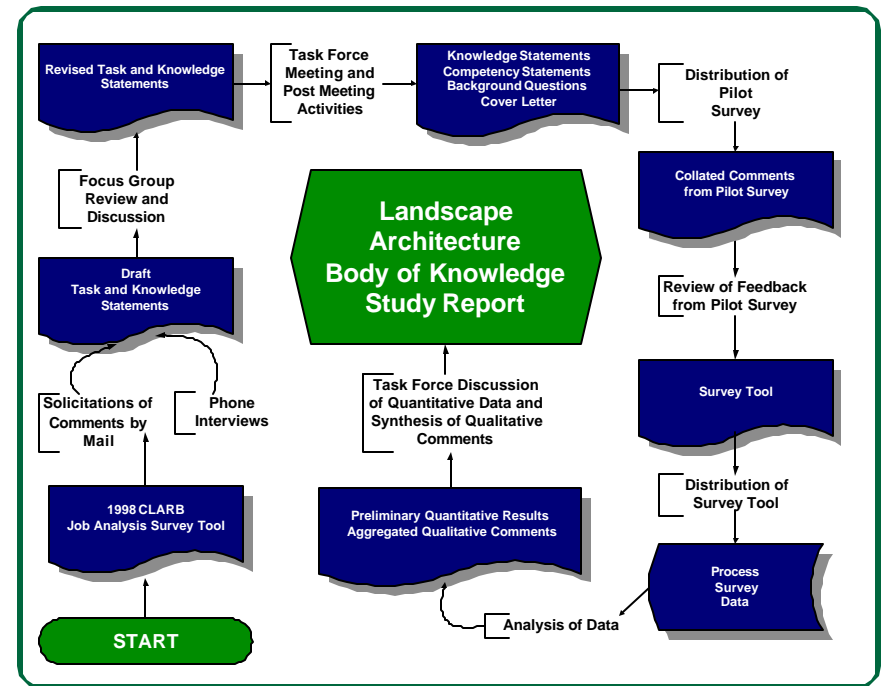# Description of the Study[2]

The Landscape Architecture Body of Knowledge study was designed to address two questions:

1. What are the core competencies shared by the profession in general that help define the landscape architecture profession?

2. What is the fundamental body of knowledge that should be expected of all graduates from accredited landscape architecture degree programs?

The approach used to answer these two questions consisted of several iterative steps that required input from incumbents in the field of landscape architecture. During these steps both detailed knowledge and competency statements identifying the components of the Body of Knowledge for consideration by the academic community or for post-graduation on-the-job learning were developed.

The LABOK Task Force was established in response to these questions raised through the Landscape Architectural Accreditation Board's regular review of accreditation standards. The Task Force consists of representatives of the American Society of Landscape Architects (ASLA), the Canadian Society of Landscape Architects (CSLA), the Council of Educators in Landscape Architecture (CELA), the Council of Landscape Architectural Registration Boards (CLARB), and the Landscape Architectural Accreditation Board (LAAB). The Task Force authorized The Chauncey Group International to perform the Body of Knowledge study described in this part of the report.

Chauncey Group's role was to facilitate the multiple interactions with Landscape Architect subject matter experts and/or incumbents in the field. The graphic in the right column summarizes the steps followed.

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[2] Prepared by Nancy Thomas, SPHR, The Chauncey Group International.

Survey Development

The development process used input from several groups of subject matter experts to develop, critique, and refine the study instrument. The initial survey content began with an examination of the master list of tasks and knowledge statements surveyed in the 1998 CLARB job analysis, *The Practice of Landscape Architecture: A Study of the Activities and Knowledge Areas for the Licensed Landscape Architect* (Williamson, Montgomery, Bonell, June 10, 1998). The job analysis report was based on responses from 1,718 licensed landscape architects. These statements were shared with a group of individuals employed in the field of landscape architecture. The participating organizations provided names for the initial review of the task and knowledge statements. Some individuals were contacted directly by telephone and others were mailed the documents for comment. Appendix A contains the list of those who participated in this step and the collated comments from the various respondents.

On January 31-February 1, 2003, The Chauncey Group facilitated a focus group held in Washington, D.C., to review the expanded list of tasks and knowledge statements developed during the previous step. Appendix B contains the list of participants at this meeting.

Following the meeting, several discussions were held among the members of each of the participating organizations. It was decided that the draft survey that had resulted from the focus group session might connote too strong a focus on the licensure elements of the profession. As a means to address the academic goals of the study in particular and to reach the broadest audience in general, a meeting of the Task Force was convened in May 2003 to revise the survey tool. Appendix C contains the summary of that meeting. As noted in the meeting summary, the transformation of tasks to integrative competency statements required additional work on the part of the Task Force members. Individual assignments were submitted to The Chauncey Group and were collated for the two Web-based conferences held in June 2003. Appendix C contains the results of those calls.

The next step in the development process was to send the complete package to a pilot group of respondents. The people identified for the pilot group were asked to complete the survey and to record their comments on the review form included in their packages. Appendix D contains the cover letter, the review form and the list of those individuals who were invited to respond. A total of ten responses were received. Their comments were shared with Sara Katherine Williams, FASLA, Task Force chairperson for final disposition.

Many of these responses dealt with ambiguities or possible alternative interpretations. Statements were slightly edited to clarify and simplify without losing the depth and breadth that were so important to participants at each step of the process. The pilot group reviewed the documents with fresh eyes and were valuable in pointing out phrases that would be more specific, key issues that needed to be made obvious, and terminologies that might be misleading or not clear to the range of practice and scholarship the study hoped to address.

A major concern from the beginning was to keep the study instrument from becoming too cumbersome. Early on, each group of participants moved away from explicit simplistic statements toward trying to incorporate them into more integrative concepts. For example, plants are important to the profession, but constant reference to topics like plants everywhere they are important would risk lengthening the survey, which in turn might affect the response rate. It was determined to embed such topics into other statements. The Task Force's perspective was that one must understand plants to enable acquisition and application of the knowledge statements listed in the survey. The same can be said for climate, soils, and other basic knowledge areas.

Throughout the various steps above, the expertise provided by the different panels and reviewers resulted in a survey that they believed contained the important content and competencies for those in landscape architecture. The purpose of the survey was to establish formal confirmation that the knowledge and competency statements were in fact what should be included in the Landscape Architecture Body of Knowledge.

In November 2003, the survey was distributed to 1,458 members of the landscape architecture community. Lists of names were supplied by ASLA, CELA, CLARB, and CSLA and a short list was provided by one of the members of the Task Force. Each organization approached the development of their lists with the goal of reaching the broadest possible group of individuals. The ASLA developed its list by selecting 250 associates and 250 full members including Fellows. Each group of 250 was then organized by zip code. One name from each zip code was selected until the required number of names was reached. The CELA list was generated in two ways: (1) The first part of list was composed of a junior faculty member (Assistant Professor), a senior faculty member (Associate or Full Professor), and the Department or Program Head from each CELA School. The second part of list contained alumni who are not currently working at an academic institution but were identified by CELA Department or Program Heads. The CLARB list contained 505 names selected from licensed landscape architects and those currently in the licensure process. Because the names in the database tend to be concentrated in certain areas such as those states in which people apply to CLARB for the examination, additional steps were taken to ensure a uniform distribution of people. All of the names were sorted by the first three digits in their zip code. The first person from each three-digit area was then selected. The CSLA distribution was developed in three different ways. (1) CSLA identified 180 full members from the 10 component associations. Every fourth person was selected from each of the component lists. Because the

survey was only produced in English, the representation from Quebec was limited to Anglophones. (2) Each of the other groups (ASLA, CELA, and CLARB) had identified individuals with Canadian addresses, totaling 38, which were included in the CSLA distribution. (3) It was also desired that associates be included in the study. For that reason, The Chauncey Group sent an additional 32 packages without address labels for the associates identified by CSLA. All 32 packages were distributed.

Each of the organizations created the lists independently. The Task Force suggested that it might be possible that a person's name would appear on more than one list. Before the final mailing labels were produced, The Chauncey Group compared the lists and dropped duplicate names, randomly assigning the person to only one list.

A total of 255 surveys were returned. Colored labels were on the return envelopes for the U.S. mailing to match the organization that provided the name. The Canadian forms were collected by CSLA and returned in a group. Table 1 contains the breakdown of the surveys received, based on the list from which they originated.

Table 1: Surveys Received by Organization

Organization	Number of Names Post Edit for Duplicates	Number Received
ASLA	481	76
CELA	222	51
CLARB	489	91
CSLA	250	31
Task Force	16	6
Total	1,458	255

Each package contained a cover letter in which the purpose of the survey was described, a survey, and directions on how to return the survey. Appendix E contains the components of the mailing.

Components of the Survey

SECTION 1: BODY OF KNOWLEDGE

The first section contained the knowledge statements organized in nine (9) domains:

1. LANDSCAPE ARCHITECTURE HISTORY AND CRITICISM
2. NATURAL AND CULTURAL SYSTEMS
3. DESIGN AND PLANNING THEORIES AND METHODOLOGIES
4. PUBLIC POLICY AND REGULATION
5. DESIGN, PLANNING AND MANAGEMENT AT VARIOUS SCALES AND APPLICATION
6. SITE DESIGN ENGINEERING: MATERIALS, METHODS, TECHNOLOGIES AND APPLICATIONS
7. CONSTRUCTION DOCUMENTATION AND ADMINISTRATION
8. COMMUNICATION
9. VALUES AND ETHICS IN PRACTICE

Each of the knowledge statements had three (3) rating scales. The first scale, Time of Acquisition, focused on when the knowledge should be acquired:

When should this knowledge be primarily learned or attained?

0. Not required at all
1. Before entrance to a university program
2. In a first professional degree university program
3. In a post-professional degree university program
4. In an entry-level employment position
5. In a mid-level employment position
6. In a continuing education program

The second and third scales were intended to measure the level of knowledge for a landscape architect at two different points in time:

To what level should the knowledge be acquired at completion of a first professional degree?

To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work?

0. Unnecessary — not required at all
1. Exposure — sufficiently aware of the knowledge to be able to look it up
2. Comprehension — able to discuss the concepts involved
3. Application — able to use the knowledge to solve problems
4. Mastery — able to apply the knowledge to new problems, to integrate information and to create, synthesize, and evaluate solutions

At the end of each domain, respondents were asked how well the knowledge statements in the domain covered the important aspects and were provided the opportunity to add statements if necessary.

Section 2: Competencies

The second section contained the competencies organized in eight (8) domains:

1. **Landscape Architecture History and Criticism**

2. **Natural and Cultural Systems**

3. **Public Policy and Regulation**

4. **Design, Planning and Management at Various Scales and Application**

5. **Site Design Engineering: Materials, Methods, Technologies and Applications**

6. **Construction Documentation and Administration**

7. **Communication**

8. **Values and Ethics in Practice**

Each of the competencies represented an integrative use of the knowledge and skills acquired as the result of formal academic program(s) or on-the-job training and experience. Respondents were asked to evaluate the importance of each competency at two different time periods:

How important is this competency at completion of a first professional degree in landscape architecture?

How important is this competency before an individual takes professional responsibility for his/her landscape architectural work?

0. No importance
1. Moderately important
2. Important
3. Very important

At the end of each domain, respondents were asked how well the competencies listed in the domain covered the important aspects and were provided the opportunity to add statements if necessary.

Section 3: Background and General Information

The information gathered from the responses to these questions was evaluated by the Task Force during a Web conference held in February 2004. As part of the review, the Task Force examined the analysis of the background questions. The complete analysis is provided in Appendix F. Of particular concern was that the number of respondents who might represent the licensed community might be more prevalent than those in non-licensed industry settings. One question in which they were asked to indicate the organizations to which they held membership or in which they participated showed that many of the respondents were members of more than one organization. Table 2 on the next page summarizes the responses.

Table 2: Respondent Participation in Organizations

ASLA	CSLA	CELA	CLARB	LAAB	NUMBER OF ORGANIZATIONS	NUMBER OF RESPONDENTS
X		X	X	X	4	4
X	X	X		X	4	1
X		X	X		3	3
X		X		X	3	3
X			X	X	3	2
X	X	X			3	1
X	X		X		3	1
X			X		2	57
X		X			2	32
X	X				2	7
	X	X			2	3
	X		X		2	2
X				X	2	1
X					1	95
	X				1	21
			X		1	10
		X			1	5
					0	7

The largest group of respondents (207) indicated that they were members of ASLA. CLARB was represented by 79 respondents, CELA by 52, and CSLA by 36. The Task Force suggested that the 11 who responded that they were associated with LAAB may have served as visiting team members.

The membership in multiple organizations makes it very difficult to make statements about the representativeness of the sample from each group. As noted above, the lists generated by the various organizations had to be edited to eliminate duplicates. Although only one survey was sent to each individual, it is clear that there is strong cross-membership. Nearly 46 percent of the respondents identified themselves as related to more than one organization.

The Task Force reviewed these results along with the responses to the other background questions. The characteristics of the group appear to be comparable to those of the groups they represent. As a follow-up activity, each of the individual organizations may want to compare the characteristics of their members to the characteristics of the survey respondents.

This section offered the respondents a final opportunity to comment on the survey. The comments are summarized in Appendix J.

Subgroup Analyses

Throughout the development of the study, discussions included references to the possibility that large differences in opinion may exist based on type of practice, size and type of organization or other demographic variables. Appendix I contains the mean knowledge ratings by subgroup from three different perspectives based on the responses to the following background questions:

1. In how many states, provinces, or territories are you currently licensed as a landscape architect?

   Group 1: None (n=55)

   Group 2: One (n=104)

   Group 3: More than one (n=96)

2. Which of the following best describes the type of organization in which you are currently working?

   Group 1: Exclusively landscape architectural firms (n=65)

   Group 2: Multidisciplinary firms (n=75)

   Group 3: Education-academic positions (n=45)

   Group 4: Others including government (n=56)

3. For how many years since graduation have you been in Landscape Architecture?

   Group 1: One to five years (n=39)

   Group 2: Six to twenty years (n=62)

   Group 3: Twenty-one or more years (n=138)

Tables 3-7 provide consistency information for each of the three sub-group analyses. The tables show the amount of agreement in either passing or failing each of the knowledge or competency statements according to the relevant criterion.

For example, a knowledge statement was considered to have passed the time of acquisition criterion if the average rating of the subgroup was 2.50 or greater. Similarly, a statement was considered to have failed the time of acquisition criterion if the average rating was less than 2.495. If two groups passed the same 64 knowledge areas and failed the same two knowledge areas (out of the 68 total knowledge areas), the consistency index would be computed as: Agreement =(64+2)/68=.97. (Note: scale in each table to the right refers to the value that constituted "passing" on the question posed.)

Agreement on all of the rating scales on all of the questions was high, ranging from .78 to 1.00. Based on these values, it is reasonable to conclude that there is high agreement regardless of type or membership of a particular subgroup.

Table 3: Rating of Knowledge at Time of Acquisition

Rating of Knowledge Time of Acquisition - Overall agreement between subgroups
When should this knowledge be primarily learned or attained?
Scale = 2.5

		1	2	3	4
In how many states, provinces or territories are you currently licensed as a landscape architect?					
1	None				
2	One	0.87			
3	More than one	0.83	0.88		
Which of the following best describes the type of organization in which you are currently working?					
1	Exclusively LA firm				
2	Multidisciplinary firm	0.84			
3	Educators	0.81	0.78		
4	Others including government	0.91	0.88	0.84	
For how many years since graduation have you been in landscape architecture?					
1	1-5				
2	6-20	0.84			
3	21 or more	0.91	0.88		

Table 4: Rating of Command of Knowledge at Time of Degree

Rating of Command of Knowledge at Time of Degree - Overall agreement between subgroups
To what level should the knowledge be acquired at completion of a first professional degree?
Scale = 2

		1	2	3	4
In how many states, provinces or territories are you currently licensed as a landscape architect?					
1	None				
2	One	0.97			
3	More than one	0.91	0.94		
Which of the following best describes the type of organization in which you are currently working?					
1	Exclusively LA firm				
2	Multidisciplinary firm	0.96			
3	Educators	0.88	0.87		
4	Others including government	0.94	0.92	0.90	
For how many years since graduation have you been in landscape architecture?					
1	1-5				
2	6-20	0.95			
3	21 or more	0.88	0.94		

Table 5: Rating of Command of Knowledge Before Taking Professional Responsibilty

Rating of Command of Knowledge Before Taking Professional Responsibility - Overall agreement between subgroups
To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work?
Scale = 2

		1	2	3
In how many states, provinces or territories are you currently licensed as a landscape architect?				
1	None			
2	One	0.99		
3	More than one	0.99	0.97	
Which of the following best describes the type of organization in which you are currently working?				
1	Exclusively LA firm			
2	Multidisciplinary firm	0.99		
3	Educators	0.99	0.97	
4	Others including government	0.97	0.99	0.99
For how many years since graduation have you been in landscape architecture?				
1	1-5			
2	6-20	0.97		
3	21 or more	1.00	0.97	

Table 6: Rating of Importance of Competencies at Time of Degree

Rating of Importance of Competencies at Time of Degree - Overall agreement between subgroups How important is this competency at completion of a first professional degree in landscape architecture? Scale = 1.5	1	2	3	4
In how many states, provinces or territories are you currently licensed as a landscape architect?				
1 None				
2 One	0.98			
3 More than one	0.92	0.94		
Which of the following best describes the type of organization in which you are currently working?				
1 Exclusively LA firm				
2 Multidisciplinary firm	0.94			
3 Educators	0.96	0.90		
4 Others including government	0.94	0.92	0.98	
For how many years since graduation have you been in landscape architecture?				
1 1-5				
2 6-20	1.00			
3 21 or more	0.96	0.96		

Table 7: Rating of Importance of Competencies at Time of Assumption of Professional Responsibilities

Rating of Importance of Competencies at Time of Assumption of Professional Responsibilities - Overall agreement between subgroups How important is this competency before an individual takes professional responsibility for his/her landscape architectural work? Scale = 1.5	1	2	3	4
8. In how many states, provinces or territories are you currently licensed as a landscape architect?				
1 None				
2 One	0.98			
3 More than one	0.98	1.00		
10. Which of the following best describes the type of organization in which you are currently working?				
1 Exclusively LA firm				
2 Multidisciplinary firm	1.00			
3 Educators	0.98	0.98		
4 Others including government	0.98	0.98	1.00	
13. For how many years since graduation have you been in landscape architecture?				
1 1-5				
2 6-20	1.00			
3 21 or more	0.98	0.98		

Study Findings

Survey results were presented to the members of the Task Force on a Web-based conference call in February 2004. For the Time of Acquisition scale, data was presented in two ways: means and standard deviations and percent of response. Because of the type of scale, the means were of interest but not as meaningful as the distribution of responses. To meet the first goal of the project, the primary focus of the survey in terms of time were topics to be acquired by "completion of a degree program" or "upon assumption of professional responsibility." Those knowledge statements that seemed to have higher than expected values in other responses such as "not required" or "continuing education" were discussed and possible explanations were noted. The knowledge statements are presented in Appendix G as two different tables. Table A in Appendix G contains the mean ratings and the standard deviation for all three scales for the knowledge statements.

Table 8 below is an excerpt from Table A and shows the ratings for the two knowledge statements for Domain 1, Landscape Architecture History and Criticism.

Table 8: Excerpt from Appendix G, Table A.

	Time of Acquisition		Command of Knowledge at Time of Degree		Command of Knowledge at Time of Professional Responsibility	
	Mean	SD	Mean	SD	Mean	SD
I. Landscape Architecture History and Criticism						
history of landscape architecture and allied professions	2.00	0.23	2.15	0.69	2.57	0.85
historic preservation principles	2.57	1.13	1.69	0.83	2.27	1.01

The Time of Acquisition mean rating for the first knowledge statement is 2.00, which corresponds to the rating of 2, "In a first professional degree university program." The standard deviation is a statistic that characterizes the magnitude of the differences among the individual ratings. The more spread out the ratings, the larger the standard deviation. The level of agreement is much tighter for the first knowledge statement than for the second knowledge statement, with a mean rating that fell between 2 and 3. Also of

interest is the fact that the means for the command of knowledge are appropriately higher at the time of professional responsibility than at time of degree. A mean rating of 2 on the command of knowledge scale represents "Comprehension" while a mean rating of 3 represents "Application."

Table B in Appendix G contains the distribution of responses by percent for all three scales. Table 9 below contains an excerpt from Table B, which shows how each of these values is displayed in the appendix. Interpretation of these values may vary for the various groups involved in consideration of the results. For a first analysis, the following ranges may be used. Any rating where the percentage is greater than 50 percent on the Time of Acquisition in a first professional degree university program may be considered for inclusion. Any that are 41-49 percent may be considered borderline and any that are 40 percent or lower may be considered potentially excluded from an academic curriculum. However, these ranges should not be seen as across-the-board measures. Borderline knowledge statements are highlighted with the light gray and those that may be excluded are highlighted with dark gray.

Table 9: Excerpt from Appendix G, Table B.

VIII. Communication	Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont. Ed.
determination of user values such as focus groups and surveys	3.92	1.57	39.22	18.82	13.73	13.33	6.27
consensus and team building	1.96	5.10	44.31	9.02	14.90	16.86	5.49
techniques for conducting meetings	0.78	1.18	33.73	6.27	25.10	22.35	6.27
the roles of visual communication, including photographic and video documentation	0.00	2.35	73.33	5.49	9.02	4.71	2.35

The importance ratings of the competency statements were reviewed following the discussions on the knowledge statements. Table A in Appendix H provides the mean importance ratings at the completion of the first professional degree and upon assumption of professional responsibility. The Task Force reviewed each of the means but only commented on the low importance ratings in DOMAIN III, PUBLIC POLICY AND REGULATION, at the degree level. They suggested that the competencies within that domain may be spe-cific, depending on the location of the landscape architect. As a result, the rating as important or very important when the landscape architect assumes professional responsibility supports on-the-job emphasis on these competencies. Table B in Appendix H displays the frequency distribution by percent of the responses to each of the competency statements.

ADDITIONAL KNOWLEDGE TOPICS AND COMPETENCIES

At the end of each domain, survey respondents were asked to rate the adequacy of the coverage of the knowledge topics or competencies and were offered the opportunity to add topics if they believed they were missing. The rating scale offered for the adequacy of coverage ranged from 1 to 5:

1 Very Poorly
2 Poorly
3 Adequately
4 Well
5 Very Well

Table 10 provides the mean ratings and standard deviations on the adequacy of coverage for each of the domains.

Those that have a mean of 3.0 or higher were deemed to have covered the content at least adequately.

Table 10: Mean Ratings and Standard Deviations on the Adequacy of Coverage for each of the domains.

How well do the knowledge statements in this domain cover important aspects of	Mean	S.D.
I. Landscape Architecture History and Criticism	3.01	0.68
II. Natural and Cultural Systems	3.31	0.70
III. Design and Planning Theories and Methodologies	3.34	0.69
IV. Public Policy and Regulation	3.25	0.68
V. Design, Planning and Management at Various Scales and Applications	3.35	0.70
VI. Site Design and Engineering: Materials, Methods, Technologies and Applications	3.48	0.75
VII. Construction Documentation and Administration	3.52	0.70
VIII. Communication	3.29	0.67
IX. Values and Ethics in Practice	3.26	0.67
How well do the competencies in this domain cover important aspects of:		
I. Landscape Architecture History and Criticism	3.44	0.69
II. Natural and Cultural Systems	3.38	0.70
III. Public Policy and Regulation	3.41	0.71
IV. Design, Planning, and Management at Various Scales and Applications	3.61	0.79
V. Site Design and Engineering: Materials, Methods, Technologies and Applications	3.49	0.75
VI. Construction Documentation and Administration	3.44	0.71
VII. Communication	3.51	0.72
VIII. Values and Ethics in Practice	3.53	0.74

Each member of the Task Force was assigned the task of reviewing the suggested additions within a domain. They noted those that they identified as meriting inclusion as a knowledge statement or a competency. Appendix J contains the complete list of knowledge statements and competencies that the Task Force members suggested should be added.

In the last section of the survey, individuals were given the opportunity to provide any additional comments. Appendix J also contains a summary of these comments.

In Conclusion

By building upon the information from the earlier task analysis for landscape architects and input from the Task Force, then augmenting that information through consultation with multiple panels of subject matter experts, the Task Force developed a survey that covered the body of knowledge thoroughly. The distribution of the survey reached the varied groups desired and resulted in strong indication of the knowledge and competencies that are required upon graduation from a degree program and those that should be developed on the job. Each of the contributing organizations will need to carefully examine the data to make the most efficient use of the information that is available. As suggested in the cover letter to the survey respondents, this information may be used to make curricula determinations, to guide the development of continuing education activities, and to continue strong requirements for licensure through the regulatory bodies. Based on the apparent high agreement among the various subgroup responses and the process used to develop the Body of Knowledge in this study, it is reasonable to conclude that the goals of the study were obtained. ◼