non-specialists, that is, not professional accountants or auditors, who learn specific accounting techniques on the job.

Tilt (2010) captured the 'schism' between the interests of academics and the interests of practitioners in the following comments:

- Academics are considered elitists as they speak with their own jargon; they use complex mathematical formula; they shut out potential practitioner readers by doing this; the aim of the game is to publish at all costs, not to disseminate knowledge or improve practice (Baxter, 1988).
- Practitioners are seen as not being interested in any challenge or debate or threat to the status quo; they are reluctant to disclose their data, so they want us to help them but they won't let us into their firms (Bricker & Previts, 1990).
- Practitioners often regard jargon as pretentious whereas academics suggest that when you have new ideas, new terminology appears; mathematical formulae are really useful because they are a form of shorthand and help clarity of thought (Baxter, 1988; Bricker & Previts, 1990; Leisenring & Johnson, 1994).

Reck et al. (2013) discussed the future for governmental accounting education and concluded that governmental accounting educators are well positioned to contribute to achieving the recently released recommendations of the practitioners. Accounting programs are consequently experiencing dramatic decreases in student enrollments. Moreover, many practicing accountants and educators say that they would not choose an accounting education if given the chance to do it again. This indicates a serious problem at the profession's most vulnerable point: the quality of its professionals.

The lack of certain general skills in the accounting field may create implementation barriers which cannot be eliminated in the short term and which may in certain circumstances mean that attempts to introduce more informative accounting will fail. This danger exists, for example, when accountancy techniques must be fundamentally altered in connection with the introduction of new accounting concepts (e.g. double-entry bookkeeping) and the accountancy staff lack the knowledge needed for the implementation of such new techniques. The decentralization of responsibility for changes of accounting practices in the government seems to be an important organizational implementation barrier. In a government with several organizational units exercising responsibility for the development of accounting procedures, there exists the risk that strongly diversified—and non-uniform—accounting systems will develop. Furthermore, those organizational units may have different ideas of what and how to change and thus get into conflict with each other.

Three major developments have altered the business environment (as traditionally conveyed by accounting educators to students) and the nature of the professional activities of accountants: technology, globalization, and investor power in the capital markets. Although familiar enough to merit lip service from educators, these developments have not been systematically integrated into accounting programs. Technology has made information preparation and dissemination a quick, easy, and inexpensive process. Yet, most accounting courses focus on the preparation of financial data rather than on its use. Because preparation is increasingly inexpensive and achieved as a by-product of an operating activity, those trained solely for data preparation must expect to command less value in the economy. Attracting more students to the accounting profession depends on substantive changes to the current educational model. Within that model, a number of areas need to be addressed, including closer examination of course content and curricula, pedagogy, technology, faculty development and reward systems, and strategic direction. Course content and curricula, whereas faculty interests currently shape accounting courses, the curricula should be determined by the demands of the market. Consequently, accounting classes often are narrow in scope and irrelevant. Accounting education does not expose students to concepts like globalization, technology, and ethics. Pedagogy, the educational model does not prepare students for the dynamic business world they will encounter upon graduation. Conventional teaching methods thwart students' ability to learn real-world skills. Additionally, students spend too much time listening to lectures and not enough time engaged in activities that develop business skills and knowledge.

Faculty development, because accounting educators often isolate themselves from the rest of the business school-and the business professional community in general-they are not in touch with market expectations. Strategic direction, because some schools have made changes while others have not, the difference in the quality of accounting programs is becoming increasingly noticeable. Because of accounting education's lack of leadership and direction, competition in education has increased, resulting in fewer resources for accounting programs. Accounting practice is meant to follow the regulatory requirements of whichever body is deemed to be the legitimate and appropriate regulatory authority. In this sense practice and policy work together but this does not mean that practice willingly accepts what the regulators require. To the extent that either accounting academics or practitioners do not take up potential activities and communications to enhance this link, there is a research gap. We believe such a gap exists and it has been the subject of some but limited research (Hopwood, 2007; Inanga & Schneider, 2005; Wyatt, 1989; Tilt, 2010).

The lack of a direct role for accounting research and researchers in the nature and design of a conceptual framework for financial reporting is a good illustration of the problems that arise when there is no institutional clarity on the roles of the different elements in the work of the profession. As a result, there is a considerable debate as to whether accounting researchers should engage with policy and practice. In addition, if they do believe this is important, how successful they will be.

The contribution of this study is significant and highly valuable to both academics and practitioners. The main reason behind this research is to add to the body of knowledge and the literature in the GCC region and the UAE as no study was conducted about the governmental accounting education. Another motivation and significant contribution, is to identify the gap between theory and practice that helps academic programs to develop courses according to the real needs of stakeholders.

5. The Methodology

In this study, we try to contribute to the debate by asking both academics and practitioners on what governmental accounting topics and techniques are important? This paper aims to identify whether or not a gap exists between governmental accounting education and practice by evaluating the perceptions of academics and practitioners as to what is important in governmental accounting courses. It will also focus on what academics and practitioners believe are important skills for graduates to possess, and the perceptions of the current strengths and weaknesses of recent graduates.

A survey was conducted by distributing and mailing a questionnaire to 60 public units and departments randomly selected in United Arab Emirates (UAE). This resulted into 40 replies (67% response rate). We also sent 50 questionnaires to the academic faculties in educational institutes and universities that have accredited accounting programs. Forty replies (80% response rate) have been collected from academicians. Practitioners and academics were asked to select the importance they placed on a selection of governmental accounting techniques, skills and characteristics they perceived as important for governmental accounting education.

6. Analysis and Findings

The characteristics of the academics and practitioners respondents are listed in Table 1 and Table 2, respectively. Academic responses from twenty universities show forty (40) individual faculty replied, with thirty one (31) from the private and nine (9) from the public university sector. The majority are in the age between 50 to 60 years (43%), Doctorate (Ph. D) holders (88%), have experience of 16 to 20 years (36%), and 90% of them are assistant and associate professors. Table 2 shows the basic information about practitioners. Majority of the practitioners are between 30 to 39 years old (30.46%), Bachelor holders around (45%), the experience of 16 to 20 years (30%), accountants (35%), and average number of accountants per unit of 11 to 15 employees represents (38%).

Table 1 Academic's Responses: Age, Course, Experience and Current job title (N = 40)

Academic Age (year)	
-30	4.0%
30-39	12.2%
40-49	35.0%
50-59	42.8%
60	6.0%
	0.070
Highest Qualification	1.00/
Master Degree	4.0%
Ph. D Degree	88.0%
Professional qualification	8.0%
Others	0.0%
Number of years in teaching accounting	
0-10	22.0%
11-15	25.0%
16 - 20	36.0%
21+	17.0%
Current job title	
Assistant & Associate Professor	90.0%
Dean	2.0%
Lecturer and Instructor	6.0%
Others Academic Age (year)	2.0%

Table 2Practitioner's Responses: Age, Course, Experience and Current job

Practitioners = 40	
Age	
- 30	28.46%
30-39	30.46%
40-49	23.08%
50-59	16.00%
60	2.00%
Qualification	
Bachelor Degree	44.50%
Master Degree	20.50%
Ph. D Degree	10.00%
Professional qualification	20.70%
Others	4.30%
Number of years in accounting	
0-10	28.00%
11-15	26.00%
16-20	30.00%
21+	16.00%
Current job title	
Senior accounting	22.00%
Coordinator	16.00%
Accountant	35.00%
Accounting Assistant	15.00%
Payroll and Payable	2.00%
Number of accounting staff in your department	
1-5	23.00%
6-10	24.00%
11-15	38.00%
+20	15.00%

Academics and practitioners were asked to rate, on a 1 to 5 point Likert type scale, the importance of 17 listed governmental accounting techniques. The scale set low importance to a 1, and high importance to a 5 rating. The results are listed in Table 3 below, ranked in order of mean scores.

Table 3Ranked Importance of Governmental Accounting Techniques – Practitioners versus Academics

Rank	Practitioners	Mean	Rank	Academics	Mean
1	Payroll system	4.40	1	Transactions recording and analysis	4.47
2	Governmental audit	4.24	2	Payroll system	4.44
3	Zero base budget	4.14	3	Ethical issues of government practices	4.42
4	Cash and accrual bases of accounting	4.06	4	Analysis of government statement	4.40
5	Public accounting and finance	3.96	5	Governmental audit	4.22
6	Governmental reporting system	3.95	6	Governmental reporting system	3.94
7	Bank reconciliation	3.92	7	Governmental accounting as an academic courses	3.79
8	Ethical issues of government practices	3.89	8	Program and planning budgeting	3.75
9	Investments and projects accounting	3.68	9	Zero base budget	3.72
10	Governmental accounting standards	3.60	10	Bank reconciliation	3.65
11	Transactions recording and analysis	3.48	11	Cash and accrual bases of accounting	3.55
12	Program and planning budgeting	3.46	12	Public accounting and finance	3.52
13	Analysis of government statement	3.45	13	Fund accounting	3.45
14	Governmental accounting as an academic courses	3.32	14	Traditional budgeting system	3.43
15	Local standards and practices	3.30	15	Governmental accounting standards	3.35
16	Fund accounting	3.28	16	Local standards and practices	3.31
17	Traditional budgeting system	3.25	17	Investments and projects accounting	2.23

The results showed practitioners selected payroll system, audit, zero-base budget, cash and accrual basis, and public accounting and finance as their top five most important topics for importance in education. Academics ranked payroll system at second, audit at fifth and zero-base budget at ninth. As academics were asked to rank the importance of items for governmental accounting course it is possible that local standards and investment topics received low rank as they form part of financial accounting and financial management courses in some institutions. Therefore, they may be considered unimportant in governmental accounting courses as these topics are covered elsewhere in students' studies.

Two of the techniques held important by both practitioners and academics were payroll (4.44 mean) and reporting system (6th). Further, the results indicate practitioners relied heavily on payroll and control systems (audit). Interestingly, the top rating topic for academics was transaction recording but practitioners' rating was 11th. Fund accounting is ranked very low by both academics and practitioners (16th. and 13th.) respectively, which indicates that it is an investment and top level issue rather than a governmental accounting topic.

Recently, the UAE government considered the zero base budget as the main approach to be followed to prepare the annual budget of the governmental units and departments. They also recommended accountants with strong knowledge and skills in computerized accounting and ERP system. Therefore, the topic is advanced ranked by practitioner (3rd. with 4.14 mean) because they face many difficulties when applying this new approach. On the other hand, ethical issues are classified as very important by academics (3rd.) as it becomes one of the major requirements raised by many accreditation bodies.

The characteristics results show that both practitioners and academics listed professional attitude in the top, with similar ratings. Practitioners in the Novin et al. (1990) also rated professional attitude top, ethical awareness second and motivation third. Practitioners in this study, however, rated ethical awareness at number 5 compared to academics at number 3. Intellectual capacity was not favored by practitioners as rated this item last, but both practitioners and academics rated leadership skills at

number 4, and academics rated confidence as the least important in this. Table 4 shows the rating of personal accountants' characteristics as per the view of academics and practitioners.

Table 4Ranking of Personal Characteristics

Rank	Practitioners	Mean	Rank	Academics	Mean
1	Professional attitude	4.24	1	Professional attitude	4.25
2	Pleasant personality	4.00	2	Intellectual	4.21
3	Confident	3.84	3	Ethical	4.16
4	Leader	3.35	4	Leader	3.29
5	Ethical	2.78	5	Pleasant personality	3.20
6	Intellectual	2.72	6	Confident	2.88

7. Summary and Conclusion

This paper has examined whether a gap exists between governmental accounting education and practice by evaluating the perceptions of academics and practitioners as to what was important in governmental accounting course. The paper also compared the skills that practitioners and academics believe were important for recent graduates. The study also investigated what both groups perceived to be the strengths and weaknesses of recent graduates.

Five out of the top ten governmental accounting techniques selected by practitioners as being important for education were traditional techniques (payroll, audit, zero-base budgeting, cash and accrual bases, and public accounting and finance). In contrast, academics selected five contemporary techniques as their top ten important topics (recording, payroll, ethical issues, statement analysis, and audit). Practitioners also placed emphasis on planning over contemporary techniques when selecting the governmental accounting techniques used in their organizations. Four of the top five governmental accounting techniques selected by practitioners, rated higher for use in their organizations than for educational importance, but all other topics rated higher for use in education. The gap for computerized systems such as Enterprise Resource Planning (ERP) in this study has also been apparent. Academics may have to consider how to incorporate the teaching of technology more into their courses to close this gap. They may have to first, become aware of what computerized systems such as ERP are capable of and how they operate.

Although the sample and the response rate of about 67% for practitioners is a limitation as to the generalization of the results, the results were generally found to be consistent with the general perception as per the discussion with many practitioners. The other limitation of this study is that there is a possibility that practitioners and academics may have interpreted some of the terms differently.

The main motivation behind this study is that no previous studies have been conducted in the UAE. Therefore, the study tries to fill this research gap and help practitioners communicate their needs to academics. Furthermore, academics will develop courses that satisfy the needs of the market. The main finding is the existing of a significant gap between academics and practitioners regarding the techniques and personal skills required for a governmental accountant.

To bridge the gap between accounting education and accounting practice, the following recommendations can be taken into consideration:

- Develop course syllabus in consultation with industry (public and private sector).
- Include enough dose of soft accounting applications (ERP). This is consistent with Ayeboafo (2012) who suggested that since most companies are using ERP systems to manage their accounts, it is important that accounting education program incorporate computerized accounting training. By so doing it will prepare students for the job market.

• Conduct training for fresh graduates when they join their organizations to be more familiar with practical aspects.

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References

- Ayeboafo, B. (2012). The role of accounting educators in bridging the gap between accounting theory and accounting practice. *Research Journal of Finance and Accounting*, 3(10), 11-114.
- Baxter, W. T. (1988). *Accounting research-Academic trends versus practical needs*. Institute of Chartered Accountants of Scotland.
- Bricker, R. J., & Previts, G. J. (1990). The sociology of accountancy: A study of academic and practice. *Accounting Horizons*, 4(1), 1.
- Carrizales, T. (2010). Exploring cultural competency within the public affairs curriculum. *Journal of Public Affairs Education*, 16(4), 593-606.
- Chikwendu, V.C.A. (2013). *Introduction to History of Education*. Owerri, corporate impressions.
- Deakin, E. B., & Summers, E. L. (1975). A survey of curriculum topics relevant to the practice of management accounting. *The Accounting Review*, 50(2), 380-383.
- Douglas, P. P. (1995). *Governmental and nonprofit accounting: theory and practice*. Harcourt Brace College Publishers.
- Freeman, R. J., & Shoulders, C. D. (1999). Governmental and Non Profit Accounting.
- Getha-Taylor, H., Hummert, R., Nalbandian, J., & Silvia, C. (2013). Competency model design and assessment: Findings and future directions. *Journal of Public Affairs Education*, 19(1), 141-171.
- Giroux, G., Deis, D., & Bryan, B. (1995). The effect of peer review on audit economies. *Research in Accounting Regulation*, *9*, 63-82.
- Hopwood, A. G. (2007). Whither accounting research? The accounting review, 82(5), 1365-1374.
- Inanga, E. L., & Schneider, W. B. (2005). The failure of accounting research to improve accounting practice: a problem of theory and lack of communication. *Critical Perspectives on Accounting*, 16(3), 227-248.
- Knight, R. E., & Zook, D. R. (1982). Controllers and CPAs evaluate the relevance of education topics. *Management Accounting*, 64(5), 30-34.
- Leisenring, J. J., & Johnson, L. T. (1994). Accounting research: On the relevance of research to practice. *Accounting Horizons*, 8(4), 74.
- Lightweis, S. (2014). Bridging the Gap between Accounting Students and the Profession: A Case Study. *Higher Education Studies*, 4(5), 18-27.
- Norman-Major, K. (2011). Balancing the four Es; or can we achieve equity for social equity in public administration?. *Journal of Public Affairs Education*, 17(2), 233-252.
- Norman-Major, K. (2012). Cultural competency across the master's in public administration curriculum. *Cultural competency for public administrators*, 310-328.
- Novin, A. M., Pearson, M. A., & Senge, S. V. (1990). Improving the curriculum for aspiring management accountants: The practitioner's point of view. *Journal of Accounting Education*, 8(2), 207-224.
- Reck, J. L., Lowensohn, S. L., Wilson, E. R., & Hay, L. E. (2013). Accounting for governmental & nonprofit entities. McGraw-Hill/Irwin.
- Riccucci, N. M. (Ed.). (2017). *Public personnel management: Current concerns, future challenges*. Routledge.
- Scapens, R. W. (1983). Closing the gap between theory and practice. *Management Accounting*, 61(1), 34-36.

- Tilt, C. (2010). The impact of academic accounting research on professional practice. *Accounting Education at a Crossroad in*, 2070, 35-40.
- Wilson, E. (2013). An historical perspective on governmental accounting education. *Journal of Accounting Education*, 31(3), 244-251.
- Wyatt, A. (1989). Interface between teaching/research and teaching/practice. *Accounting Horizons*, *3*(1), 125.



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