

VALIDATING COMPETENCIES UNDERLYING A PROFESSIONAL ACCOUNTING CREDENTIAL

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ABSTRACT

This paper describes how a professional practice (job) analysis was conducted to validate a list of 147 competencies and 176 knowledge topics for professional accountants in Canada. A stratified sample of 2,500 practicing accountants in Canada and two international regions (China and the Caribbean) was surveyed. The findings are being used by the professional body (CGA-Canada) to guide critical decisions about the education and credentialing requirements of accountants. These include the development of blueprints for certification examinations, refining critical aspects of curriculum development such as scope and depth of knowledge presentation, and the harmonization of products and services for continuing professional development.

PURPOSE AND CONTEXT

The purpose of this paper is to describe the design, implementation, and findings of a competence-based practice analysis of professional accountants in Canada. The study was commissioned by the Certified General Accountants Association of Canada (CGA) to validate and support its program of professional studies leading to certification (credentialing) as a professional accountant. Two of the central concepts of the paper are the notions of competence and competency, which may be defined as follows:

Competence. The ability to perform the tasks and roles expected of a professional accountant, whether newly qualified or experienced, to the standards expected by employers and the general public [14]. Statements of competence issued by professional certification bodies are typically developed through a comprehensive practice analysis [15].

Competency. A specific behaviour whereby a professional applies knowledge, skills, and/or professional values in a work environment; the behaviour can be defined, demonstrated, observed, and assessed [9].

RATIONALE FOR A PRACTICE ANALYSIS

The primary purpose of a practice analysis is to ensure the validity of a program of professional studies and the

associated credentialing program. A practice analysis provides a credentialing program with information needed to validate the link between the responsibilities required of professionals and the competencies evaluated by examinations, education and practical experience requirements. The examinations associated with a credentialing program must be practice oriented and based on specifications that are developed from a practice analysis [18] [21] [23].

Practice analysis in this context is the systematic process that embraces the collection, compilation, verification, and application of all pertinent information about the nature of practice in a profession. It has the added value of providing baseline information for the development of curriculum to prepare candidates for the credentialing examination, as well as indicating the need for products and services for maintaining the currency of practitioners.

A competence-based practice analysis emphasizes the outcomes of the work of accountants and what they actually do in the conduct of their profession, more than the inputs such as knowledge and skills acquired through formal education. The focus is on behaviour that can be readily defined, observed, and assessed. Higher-level cognitive skills such as analysis, synthesis, and evaluation are reflected in the descriptions (i.e. competency statements) of what accountants actually do in their work; for example, they may “make informed judgments,” “formulate recommendations,” or “implement strategic action plans.”

The range of work accountants undertake today is very wide and is expanding. Yet candidates at the threshold of entry to the profession should not reasonably be expected to possess all the competence of expert, highly experienced professional accountants. Priorities must therefore be set on assessing candidates against a standard of competence that is essential to protect the public interest and enabling them to respond to the needs of the client or employing organization. Competence is not static. Professionals must update themselves throughout their careers, increasing their proficiency within an area of competence through experience, specialization, and continuing education.

***Paper presented at the ABER 3rd Global Conference on Business and Economics, Amsterdam, Netherlands, July 9–11, 2004.**

Growing Emphasis on Competence-Based Education

In recent years, along with a number of other professional associations whose members provide direct services to the public, the accounting profession has placed a renewed emphasis on the acquisition and demonstration of specific “competencies” over and above the traditional acquisition of “the body of knowledge.” A number of studies have been carried out in various countries to identify and validate a specific range of competence, usually defined by a categorized list of competency statements or simply “competencies,” and which are empirically associated with the practice of accounting.

Emphasizing the global need for standardization in this matter in 2001, the International Federation of Accountants (IFAC) issued a discussion paper, “Competence-Based Approaches to the Preparation and Work of Professional Accountants” that reviewed the literature, compared approaches to defining professional competence, and proposed a practical approach for IFAC member bodies to use when defining standards of competence for entry to the profession:

Statements of competence should specify the roles and tasks observed to be undertaken by professional accountants sufficiently clearly so that the professional body can assess whether candidates have carried them out to the standard required in the workplace. Competence may be assessed by a variety of means, including workplace performance, workplace simulations, written tests of various types and self-assessment [15, p.7]

Other notable studies on the competence-based approach include a study by the Australian and New Zealand accounting profession [5], the practice analyses of the (U.S.) Institute of Management Accountants [13], the American Institute of Certified Public Accountants Core Competency Framework [3], and the CGA-Canada Competency Framework for professional development [8].

Similar papers have been published by the Canadian Institute of Chartered Accountants [7], the Institute of Internal Auditors in the United States [12], the Association of Chartered Certified Accountants in the U. K. [4], and the Institute of Chartered Accountants of Scotland [11]. Prinsloo [19] summarized recent work on the competency framework in South Africa and elsewhere. Boritz and Carnahan [6] provided a critical review of competence-based approaches with particular reference to the certification of accountants in the United Kingdom, Australia and New Zealand, the United States, the Netherlands, and Canada.

Looking at the provision of accounting education in university business schools, Albrecht and Sack (2000) concluded that the emphasis of traditional accounting education had been too narrowly focused on academic knowledge and not enough on the application of it to competent performance in the business world.

Assessing Professional Competence

As indicated by the IFAC statement on competence in the previous section, it is of critical importance to a professional body to (a) specify the expected roles and tasks, (b) assess whether candidates have acquired competence, and (c) choose appropriate measures to assess performance before granting the credential. Furthermore, to ensure the protection of the public interest and to develop legally defensible certification examinations, assessment must be valid and reliable [2].

It is generally accepted across professions that this is where the periodic conduct of a field-based professional practice analysis plays a central role in establishing the validity, reliability, and public credibility of a credentialing examination. In a handbook for the guidance of professional associations, issued by the (U.S.) National Association for Competency Assurance, Henderson comments on the critical nature of the evidence underpinning this type of analysis:

As painstaking and far-reaching as the efforts may be to ensure an accurate delineation of tasks and/or knowledge in the first phase of a job analysis, it is necessary to verify the accuracy of the compiled task list with a representative sample of incumbents. Claims of content validity must be based on accumulated evidence that the material tested on a credentialing examination is job-related, and defending those claims depends on the amount and quality of empirical evidence supporting the accuracy of a job analysis from a wide range of individuals who are knowledgeable about the job [10, pp. 53–54].

Kane [16] points out that it is more appropriate in the context of licensure and certification of professionals to refer to this as a practice analysis rather than a job analysis. This is because licensure and certification address readiness for practice across a wide range of settings and are not ordinarily specific to a particular job.

THE 2002–03 CGA PRACTICE ANALYSIS

The Certified General Accountants Association of Canada (CGA), which commissioned the study reported in this paper [9], is one of three professional accounting bodies authorized by Canadian federal, provincial, and territorial

legislation to provide accounting services to the public. The association has 60,000 members and students, and since the 1950s has provided a program of professional studies by distance and online education to its 24,000 students across Canada and internationally (the latter being located primarily in China and the Caribbean).

In 2001, the CGA Association set out to conduct a large-scale mail survey to ensure the validation of its certification examinations, validate its requirements for certifying accountants, provide support for the curriculum products it delivers to students in its program of professional studies, and support the profession's requirements for practical experience. A further anticipated use of the results was to provide a framework for the continuing professional development of members.

The first (design) phase of the study comprised the review of an extensive global literature on competence-based accounting education (as cited earlier in this paper) and developed a preliminary draft of a list of competencies. The list was used as the basis of structured interviews and focus groups of experienced CGA members in three Canadian provinces to discuss the relevance of the competencies to professional practice. An outcome of this phase was the need for a longer, more specific list of competencies with illustrative examples; the new list would be developed and reviewed, then validated through a large-scale survey of CGA members practicing in various economic sectors and geographic regions.

Competency statements can become either too general (broad generalities at the macro level) or too detailed (at the micro or finely tuned task level). It was important to choose a level of specificity for the list of competency statements that would strike a workable mean between these two extremes. One of the "acid tests" of this criterion would ultimately be the practical value of the competencies to the designers of certification examinations and the developers of the accounting curriculum.

The second (delineation) phase of the study was led by an independent consulting firm with extensive experience working with professional organizations that certify their members. A task force of 15 experienced CGA members was created, representing a wide range of related content expertise, geographic location, cultural diversity, and accounting practice in various sectors (including public practice, information technology, government and not-for-profit, corporate, and small-medium enterprises). During the second phase, members of the task force, additional subject matter experts, and association staff drafted a working definition of a CGA, designed a structure to organize various sets of competencies, and developed a revised set of competency statements and a list of knowledge topics.

Delineating the Professional Competencies

In order to design an organizing structure for the competencies, members of the task force reviewed the results of previous CGA studies and participated in a discussion about an organizing framework. A formative element in this work was to draft a new and expanded definition of a CGA for the purpose of the study, which was articulated as follows:

"A CGA is a financial professional with expertise in accounting, auditing, finance, taxation, general business, and information technology who has met the education, experience, and examination requirements of the Association and been admitted to membership. CGAs work throughout the world in industry, commerce, finance, government, public practice, and the not-for-profit sector, providing integrated business services to a wide clientele ranging from individuals to multinational corporations. CGAs are governed by a code of ethical principles and rules of conduct; they operate under mandates established by legislation to protect the public interest."

The task force determined that the competencies of professional accountants could be organized within four major categories, each with several sub-categories. The task force reviewed, refined, and categorized a list of competency statements. Two guiding development issues were (1) Do the statements provide a comprehensive list of the range of activities performed by practitioners, regardless of economic sector or type of enterprise? and (2) Are the statements clear and concise? Subsequently, 30 additional subject-matter experts in education and industry were asked to further review and refine the list.

The resulting delineation of 147 competencies was incorporated into a survey document. The competency categories and sub-categories, and the number of statements in each category and subcategory are shown in Table 1. A sample of the competency statements is provided in Appendix 1A.

TABLE 1. Categories of the Competency List

<i>Categories and sub-categories</i>	<i># of competencies (N=147)</i>	
Technical Knowledge		76
Financial accounting and reporting	12	
Management accounting	6	
Assurance	13	
Finance and financial planning	16	
General business	11	
Information technology	10	
Taxation	8	
General Management		24
Planning	4	
Allocating and managing resources	4	
Measuring and monitoring	7	
Communicating	9	
Leadership		17
Organizational and strategic leadership	5	
Team leadership and development	6	
Staff coaching and training	6	
Professionalism		30
Client focus	3	
Ethics and trust	7	
Integrative approach	4	
Problem solving	7	
Professional development	5	
Professional self-evaluation	4	

Delineating the Knowledge Base

The research design, however, also had to address the obvious fact that the competencies of a professional require the acquisition of a considerably large body of technical knowledge. Through a content analysis of a typical accounting education program leading to professional certification, a total of 176 knowledge topics were identified in association with the seven sub-categories of Technical Knowledge documented in Table 1. Forty-seven subject matter experts in education and industry were asked to review and refine the list. A sample of the knowledge topics is provided in Appendix 1B.

THE VALIDATION SURVEYS

During the third (validation) phase of the study, a large-scale survey was disseminated to CGA members in Canadian and international jurisdictions to validate the competency categories and sub-categories, the competency statements and knowledge topics, and the definition of a CGA. Two forms of the final survey were used:

- The *competency-based survey* was sent to 1,868 members. It included five parts that facilitated quantitative and qualitative data collection on the categories, sub-categories, and competency statements. Using Likert-type scales, respondents rated the importance, frequency, and essentiality of each competency statement; the importance and percent of time spent in association with each sub-category of Technical Knowledge; and the point at which various competencies might be acquired, as well as how the competencies might be verified.
- The *knowledge-based survey* was sent to 654 members. It included four sections and a set of Likert-type ratings for the 176 knowledge topics. Respondents rated the point at which knowledge should be acquired, and they identified the proficiency level at which they used the knowledge. Respondents also indicated how frequently they used knowledge in each Technical Knowledge sub-category and how important that knowledge was.

In both surveys, respondents were given an opportunity to provide open-ended comments regarding the comprehensiveness of the delineation and trends in practice.

For external validation by a different stakeholder community, an alternate form of the competency-based survey was sent to a sample of 225 recruiters, employers, and supervisors of professional accountants.

Table 2 illustrates three scales used in the competency-based survey. The *Frequency* scale was in the context of the *respondent's own work* in professional practice, while both the *Importance* scale and the *Essentiality* scale were in the context the respondent's judgment about the profession, per se. Table 3 shows a typical competency statement and the rating options.

TABLE 2. Frequency, Importance, and Essentiality scales for Competency

FREQUENCY	IMPORTANCE	ESSENTIALITY
How frequently do <i>you</i> perform the competency? (<i>Circle one.</i>)	How important is the competency to protecting the interests of the public and/or responding to the needs of the client or organization? (<i>Circle one.</i>)	How essential is this competency to becoming a newly-certified CGA? (<i>Circle one.</i>)
0 Never	0 Not important	0 Not at all essential
1 Rarely	1 Minimally important	1 Somewhat essential
2 Occasionally	2 Moderately important	2 Moderately essential
3 Frequently	3 Highly important	3 Highly essential
4 Very frequently or routinely		

TABLE 3. Typical Competency Statement, Examples, and Rating Options

COMPETENCY	FREQUENCY	IMPORTANCE	ESSENTIALITY
	How frequently do <i>you</i> perform the competency? (<i>Circle one.</i>)	How important is the competency to protecting the interests of the public and/or responding to the needs of the client or organization? (<i>Circle one.</i>)	How essential is this competency to becoming a newly-certified CGA? (<i>Circle one.</i>)
Ensures the reliability of financial information (e.g., pension plan reconciliations; vendor/customer reconciliations; existence, accuracy, and completeness of information) [Category: Technical Knowledge Sub-category: Financial Accounting and Reporting]	0 1 2 3 4	0 1 2 3	0 1 2 3

Respondents to the competency-based survey were then asked to estimate, for each of the seven sub-categories of Technical Knowledge competencies (see Table 1), the percentage of work time they spent on each sub-category during the past year, as well as to rate each sub-category on a four-point scale of Importance “to performing the functions expected of a CGA.” In the final section of the

competency-based survey, respondents were asked to declare, for each of the 13 sub-categories of competencies in General Management, Leadership, and Professionalism, the preferred point of Acquisition of the competencies—before or after being certified—and how the profession should obtain Verification of that competence—through practical experience assessment, through general pre-

professional education reports, or through formal examination at the professional level.

In the knowledge-based survey, a similar set of rating scales was used to solicit their opinions on *Frequency* and

Importance of the knowledge; also, the desirable point for *Acquisition* of the knowledge (before or after certification) and the *Proficiency Level* required in professional practice (mastery, comprehension, general awareness, or none). (See Table 4.)

TABLE 4. Acquisition and Proficiency Level Scales for Knowledge

ACQUISITION	PROFICIENCY LEVEL
At what point should knowledge of this topic have been acquired by a CGA? (<i>Circle one.</i>)	Which proficiency level best represents <i>your</i> usage of this knowledge? (<i>Circle one.</i>)
1. Primarily <i>before</i> becoming a CGA 2. Primarily <i>after</i> becoming a CGA 3. Not necessary at any point	1. Mastery 2. Comprehension 3. General awareness and background 4. Not used in practice

Sampling Plan and Response Rates

A stratified sampling plan was developed to target recently certified (1999–2002) and less recently certified (1992–1998) practitioners, who it was initially thought might have different perceptions and ratings of the competencies and knowledge topics. The sampling plan called for a 1:1 ratio between these two cohorts; the plan also specified a 3:1 ratio between the competency-based and knowledge-based surveys, and balanced coverage of geographical regions. All participants in the surveys were otherwise randomly selected from the active practitioner membership database.

This sampling protocol was based on guidelines from the literature of practice analysis:

- The sources of practice-related information should be individuals who are qualified to provide the type of information being sought [22].
- The population of interest individuals should include practitioners, educators, managers, and recognized subject matter experts in the field. They should be representative of the relevant populations in terms of practice setting, ethnic background, educational level, gender, and possibly other demographic factors [20].
- The size of the sample should be large enough to ensure both generalizability and credibility [17] [20] [24].

The competency-based survey yielded a response rate of 22.1%. The knowledge-based survey yielded a response rate of 26.5%. These rates were at or above those reported for similar practice analyses of this type in the accounting profession. The demographic analysis of the respondents confirmed that the characteristics of the

respondents (gender, experience, employment sector, geographic location, etc.) were comparable to those of the CGA membership as a whole. It also showed that both the recently and less-recently respondents typically had between 12 and 16 years of experience on which to base their judgments about competencies needed in the profession.

Analysis of Results

Quantitative and qualitative analyses were performed using the competency survey ratings of the more and less-recently certified respondents. For each competency statement, the mean and standard deviation of the respondents’ ratings were reported for the *Frequency*, *Importance*, and *Essentiality* scales. For each of the seven Technical Knowledge sub-categories, the mean, standard deviation, and range of time was reported for the *% of Time* and *Importance* scale. For each of the 13 sub-categories related to General Management, Leadership, and Professionalism, the percent of respondents indicating each scale point on the *Point of Acquisition* and *Verification* scales was reported. Finally, qualitative analyses were performed to summarize the open-ended comments of the respondents.

The quantitative ratings for frequency, importance and essentiality were comparable between the more and less-recently certified respondents. Furthermore, results from the sample of recruiters, employers, and supervisors matched very closely the results from the CGA member survey.

Similar quantitative and qualitative analyses were performed on the knowledge survey ratings of the more and less recently certified respondents. For each

knowledge topic, the percent of respondent indicating each scale point the Acquisition and Proficiency scales was reported. For each Technical Knowledge sub-category, the mean and standard deviation of the respondents' ratings was reported for the *Frequency* and *Importance* rating scales. Finally, qualitative analyses were conducted to summarize the open-ended comments of the respondents.

VALIDATION OF CORE COMPETENCIES

A credentialing body must clearly identify, not merely the universe of all possible competencies of the professional field, but which are the core competencies required of all its professionals, and which others are competencies that are non-core (i.e. only supplemental or specialist in nature). The core competencies together comprise a target for pre-credentialing education, credentialing examinations, and practical experience requirements. Non-core competencies typically become the optional requirements for areas of professional specialization and for continuing professional development.

For the purposes of this study, a *core competency* was defined as a competency required of all newly certified CGAs, regardless of the particular 'career option' or concentration they choose to follow. (As part of the CGA certification process, candidates may follow one of four career option streams—corporate and small-medium enterprise, government and non-profit, information technology, or public accounting—and must satisfy particular skills and knowledge requirements specific to the chosen option, such as advanced auditing and taxation for public accounting, advanced finance management for the corporate and small-medium enterprise, or advanced systems for information technology).

Accordingly, as an integral part of reviewing the survey results, the members of the practice analysis task force were reconvened along with additional subject-matter experts to identify a subset of the competencies as *core to the practice of newly-certified practitioners in the profession*.

First, the participants reviewed the working definition of a CGA and were directed to focus on the competencies required of a newly-certified accountant in their own organizations. They reviewed the ratings of each competency statement on the three rating scales (*Frequency*, *Importance*, and *Essentiality*) as well as *composite values* which had been designed to differentiate the core competencies from the non-core

competencies. Finally, members of the panel determined a standard to be applied to the composite values in order to differentiate the core and non-core competencies, and applied the standard. The concept of the composite values is revisited later in this section.

Henderson summarizes a key task of a review panel of this type:

... to review the inventory of tasks and knowledge statements with an eye to delete any that were seen by participants in the study as unimportant or infrequently used in current practice. Commonly, the credentialing agency and subject matter experts collaboratively define a decision tree or a set of standards by which to evaluate whether or not tasks should be included...based on the mean criticality rating, the frequency estimate, or other topics, depending on the data collected [10, p.62].

In the CGA study, the task force worked together to review empirical ratings and the composite values for the 76 competency statements identified in connection with the Technical Knowledge category and for the 71 competency statements identified in connection with General Management, Leadership, and Professionalism categories.

Developing and Reviewing the Ranked Composite Values

The concept of a *ranked composite value* (RCV) was used to guide the standard-setting process for determining the core competencies. This was a method devised to combine, for each competency, each respondent's separate ratings of *Frequency*, *Importance*, and *Essentiality*. The method comprised three steps:

1. Assign each competency a ranked value between 45 (high) and 1 (low) based on the average of each respondent's *Importance* and *Frequency* ratings as weighted by each respondent's *Essentiality* rating. Table 5 illustrates sample points on this scale. Regardless of the *Frequency* rating, competency statements that are rated 0 on either *Importance* or *Essentiality* are assigned a ranked value of 0.
2. Document the percentage of respondents rating each competency as 0 on either the *Important or Essentiality* rating scale.
3. Document the percentage of respondents rating each competency as 0 on any of the three rating scales.

TABLE 5. Illustrative Ranked Composite Values (RCVs) Combining Ratings of Frequency, Importance, and Essentiality

Frequency (0–4 scale)	Importance (0–3 scale)	FI (nonparametric)	Essentiality weighting (0–3 scale)	Ranked composite value (1–45)
4	3	15	3	45
0	3	11	3	33
4	2	10	2	20
0	2	6	2	12
4	1	5	1	5
0	1	1	1	1

The task force participants were trained on the use of the RCVs and how these values could contribute to the identification of core competencies. For example, as shown in the top boldfaced row of Table 5, a competency statement that was rated as routinely performed (4 on Frequency), highly important (3 on Importance), and highly essential (3 on Essentiality) should have a high RCV (in this case 45) and should be considered as a core competency. Similarly, as shown on the bottom row of Table 5, a competency statement that was rated as never performed (0 on Frequency), minimally important to protecting the interests of the public (1 on Importance), and somewhat essential to becoming a newly-certified

CGA (1 on Essentiality) should have a low RCV and could be identified as *not* being a core competency.

After reviewing together the RCVs associated with various benchmark competencies, the participants were able to specify an absolute standard which they applied to the values in order to differentiate *core* and *non-core* competencies.

For illustrative purposes, Table 6 documents the 22 competency statements with the highest RCVs. In the table, each statement is identified in terms of the category and sub-category with which it is associated.

TABLE 6. Competency Statements with Highest Ranked Composite Values

(Combining Frequency, Importance and Essentiality -- the top 22 out of 147 statements rated in the practice analysis)

<i>Competency statement</i>	<i>Ranked composite value (1-45)</i>	<i>Category: sub-category</i>
Applies professional ethical standards	40.5	Professionalism: Ethics and Trust
Exercises consistently high level of professional judgment	40.3	Professionalism: Ethics and Trust
Ensures confidentiality with respect to organizational or client information and data	39.0	General Management: Communicating
Protects the public interest	36.7	Professionalism: Ethics and Trust
Acts within the scope of professional competence	35.9	Professionalism Professional Self-Evaluation
Formulates, analyzes, and processes transactions in accordance with professional standards and policies	35.8	Technical Knowledge: Financial Accounting and Reporting
Ensures the reliability of financial information	35.8	Technical Knowledge: Financial Accounting and Reporting
Prepares financial statements appropriate for the users	35.8	Technical Knowledge: Financial Accounting and Reporting
Maintains and enhances the reputation of the Association and the profession	35.7	Professionalism: Ethics and Trust
Applies professional skepticism	34.7	Professionalism Professional Self-Evaluation
Knows when and how to refer to other professionals and experts	34.5	Professionalism Professional Self-Evaluation
Engages in continuing professional development as a lifelong process	34.5	Professionalism: Professional Development
Plans and exercises due diligence	34.5	Professionalism: Ethics and Trust
Ensures that information is communicated to the appropriate people on a timely basis	34.0	General Management: Communicating
Maintains positive, productive relationships with clients, stakeholders, colleagues, supervisors, and staff	34.0	General Management: Communicating
Expresses and exchanges information in a clear and concise manner	33.2	General Management: Communicating
Demonstrates professional courtesy	33.1	Professionalism: Ethics and Trust
Assesses and advises on the organization's policy on privacy of personal and corporate information	32.8	Professionalism: Ethics and Trust
Evaluates own professionalism	32.2	Professionalism Professional Self-Evaluation
Acquires, maintains knowledge and skills in financial/ non-financial fields	31.8	Professionalism: Professional Development
Prepares a wide variety of reports for specific purposes using clear, communicative, and professional language	31.4	General Management: Communicating
Listens, encourages feedback, and follows up to ensure that communications are clearly understood	31.1	General Management: Communicating

RESULTS OF THE COMPETENCY-BASED SURVEY

The outcome of the review of the RCVs and associated data, as well as the extended discussions about all of the competency statements with RCVs near the absolute standard was the identification of 126 core competencies and 21 non-core competencies.

Tests of significance were not applied to the absolute differences in the RCVs of the competency statements as the study did not represent hypothesis-driven research. Rather, the participants looked at practical differences in the empirical ratings and the RCVs as a basis for determining similarities and differences in the data and establishing the cut point used to differentiate core and non-core competencies.

The actual ratings for the competency statements and the RCVs yielded a great deal of information useful for the development of the accounting education curriculum, as well as identified priorities in examinations and other assessments. For example:

- The competency statements in the category of Professionalism have higher RCVs than competency statements in the categories of Technical Knowledge, General Management, and Leadership. That is, competency statements associated with Professionalism were rated as more frequently performed, more important to protecting the interests of the public and/or responding to the needs of the client or organization, and more essential to becoming a newly certified CGA than the competency statements associated with the remaining categories.
- Within the category of Professionalism, the competency statements with the highest RCVs are in the sub-category of Ethics and Trust.
- While 61 of the 76 competency statements in the Technical Knowledge category were identified as *core*, there is notable variation within the seven sub-categories. For example, all 12 of the Financial Accounting and Reporting competencies were identified as core, while only 8 of the 16 Finance and Financial Planning competencies were identified as core.
- While the *Importance* ratings of the competencies in General Management, Leadership, and Professionalism are all relatively high, the *Essentiality* ratings show more variability, i.e., all these competencies need *not* be “in place” at the time of certification.
- In General Management, the RCVs of the competencies in Communicating rank higher than those for Planning,

Allocating and Managing Resources, and Measuring and Monitoring.

- In Leadership, the RCVs of the competencies for Team Leadership and Development rank higher than those for Organization and Strategic Leadership, and Staff Coaching and Development.

- In Professionalism, the RCVs for the competencies for Ethics and Trust, Problem Solving, Professional Development, and Professional Self-Evaluation rank higher than those for Client Focus and Integrative Approach.

Implications and Issues for Curriculum and Examinations

Each of the 147 competency statements was written to reflect observable and measurable behaviour. The competencies were designed to highlight areas where course content and/or assignments might or might not prepare students to demonstrate competence at the expected and reasonable level identified for a newly-certified CGA. Accordingly, the association is now in process of determining required performance levels for each core competency, specifically:

- *At what level* of consistency should the newly-certified professional be able to perform each core competency?
- *At what depth* of complexity should the newly-certified professional be able to perform each core competency? For example, should the newly-certified professional be able to apply the competency in the context of highly complex, technical situations or only in the context of simple and straightforward situations?
- *In what breadth* of situations should the newly-certified CGA be able to perform each core competency? For example, should the CGA be able to apply the competency in a narrow range of targeted situations or be able to generalize to a wide range of more unique situations?

RESULTS OF THE KNOWLEDGE-BASED SURVEY

In the knowledge-based survey, respondents had rated 176 knowledge topics on the desired points of *Acquisition* and required *Proficiency Level*; they also rated the seven sub-categories of Technical Knowledge on *Frequency* and *Importance* scales.

As with the competency statements, tests of significance were not applied to the absolute differences in the ratings of the knowledge topic as the study did not represent hypothesis-driven research.

Here again, the results yielded a rich body of information for curriculum planning and certification program development. For example:

- For 166 out of 176 knowledge topics, the majority of respondents indicated that knowledge of the topics should be acquired before becoming a CGA. Only one of the 176 knowledge topics (artificial intelligence) was seen as not necessary at any point.
- For 150 knowledge topics, the majority of respondents indicated that their usage of the topic was at either the Comprehension or General Awareness level (i.e. less than Mastery).
- For only 13 knowledge topics (9 of them in Financial Accounting and Reporting) did a majority of respondents indicate their knowledge was required and used at the highest level—Mastery.
- While respondents applied the knowledge base for Financial Accounting and Reporting more frequently and rated it as more important than any other sub-category of Technical Knowledge, the knowledge bases for the other sub-categories were also rated as moderately to highly important.

In the qualitative comment section of the knowledge-based survey, respondents pointed to Information Technology and Taxation as the main areas of knowledge they had recently acquired through professional development, with the acquisition of the “soft skills” in communication, management and planning, human resources management, and team building as other frequent areas of professional development activity.

Three particular issues emerged from the knowledge-based survey for future curriculum and examination development: (1) the need for a careful identification of the knowledge topics required in order to perform the competencies at the required performance level; (2) a curriculum-wide need for reappraising the breadth and depth of required knowledge learning; and (3) the need to identify appropriate assessment tools (e.g. case studies, scenarios, experience portfolios) to evaluate whether

candidates are able to apply the knowledge and demonstrate performance of the competencies.

CONCLUSIONS

The 2002–03 CGA-Canada practice analysis represented a large-scale analysis of the environment of practicing accountants. The results of this and similar analyses in other countries have substantial potential for

- updating and prioritizing the core competencies that form the foundation of pre-professional curriculum;
- specifying required performance levels for competencies;
- designing learning objectives and outcomes;
- integrating competencies related to ethics and trust across the program;
- systematic linking of validated knowledge and competencies to curriculum, examinations, and practical experience requirements;
- investigating the optimum locus of competencies and knowledge in pre- and post-professional education, examinations, and practical experience;
- using “examination blueprints” that are fully competence-based; and
- developing “profiles of practice” for typical accounting positions such as controller or auditor that would indicate the relative weighting of sets of technical and non-technical competencies required for such positions.

Finally, this use of a practice analysis to identify and validate competencies underlying professional practice should be of interest to other professions that have an obligation to the public to systematically validate their education, examination, and experience requirements. It should also be of value to university and college business schools that provide much of the important and essential education to candidates for entry to those professions.

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APPENDIX A: SAMPLE COMPETENCY STATEMENTS AND KNOWLEDGE TOPICS FROM THE CGA-CANADA COMPETENCY FRAMEWORK, 2003

A1. Competency Statements and Examples (*indicates core competencies required of all candidates)

TECHNICAL KNOWLEDGE: Financial Accounting & Reporting

Formulates, analyzes, and processes transactions in accordance with professional standards and policies *
(e.g., revenue and expense recognition; amortization of leaseholds; foreign exchange transactions; disposals, exchanges and retirements of capital assets; accounting for grants, subsidies, contributions, and loans)

Researches, evaluates, and advises on the appropriate accounting treatment for complex transactions *
(e.g., step-by-step acquisitions, hedging, encumbrances and endowment trusts, compliance with GAAP, new financial instruments, derivatives)

Interprets and advises on the organization's reporting obligations *
(e.g., to shareholders, security commissions, regulatory agencies)

Ensures the reliability of financial information *
(e.g., pension plan reconciliations; vendor/customer reconciliations; accuracy, existence and completeness of information)

TECHNICAL KNOWLEDGE: Information Technology

Uses technological tools in the workplace *
(e.g., working paper and financial statement preparation software for assurance; tax preparation software; ERP software; online knowledge bases)

Designs and evaluates financial system platform *
(e.g., manual system, PC-based system, multi-user LAN-based system, input mechanisms, processing capabilities, storage, outputs, backup)

GENERAL MANAGEMENT: Communicating

Expresses and exchanges information in a clear and concise manner*
(e.g., explains technical information in plain language, is technologically proficient in software such as spreadsheets and PowerPoint presentations)

Ensures that information is communicated to the appropriate people on a timely basis*
(e.g., provides information to the audit committee of the board of directors)

Selects an appropriate medium to convey information, ideas, and results*
(e.g., adapts reports and presentations to the intended audience)

PROFESSIONALISM: Client Focus

Anticipates and meets the needs and expectations of internal and external clients*
(e.g., develops a sound understanding of a client's organization in order to identify its needs; determines what information is needed by various departments and provides relevant information for decision-making)

Applies client focus, recognizing and observing the need for independence and objectivity *
(e.g., puts the client's or organization's interests to the fore and establishes and maintains strong rapport, but ensures that independence in fact and in appearance is maintained to the degree demanded by the need to remain objective)

Represents clients' interests when changes are proposed to standards and regulations*

PROFESSIONALISM: Ethics and Trust

Applies professional ethical standards*
(e.g., understands and follows word and spirit of CGA-Canada Code of Ethical Principles and Rules of Conduct, maintains confidentiality, maintains independence where required, identifies and avoids conflicts of interest)

Exercises consistently high level of professional judgment*

Protects the public interest * (e.g., is proactive in maintaining and raising the visibility of the ethical nature of the profession and professional accounting standards)

PROFESSIONALISM: Integrative Approach

Aggregates information from a variety of sources to obtain the “big picture” *
(e.g., obtains multiple opinions when evaluating contentious issues and reconciles these various opinions)

Builds relationships across functional areas and synthesizes or combines ideas and approaches*
(e.g., coordinates the relevant accounting, assurance, finance, information technology, and taxation implications of events and transactions; provides litigation support)

PROFESSIONALISM: Problem Solving

Uses a systematic approach to problem solving from identifying the problem to developing and reporting recommendations*

Defines and formulates problems within a clear purpose, frame of reference, and scope*

Collects, selects, verifies, and evaluates information relevant to the defined problem*

Analyzes data for patterns, relationships, and trends*

Assembles findings and conclusions to form a sound basis for decision making*

A2. Examples of Knowledge Topics from the Survey Instrument**KNOWLEDGE TOPICS*****Knowledge related to FINANCIAL ACCOUNTING AND REPORTING***

Accounting cycle

Financial statements presentation
(e.g., *income statement, balance sheet, cash flow statement and statement of retained earnings*)

Disclosure requirements and practices
(e.g., *segmented reporting, subsequent events, related party transactions and economic dependency, and measurement uncertainty*)

Professional and accounting ethics
(e.g., *duties to clients and third parties, client confidentiality, obligations to profession and colleagues, conflict of interest*)

Knowledge related to ASSURANCE

Professional standards, ethics and legal liabilities

Audit objectives, evidence, and documentation

Internal controls
(e.g., *objectives and control procedures, documenting, assessing control risk, testing internal controls*)

Audit sampling and statistical sampling techniques
(e.g., *attribute sampling, audit sampling and tests of controls, sampling for substantive testing*)

Knowledge related to FINANCE AND FINANCIAL PLANNING

Cost of capital
(e.g., *calculating component costs and weights, weighted average cost of capital*)

Operating decisions: working capital management
(e.g., *optimal asset levels of cash, marketable securities, accounts receivable and inventory, management of cash and accounts payable, cash flow planning*)

KNOWLEDGE TOPICS

Long-term sources of funds

(e.g., bank financing, bonds, preferred shares, common shares, bond and preferred share refinancing, issuing securities)

Issues of conflict between contracting parties

(e.g., manager-investor conflict, incentive contracts, executive compensation and earnings management)

Knowledge related to GENERAL BUSINESS

Economics

Macroeconomic indicators

(e.g., unemployment and inflation rates, gross domestic product and equilibrium)

Role of governments in a market economy

Expenditure decisions and their impact on the economy

(e.g., consumption and savings decisions, investment, government expenditure, exports and imports; multiplier effects)

Law

Canadian legal system

(e.g., Constitution and Charter of Rights, court system, sources of law, legal context of business)

Tort law

(e.g., law of negligence, professional liability and negligence)

Contractual relationships

(e.g., role of contract law, offer, acceptance, consideration, intention, breach)

Ethics in the public or private sectors

(e.g., social responsibility of business, ethics in the public sector, conflicts of interest, racism and sexism in the workplace, moral reasoning, responsibility, ethics in global and multicultural business context)

Quantitative Methods

Probability and probability distributions

Sampling design, distributions and techniques

Knowledge related to INFORMATION TECHNOLOGY

Specific working knowledge of current software used in accounting, auditing, and financial applications

(e.g., spreadsheet, general ledger, financial statement presentation, auditing)

Specific working knowledge of current software used in management applications

(e.g., project management, database management, presentation software, word processing)

Management issues related to IT

(e.g., role of systems in meeting strategic goals of organizations, waste, health and environment, ethics)

E-business and e-commerce

(e.g., business-to-business, business-to-consumer, consumer-to-business, consumer-to-consumer, operational systems, integrated systems, transaction processing, enterprise resource planning)

Knowledge related to TAXATION

Income and employment benefits (e.g., computation of net income)

Corporate reorganizations (e.g., amalgamation, reorganization of capital, share-for-share exchange, winding-up of a Canadian corporation, and non-arm's length transactions)

Purchase or sale of a business (e.g., sale of shares, sale of assets)

Ethical issues in tax planning

