

## **IDENTIFYING PROFESSIONAL CERTIFICATION PROGRAMS: A JOB ANALYSIS STUDY**

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### **Abstract**

Using widely accepted published standards of quality relating to the development and maintenance of professional certification programs, this paper will identify the key components of professional certification programs, paying particular attention to the job analysis requirement. Following a brief overview of the Universal Public Purchasing Certification Council (UPPCC), the paper will detail the UPPCC's experiences in conducting its own job analysis for its two long-standing, public procurement certifications; Certified Public Purchasing Officer (CPPO) and Certified Professional Public Buyer (CPPB). The detailed account will provide the reader with an appreciation for the job analysis process and its associated importance, while allowing insight into the public procurement profession through the sharing of the resulting data.

### **INTRODUCTION**

It is no secret that credentialing has exploded in the last thirty years. Certification programs abound today in nearly every profession, occupation and discipline from crane operation and nuclear medicine to massage therapy and auctioneering. It seems as though every profession uses some sort of credentialing process to establish criteria for fairness, quality, competence or safety for products and/or professional services.

But within this climate of rapid growth, lies confusion regarding what truly constitutes a certification program. Lots of organizations allege to offer certification programs, but how many of those programs truly fit the bill?

With very few, if any, current legal restrictions in place to regulate certification bodies, “virtually any organization can claim to be one” (Durley, 2005). Therefore, when selecting a certification program, potential consumers and other key stakeholder groups should recognize that there are key components to valid professional certification programs and great care should be exercised in determining whether or not the potential selection for certification possesses those components.

### **What is a Professional Certification Program?**

According to the National Organization for Competency Assurance (NOCA), certification is defined as the “voluntary process by which a non-governmental entity grants a time-limited recognition and use of a credential to an individual after verifying that he or she has met predetermined and standardized criteria. It is the vehicle that a profession or occupation uses to differentiate among its members, using standards, developed through a consensus-driven process, based on existing legal and psychometric requirements” (NOCA, 2006).

Furthermore, professional certification programs are typically broad-based in nature and focus on common knowledge and skills encompassing an entire profession. Designations or initials are commonly issued by organizations sponsoring certification programs in order for successful individuals to be recognized as having met established criteria to colleagues within the profession and also as a means for the profession to distinguish the same.

“Time-limited” as stated in the definition implies that certification programs must have some type of renewal or recertification process. Certification does not end with the awarding of a designation and the issuance of a certificate. The issued certificate itself usually indicates a specified date of expiration.

Instead of reaching the pinnacle where one can step back, reflect, and bask in the joy that all the hard work is now over, as with certificate and degree programs; earning a certification signifies only the beginning of one’s commitment to lifelong learning. On-going requirements for certification typically consist of minimum hours of continuing education, experience, etc. designed at ensuring that the certified individual remains current and continues to evolve their knowledge and skills along with the

changing profession. If the certified individual fails to meet the various requirements of a recertification process there are often consequences for the certification holder, such as increased requirements, increased fees or the certification holder may face losing the rights to the certification completely. This means that the individual can no longer hold themselves out to the public as certified, which includes the use of any professional designation or initials issued by the sponsoring organization to recognize individuals as certified.

Equally true, certified individuals who maintain their certification(s) through regular and timely renewals or recertifications may continue to enjoy all the rights and benefits of their professional certification(s).

This time-limited aspect is a unique feature of certification programs and is a feature not found in some other types of credentialing programs. Certificate programs, for example, are essentially “training program[s] on a specific topic for which participants receive a certificate” to attest to his or her accomplishment or completion of the course. Certificate programs do not provide the authority to use a professional designation or initials after one’s name and there is no inference made of a continued obligation on behalf of the certificate holder in order to maintain the certificate (Durely, 2005).

Specific training courses are never required for candidates of certification programs, whereas training is required and is the basis for a certificate program.

Certification requirements vary greatly from profession to profession, but generally consist of some type of evaluation of a potential candidate’s education and experience as well as some form of assessment of critical knowledge needed to effectively practice the profession. This combination of pre-determined evaluation criteria (minimum levels of education and experience) combined with an examination tool whose content is supported through consensus-based research allows certifying organizations to make reliable and responsible decisions regarding the issuance of certifications that fit the program’s intended purpose and scope.

Unlike examinations for certificate programs that exist primarily to measure one’s progress to the meeting of learning objectives for a specific course, exams designed for certifications must assess broader knowledge and skills essential to competent performance within an entire given practice or profession.

### **Published Standards for Certification Programs**

Professional standards have been published to provide professional guidance to organizations and individuals in the development of various types of examinations.

The professional standards published jointly by the American Psychological Association (APA), the American Educational Research Association (AERA), and the National Council for Measurement in Education (NCME) (*The Standards for Education and Psychological Testing*) cover the construct of a vast array of examination types of which include those designed for professional certification. *The Standards for Education and Psychological Testing* do not however, address operational issues for certification programs.

Other standards published by the National Commission for Certifying Agencies (NCCA), the accrediting arm of the National Organization for Competency Assurance (NOCA) (*NCCA Standards*) and those developed by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) (*ISO/IEC 17024 Standard*) address a full range of operational requirements for organizations that sponsor professional certification programs of which rigorous requirements are included for testing.

All sets of relevant standards (*The Standards*) identified above maintain that all certification programs conduct a job analysis study in order to clearly identify the knowledge and skills that are important to performing the job for which the certification is designed. Furthermore, *The Standards* maintain that the basis for the content tested on an examination for certification be directly linked to a job analysis study. As stated in Standard 14.14 of *The Standards for Educational and Psychological Testing*:

*“The content domain to be covered by a credentialing test should be defined clearly and justified in terms of importance of the content for credential-worthy performance in an occupation or profession. A rationale should be provided to support a claim that the knowledge or skills being assessed are required for credential-worthy performance in an occupation and are consistent with the purpose for which the ... program was instituted... Some form of job or job analysis provides the primary basis for defining the content domain...”* (APA, 1999)

The purpose of *The Standards* as they relate to the job analysis is to ensure that only important knowledge, that which is validated by a group

that is representative of the diversity that exists in the larger profession, is tested on the examination.

A job analysis provides a certification program with justification for the content that it tests on its examinations. This justification or defensibility becomes extremely important to the sponsoring organization who, by providing a certification program, places itself in a position of trust within the profession it serves, and to some extent, depending on the profession, the safety of the public that utilizes the services provided by certified individuals. A well-designed job analysis provides evidence that the examination content is driven by consensus rather than other less appropriate means.

Therefore, in considering the importance of an examination to a certification program's ability to appropriately identify individuals who meet established criteria to be awarded certification coupled with the fact that *The Standards* maintain that the construct of examinations utilized for this purpose be derived from data gathered from a job analysis study, programs that do not develop examinations based on a job analysis study are not certification programs.

### **2007 UPPCC Job Analysis**

In 2007, the Universal Public Purchasing Certification Council (UPPCC) contracted with Prometric (*The Consultant*), a global leader in comprehensive testing and assessment services, to conduct a full-scale job analysis study for its two long-standing, public procurement certification programs; the Certified Public Purchasing Officer (CPPO) and Certified Professional Public Buyer (CPPB) that would adhere to the guidelines and requirements outlined in *The Standards*.

Typically, professional certification programs commission a job analysis to be performed every few years to ensure that tested content remains relevant. The target job analysis frequency for the UPPCC is every five years.

The balance of this paper will focus on the UPPCC experience through their own job analysis process while offering the reader an in-depth look into the process and the important data captured in the results.

### **Background on the UPPCC**

As extracted from the *2009-2010 UPPCC Official Candidate Handbook*:

In 1964, the National Institute of Governmental Purchasing (NIGP) introduced the Certified Public Purchasing Officer (CPPO) program. The CPPO program of NIGP was, at the time of its initiation, the only professional certification offered by a national professional purchasing association in North America.

The concept underlying the development of the CPPO program was to establish a standard by which qualifications of any public procurement official could be evaluated for a managerial or supervisory level position in public procurement. Public purchasers and personnel specialists informed NIGP that such a standard was needed.

In order to more effectively promote and elevate professionalism and ethical conduct in public sector procurement, NIGP and the National Association of State Procurement Officials (NASPO), jointly established the UPPCC in 1978 as an independent non-profit entity to administer the CPPO certification program to the public purchasing profession. The mission of UPPCC is to:

- establish, monitor, and revise requirements for certification;
- continue research efforts relating to the certification of public purchasers;
- coordinate with other NIGP and NASPO programs in order to further the certification of public procurement officers; and,
- do all things necessary and proper to promote and insure professionalism in public procurement.

Soon after the UPPCC was established, the need for a second certification program designed for non-managers became apparent. In 1979, the UPPCC joined forces with the Professional Development Committee of NIGP and developed the Professional Public Buyer (PPB) certificate. The PPB certificate was expanded into a certification program and renamed the Certified Professional Public Buyer (CPPB) in 1991 (UPPCC, 2009). To date, more than 10,000 certifications have been issued by the UPPCC.

### **CPPO Certification**

The CPPO certification level is designed for those individuals holding supervisory and/or managerial positions within a public (federal, state or local government) agency. Candidates for this level of certification possess a minimum of a Bachelor's degree or hold a CPPB certification. Minimum experience requirements range from 3 to 8 years in public

sector purchasing depending on the level of formal education, a portion of which must be in a managerial or supervisory capacity.

### **CPPB Certification**

The CPPB certification level is designed for those individuals with non-clerical purchasing responsibility without the requirement for managerial or supervisory responsibility within a public (federal, state or local government) agency. Candidates for this level of certification possess a minimum of a high school education. Minimum experience requirements range from 2 to 5 years in public sector purchasing depending on the level of formal education.

## **METHODS**

*The Consultant's* approach to the job analysis for the CPPO and CPPB programs involved several steps of which included conducting a series of meetings with subject-matter experts and a survey. The approach utilized small groups of subject-matter experts to make critical assumptions throughout the process and then used survey research as a means of double-checking or validating those assumptions.

The process (see Table 1 below) involved convening a task force group to develop a detailed catalogue of task and knowledge statements that defined the job of public purchasing in survey form. The survey would then be disseminated to the profession for validation or refutation. The survey data collected on the task and knowledge would then be used to develop test specifications which dictate the construct of the CPPO and CPPB certification exams.

*Table 1 – UPPCC Job Analysis Process*

<b>Activity</b>	<b>Date</b>
1. Planning Meeting	October 16, 2006
2. Development of Job Analysis Survey	February 12-13, 2007
3. Survey Dissemination	April 4 – May 7, 2007
4. Analysis of Survey Data	May 2007
5. Development of CPPO/CPPB Test Specifications	June 8-9, 2007

### **Planning Meeting**

First, a planning meeting was held between *The Consultant* and UPPCC Staff on December 16, 2006. During the meeting a variety of issues were addressed including a proposed schedule for the study, the diversity requirements of the various subject-matter expert groups that were needed to participate, and the distribution of the survey piece once prepared. Because significant input from the profession was needed in order for the process to be considered valid, incentives for participation were also discussed in the initial planning meeting.

### **Assembling the Job Analysis Task Force<sup>1</sup>**

The UPPCC was charged with assembling a group of 15 subject-matter experts to comprise the Job Analysis Task Force. The group of 15 was to consist of UPPCC certified individuals and be representative of the diversity within the profession. Diversity here refers to regional or work setting factors and to subject-matter-expert factors such as experience, gender, and race/ethnicity.

The UPPCC was able to achieve the diversity requirements for the group through the generous financial support of its founding organizations; the National Association of State Procurement Officials (NASPO) and the National Institute of Governmental Purchasing, Inc. (NIGP). The financial backing of these organizations allowed the UPPCC to offer travel expense reimbursement to all potential task force members to attend a face-to-face meeting in the Washington, DC metropolitan area. It would have been difficult to attract a truly representative group for this study without funding for their travel.

### **Development of the Survey**

The UPPCC Job Analysis Task Force meeting was facilitated by *The Consultant* on February 12 and 13, 2007, in Chantilly, Virginia, a suburb of Washington, DC. The purpose of the task force meeting was to develop the content for the survey.

During the meeting, participants were guided through an exhaustive process of first developing a catalogue of all essential tasks performed by public purchasing professionals. From the listing of essential tasks, the group assessed what knowledge would be needed to competently perform each given task. This exercise allowed *The Consultant* to provide an initial link between knowledge and associated task(s), building logical support for tested content.



Background information questions and rating scales to be used in the design of the survey were also presented to the group and revised as deemed appropriate.

The following task and knowledge domain areas were covered on the initial survey developed during the task force meeting:

1. Administration Aspects of Purchasing
2. Procurement Requests
3. Solicitation and Evaluation of Bids/Proposals
4. Supplier Analysis
5. Negotiation Process
6. Contract Award and Administration
7. External/Internal Relationships
8. Materials Management
9. Operational Support
10. Human Resources/Personnel
11. Forecasting and Strategies

Following the face-to-face meeting, each member of the task force was given the opportunity to review a copy of the draft survey. The review process allowed the task force to review their work in survey form prior to The Consultant releasing a final form. Comments were compiled and the survey refined with task force members via web conference.

#### **Pilot Testing the Survey**

Ten members of the public procurement profession were randomly selected by UPPCC staff to test the survey before final distribution. This group had no previous involvement in the development of the job analysis survey. Participants were asked to take the survey and then offer suggestions for its improvement based on the clarity, usability and comprehensiveness of the content.

Task force members were convened by web conference once again to finalize the survey based on comments and feedback from the pilot survey group.

#### **The Final Survey**

The final survey consisted of six sections: Section 1: Background and General Information; Section 2: Tasks; Section 3: Knowledge; Section 4: Recommendations for Test Content; Section 5: Comments; and Section 6: Industry Information.

Section 1 of the survey entitled “Background and General Information” requested demographic data from participants and well as information regarding their professional activities.

Section 2 of the survey entitled “Tasks” requested that survey participants rate the importance of 112 task statements and indicate how each task is performed on the job using the following choices:

*Tasks:*

Importance: How important is performance of the task in your current position?

Response choices: 0=Of no importance; 1=Of little importance; 2=Of moderate importance; 3=Important; 4=Very important.

Performance: Indicate whether you perform or supervise the work in your current position.

Response choices: 0=Neither perform nor supervise the work; 1=Perform the work; 2=Supervise the work; 3=Both perform and supervise the work.

Section 3 of the survey entitled “Knowledge” requested that survey participants rate the importance of 122 knowledge statements using the following choices:

*Knowledge:*

Importance: How important is the knowledge in your current position?

Response choices: 0=Of no importance; 1=Of little importance; 2=Of moderate importance; 3=Important; 4=Very important.

At the end of each domain area surveyed, participants were asked to rate how well the task or knowledge presented covered each domain area using the following five-point rating scale (1=Very Poorly; 2=Poorly; 3=Adequately; 4=Well 5=Very Well). Additionally, participants could indicate specific areas that they felt were not covered, but should be covered at the end of each domain area.

Section 4 of the survey entitled “Recommendation for Test Content” requested that survey participants using 100 percentage points indicate how much weight on the CPPO exam should be given to each of the 11 domain areas (below):

1. Administration Aspects of Purchasing
2. Procurement Requests

3. Solicitation and Evaluation of Bids/Proposals
4. Supplier Analysis
5. Negotiation Process
6. Contract Award and Administration
7. External/Internal Relationships
8. Materials Management
9. Operational Support
10. Human Resources/Personnel
11. Forecasting and Strategies

Using 100 percentage points, survey participants were asked to indicate how much weight on the CPPB exam should be given to each of the 8 domain areas (below):

1. Administration Aspects of Purchasing
2. Procurement Requests
3. Solicitation and Evaluation of Bids/Proposals
4. Supplier Analysis
5. Negotiation Process
6. Contract Award and Administration
7. External/Internal Relationships
8. Materials Management

Only 8 domain areas were surveyed for weightings for the CPPB examination, as the task force made the assumption that the Operational Support, Human Resources/Personnel, and Forecasting and Strategies areas were not relevant to the CPPB certification.

Section 5 of the survey entitled “Comments” participants were asked to provide information regarding work role changes and continuing education that is needed to address those changes by responding to the following:

- What additional professional development and/or continuing education could you use to improve your performance in your current position?
- How do you expect your work role to change over the next few years? What tasks will be performed and what knowledge will be needed to meet changing job demands?

Section 6 of the survey entitled “Industry Information” was an additional survey appended to the job analysis survey based on a partnership with the National Council for Public Procurement and Contracting (NCPCC)<sup>2</sup> which is described further in the Survey Dissemination section below.

### **Survey Dissemination**

Realizing the importance of a strong response rate, the UPPCC partnered with the NCPPC on the 2007 Job Analysis project. The NCPPC is a federation of seven organizations devoted to the furtherance of the public procurement profession. UPPCC's two founding organizations are members of the NCPPC and four more of the seven organizations that comprise the NCPPC<sup>3</sup> have representation within the leadership of the UPPCC. The UPPCC and NCPPC partnership consisted of an agreement for the exchange of data. The UPPCC allowed NCPPC to append a brief survey to the Job Analysis in exchange for access to membership rosters for each organizational member of the NCPPC to include in the distribution of the job analysis survey.

The UPPCC sent an email blast out several weeks ahead of the dissemination announcing the purpose and importance of the study along with the incentive for participation. A chance to win a 3 GB iPod for full participation in the survey was offered. Additionally, all participants were offered 1 hour of UPPCC recertification credit for completing the survey, which was representative of the estimated investment of time needed in order to complete the survey.

On April 4, 2007, *The Consultant* disseminated the online survey to 18,798 unique email addresses. The total number of surveys distributed represented membership rosters from UPPCC, California Association of Public Purchasing Officers (CAPPO), Florida Association of Public Purchasing Officers (FAPPO), National Association of Educational Procurement (NAEP), National Association of State Procurement Officials (NASPO), National Institute for Governmental Purchasing (NIGP), and the National Purchasing Institute (NPI). Two e-mail reminders were sent during survey administration: the first on April 18, 2007, and the second on April 30, 2007. The survey was closed on May 7, 2007.

### **Analysis of the Survey Data**

To recap up to this point, the purpose of the survey is to have validation (or refutation) from the profession of the assumptions made by the task force group regarding task and knowledge important to the work of public procurement professionals.

The validation of task force assumptions is made possible through the analysis of the mean importance ratings for the tasks and knowledge statements. Utilizing only the tasks and knowledge statements verified as important by survey respondents to build test specifications for

certification exams provides substantial evidence that the exam content is valid.

In order for the mean importance ratings to be assessed as important in the analysis, a cut score was established. A standard of 2.50 was used for the study as it represented the mid-way point between a rating of moderate importance (2) and important (3).

Based on the mean importance ratings, tasks and knowledge statements were sorted into one of three categories: Pass (At or above 2.50), Borderline (2.40 to 2.49), or Fail (Less than 2.40). Those task and knowledge statements sorted into the Pass category were considered eligible for inclusion in the subsequent development of the test specifications for CPPO and CPPB. Those sorted into the Borderline category were flagged for additional review by committee for determination and those sorted into the Fail category were not recommended for inclusion in the development of the test specifications.

During the test specification development process, subject-matter experts were not precluded from including task and knowledge statements that scored mean importance ratings below 2.50; however if borderline or failing statements are to be recommended for inclusion, a compelling written rationale was required to document the decision.

#### **Assembling the Test Specifications Committee<sup>4</sup>**

The UPPCC was charged with assembling a second group of subject-matter experts to comprise the Test Specifications Committee. The diversity requirements for this second group of 15 were consistent with the requirements for the initial task force group, but with one difference. Approximately half of this new group needed to be filled with members from the original task force, while the other half needed to be filled with new members. This composition was essential in order to preserve the intent of the original group in the development of the survey content as it was important to gain fresh perspective.

#### **Development of the Test Specifications for the CPPB and CPPO Examinations**

On June 6-8, 2007, a teleconference meeting of the Test Specifications Committee was held to finalize the tasks and knowledge statements that are important for inclusion on the CPPO and CPPB examinations. After the group finalized the task and knowledge, it established the weightings for each of the content domains. Finally, the Test Specifications Task Force Committee linked the surviving tasks to the associated knowledge.

## RESULTS

A total of 1,848 responses of 16,775 invitations were submitted, representing a response rate of 11%. Based on the analysis of survey responses, “a representative group of public procurement professionals completed the survey in sufficient numbers to meet the requirements for statistical analysis of the results” (Schloder, 2007).

Notable demographic characteristics of survey respondents are highlighted below:

- 27.5% worked in the public purchasing for 16-25 years
- 24.8% worked in their current position for 6-10 years
- 24.9% were directors/managers of purchasing
- 25.8% worked for state/provincial government entities
- 30.9% worked in procurement departments with 1-5 staff members
- 33.4% worked in organizations with 1,001-5,000 employees
- 31.2% had a bachelor’s degree level education
- 22.8% had an annual salary of \$40,000-\$49,000 US Dollars
- 44.9% were 46-55 years of age
- 59.2% were female.

It is also interesting to note that responses were received from every state in the U.S. and 10 of the 13 Canadian provinces.

### Mean Ratings of Task and Knowledge

Respondents rated the importance of all individual tasks and knowledge statements surveyed.

An analysis of the mean importance ratings revealed that of the 122 knowledge statements that were surveyed, only 85 (69.7%) passed or were validated as important for competent professional practice.

Table 2 lists the ten highest rated or passing knowledge statements while Table 3 lists the ten lowest rated or failing knowledge statements.

*Table 2  
Highest Rated Knowledge Statements*

Knowledge Statement	Mean Pass Rating (2.50 – 4.00)

<b>Domain 1: Administration Aspects of Purchasing</b>	
1. procurement department goals and objectives	3.55
3. organizational policies and standard procedures	3.63
15. purchasing policies and procedures	3.81
24. effective oral and written communication	3.69
27. code of ethics and professional values	3.72
28. problem-solving processes	3.60
<b>Domain 2: Procurement Requests</b>	
10. established laws, policies, and procedures	3.65
<b>Domain 3: Solicitation and Evaluation of Bids/Proposals</b>	
2. appropriate contractual terms and conditions	3.66
3. methods of procurement: --b. competitive sealed bids and proposals	3.62
<b>Domain 6: Contract Award and Administration</b>	
1. elements of a contract	3.54

Table 3  
Lowest Rated Knowledge Statements

Knowledge Statement	Mean Fail Rating (0.00 - 2.40)
<b>Domain 8: Materials Management</b>	
5. inventory management techniques and principles (e.g., Just In Time (JIT); min/max levels; Last In First Out (LIFO); First In First Out (FIFO))	1.68
6. warehousing, insurance, and logistics requirements	1.64
8. inventory reconciliation process	1.57
9. storage, disposal, and transportation of hazardous and regulated materials	1.66
10. warehousing trends	1.39
<b>Domain 9: Operational Support</b>	
1. central printing and copying operations	1.52
3. fleet management	1.32
5. mail service operations	1.36
6. property/facility maintenance	1.44
7. telecommunications management	1.46

This process of validating, as indicated in Table 2, or refuting, as indicated in Table 3, the assumptions of the task force ensures that the knowledge that is to be tested on a certification examination is considered to be important by the profession as a whole and not only by

a select group of individuals. In the absence of this process, candidates could be potentially tested for certification on knowledge deemed by the profession to be unimportant or even irrelevant.

This step in the process allowed the UPPCC to exclude specific knowledge areas and even entire domain areas from the certification examinations based on supporting evidence.

### **Subgroup Analysis of Tasks and Knowledge Ratings**

Following the analysis of the mean importance ratings of task and knowledge statements for the entire survey pool, it was necessary to then analyze the level of agreement of what is important to include in the CPPO and CPPB examinations at the subgroup level. This type of analysis is important in providing support and validation for the content of the exam (important tasks and knowledge statements) where it relates to the overall scope of the certification.

The index of agreement provides an appropriate computation method for assessing relative agreement or disagreement between groups.

The index of agreement values as calculated revealed the following:

- There was a high level of agreement regarding the importance of the tasks and knowledge statements surveyed.
- The level of agreement among U.S. and Canadian groups was such that it supported the use of one uniform examinations for each certification, rather than country-specific examinations.
- Respondents with 26 years or more of experience tended to rate tasks and knowledge as more important than those with 25 years or less of experience.
- Respondents in lower-level positions tended to rate tasks and knowledge as more important than those in middle level and higher level positions.
- Respondents who hold a CPPO certification tended to rate most tasks as more important than those who hold a CPPB certification.
- CPPB certified respondents with 26 years or more of experience tended to rate tasks and knowledge as more important than those with 25 years or less of experience, particularly in the domains of Human Resources/Personnel and Forecasting and Strategies.



The index of agreement, or non-agreement on certain tasks and knowledge statements for these two important groups became the bases of developing two different test specification documents; one for the CPPO examination and one for the CPPB examination, from the full catalogue of task and knowledge statements surveyed.

### **Content Coverage Ratings**

Using a five-point scale (1=Very Poorly, 2=Poorly, 3=Adequately, 4=Well, and 5=Very Well), participants were asked to rank how well the surveyed tasks and knowledge statements covered key aspects in each of the eleven domain areas. The purpose of this data is to provide an indication of how well the survey covered key content.

Means for the task domain areas ranged from 3.72 to 3.92 and the means for the knowledge domain areas ranged from 3.78 to 3.98. These means “provide supportive evidence that the tasks and knowledge were [at a minimum] adequately covered on the survey” (Schloder, 2007).

Survey respondents also had the ability to provide the UPPCC with any additional recommendations for tasks and knowledge statements that the respondent felt was important, but not covered in the surveyed tasks and knowledge statements. Data captured in this area was considered by the Test Specifications Committee in the development of the test specifications for the CPPO and CPPB.

### **Test Content Recommendations**

Survey participants were asked to provide their recommendations for the weightings of the domain areas for the CPPO and CPPB examinations. To solicit this information from participants, the following question was asked: “Listed below are topic areas that may be covered on the Certified Professional Public Buyer (CPPB) [or Certified Public Purchasing Officer (CPPO)] exam. Please indicate what percentage of each area should be included in the exam. Please enter only whole numbers (e.g., 29, 42, 7). If you feel an area should not be represented on the examination, enter 0 in the space provided. Please be sure your responses sum to 100.”

The mean weights across all survey respondents for the CPPB exam are presented in Table 4, while the results for the CPPO exam are presented in Table 5. This data was considered by the Test Specifications Committee in making their decisions on domain area weightings for the test specifications document.

*Table 4*  
*Survey Respondents' Test Content Recommendations for the CPPB Examination by Mean Percentages and Standard Deviations*

<b>Topic Areas</b>	<b>Mean %</b>	<b>SD %</b>
1. Administration Aspects of Purchasing	14.13	7.68
2. Procurement Requests	14.23	6.35
3. Solicitation and Evaluation of Bids/Proposals	19.77	7.20
4. Supplier Analysis	9.09	4.30
5. Negotiation Process	11.28	5.18
6. Contract Award and Administration	14.79	6.06
7. External/Internal Relationships	9.39	5.00
8. Materials Management	7.68	5.12

*Table 5*  
*Survey Respondents' Test Content Recommendations for the CPPO Examination by Mean Percentages and Standard Deviations*

<b>Topic Areas</b>	<b>Mean %</b>	<b>SD %</b>
1. Administration Aspects of Purchasing	12.73	7.03
2. Procurement Requests	9.20	5.29
3. Solicitation and Evaluation of Bids/Proposals	13.27	6.71
4. Supplier Analysis	7.34	3.53
5. Negotiation Process	10.24	4.38
6. Contract Award and Administration	11.55	4.95
7. External/Internal Relationships	8.39	4.23
8. Materials Management	6.47	3.78
9. Operational Support	6.73	3.66
10. Human Resources/Personnel	7.29	4.86
11. Forecasting and Strategies	7.39	4.97

### **Development of Test Content Weights**

As previously indicated, the Test Specifications Committee convened for several days in June 2007 via teleconference to develop the test specifications document for the CPPO and CPPB examinations. The test specifications were derived from the analyzed survey data.

Based on the mean importance ratings, the Committee made their recommendations for CPPO and CPPB test specifications. The tasks and knowledge statements presented in the operational support domain area for CPPO were not validated as important (received failing mean

importance scores) by survey participants and therefore the entire operational support domain area was not recommended for inclusion in the CPPO test specifications document by the Committee. The reverse occurred for CPPB. Survey respondents considered several tasks and knowledge statements within the human resources/personnel and forecasting and strategies domain areas as important and were therefore recommended for inclusion in the CPPB test specifications document by the Committee. This brought the total domain areas for both CPPO and CPPB examination to 10 total from the original 11 for CPPO and 8 for CPPB.

The Committee then participated in an exercise to assign percentage weightings to each of the ten domain areas for both exams. Committee members assigned their weightings individually and then the weightings were compiled for group review. The domain weightings of both survey participants and the initial job analysis task force group were then revealed for comparison. This comparison exercise provided a basis for discussion in preparation for final recommendations on domain weightings for the examinations.

Test Specification Committee members also considered appropriate cognitive levels for questions and the percentage of each level that should make up each domain area. With the assistance of *The Consultant's* test developers, the Committee determined that a combination of both Recall and Application level questions were appropriate for use on both the CPPO and CPPB certification examinations. Descriptions of the two cognitive levels are provided below:

- Recall: Identify terms; specific facts; methods; procedures; basic concepts; basic theories; principles and processes
- Application: Apply concepts and principles to new situations; recognize relationships among data; apply theories to practical situations; calculate solutions to mathematical problems; interpret charts and translate graphic data; classify items; interpret information

Test specifications recommendations including the percentage weights by domain area, the number of questions, and the percentage of questions by cognitive level are provided in Tables 6 and 7.

*Table 6  
Test Content Weights for the CPPB Examination Recommended by the  
Test Specifications Committee*

CPPB Content Areas	Number of Knowledge Statements	TS Committee Percentage Recommendations	Number of Test Items	Cognitive Level	
				Recall	Application
1. Administration Aspects of Purchasing	23	19.00%	33	50%	50%
2. Procurement Requests	10	17.00%	30	30%	70%
3. Solicitation and Evaluation of Bids/Proposals	18	20.00%	35	25%	75%
4. Supplier Analysis	6	8.00%	14	30%	70%
5. Negotiation Process	2	3.00%	5	60%	40%
6. Contract Award and Administration	10	18.00%	32	40%	60%
7. External/Internal Relationships	10	9.00%	16	25%	75%
8. Materials Management	1	2.00%	2	100%	0%
9. Human Resources/Personnel	3	2.00%	4	50%	50%
10. Forecasting and Strategies	2	2.00%	4	50%	50%
<b>Total</b>	<b>85</b>	<b>100.00%</b>	<b>175</b>	<b>---</b>	<b>---</b>

Table 7  
Test Content Weights for the CPPO Examination Recommended by the Test Specifications Committee

CPPO Content Areas	Number of Knowledge Statements	TS Committee Percentage Recommendations	Number of Test Items	Cognitive Level	
				Recall	Application
1. Administration Aspects of Purchasing	26	15.00%	26	20%	80%
2. Procurement Requests	10	8.00%	14	30%	70%

CPPO Content Areas	Number of Knowledge Statements	TS Committee Percentage Recommendations	Number of Test Items	Cognitive Level	
				Recall	Application
3. Solicitation and Evaluation of Bids/Proposals	20	10.00%	18	40%	60%
4. Supplier Analysis	6	7.00%	12	30%	70%
5. Negotiation Process	3	8.00%	14	40%	60%
6. Contract Award and Administration	10	10.00%	18	30%	70%
7. External/Internal Relationships	10	15.00%	26	40%	60%
8. Materials Management	2	3.00%	4	75%	25%
9. Human Resources/Personnel	10	14.00%	25	40%	60%
10. Forecasting and Strategies	8	10.00%	18	40%	60%
<b>Total</b>	<b>105</b>	<b>100.00%</b>	<b>175</b>	<b>---</b>	<b>---</b>

### Linkage of Task and Knowledge/Skill Statements

Finally, the Test Specification Committee spent time linking tasks with knowledge statements. Knowledge is typically an abstract concept and therefore difficult for subject matter experts to develop a comprehensive listing of all knowledge needed in a given profession unless the knowledge is grounded in the performance of specific job tasks. Tasks however, cannot be tested on an examination, only the knowledge and skill needed to competently perform the task.

The tasks were developed in the initial job analysis task force meeting as a means to arrive at important knowledge. The test specifications documents represent the important knowledge only, but linking the knowledge back to the important tasks is still a necessary process in providing evidence within the job analysis study that the knowledge is important to the performance of at least one, if not many important public procurement tasks.

## **CONCLUSION**

In summation, the job analysis conducted for the CPPO and CPPB certification programs resulted in comprehensive specifications<sup>5</sup> in which to build the certification examinations. Through the job analysis process, the UPPCC is ensured that the examinations used to determine certification are based on tasks and knowledge that have been validated by the public procurement profession as important to competent performance.

Based on the various standards of quality for testing and professional certification identified within this paper, programs that base their examination content on a means other than a comprehensive job analysis process, such as the content of a specific course or training program, are not by definition or by standards, certification programs.

Therefore, a wise approach to identifying true professional certification programs from the myriad of “so-called” certification programs is to first look for evidence of a job analysis study and its relationship to examination content.

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## NOTES

1. The UPPCC Job Analysis Task Force consisted of Denni Baumer (California), Veronica Caston-Frost (Michigan), Alfred Elias (Virginia), Samuel Feinberg (District of Columbia), Quintin Furrow (Oregon), Mindy Giberstone (New York), Goretti Mak (British Columbia), Jim O'Neill (Colorado), Alan Philips (Texas), Tony Reed (Maryland), Paul Reister (New York), Jena Richmond (Washington), Ruth Smith (Colorado), Charles Tedesco (Virginia), and Heather Turner (Missouri).
2. The National Council for Public Procurement and Contracting (NCPCC), founded on August 5, 2006 by seven charter associations (CAPPO, FAPPO, NAEP, NASPO, NCMA, NIGP, NPI) whose common focus is public procurement and contracting. Collectively, the NCPCC represents more than 37,000 members who are responsible for in excess of 2 trillion dollars of spend annually.
3. The National Contract Management Association (NCMA), the seventh member of the NCPCC chose not to share its membership roster with UPPCC for distribution of the job analysis survey.
4. The UPPCC Test Specifications Committee consisted of Jon Bischetsrieder (California), Don Buffum (Mississippi), Veronica Caston-Frost (Michigan), Alfred Elias (Virginia), Samuel Feinberg (District of Columbia), Elene Fromanger (Quebec), Quintin Furrow (Oregon), Wendy Geltch (Florida), Mindy Giberstone (New York), Norma Hall (South Carolina), Jim Miluski (Missouri), Louis Moore (Florida), Tony Reed (Maryland), and Jena Richmond (Washington).
5. Final test specifications are publically available on the UPPCC website and are referred to as the 2008 UPPCC Body of Knowledge, [www.uppcc.org](http://www.uppcc.org).

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