Practice Analysis

Practice or job analysis refers to a variety of systematic procedures designed to obtain descriptive information about the tasks performed on a job and/or the knowledge, skills, and abilities thought necessary to perform those tasks (Arvey & Faley, 1988; Gael, 1983; Raymond & Neustel, 2006). A practice analysis is the primary mechanism for establishing the job-relatedness of decisions concerning standards, curriculum redesign, and professional certification. That is, if certification standards and curriculum can be linked directly to the outcomes of a practice analysis, they may be said to be job-related. Similarly, if the content of a certification examination can be linked directly to the outcomes of a practice analysis, it may be said to be job-related, and inferences from test scores may be supported by arguments of content validity. The rationale that supports the content of certification standards, curriculum, and certification tests is the demonstrable linkage that exists between each and the performance domain of the associated occupation or profession.

Professional standards and legal precedents recommend that a job or practice analysis include the participation of various Subject-Matter Experts (SMEs; Mehrens, 1987; NCCA, 2014; Raymond & Neustel, 2006) and that the information collected be representative of the diversity within the occupation (Kuehn, Stallings, & Holland, 1990). Diversity refers to regional or job context factors and to SME factors such as race or ethnicity, experience, and gender. The practice analysis conducted to define the performance domain for a newly certified speech-language pathologist (SLP) entering independent professional practice as a generalist was designed to be consistent with the Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014; NCCA, 2014; Organization for Standardization, 2012) and current professional practice.

Overview of the Practice Analysis Methodology

The practice analysis described in this study involved a multi-method approach that included literature review; the use of an SME panel consisting of educators, clinical supervisors, and clinical service providers; as well as a large-scale survey of clinical service providers, educators, and clinical supervisors. First, ASHA staff assembled materials to be reviewed by the SME panel as they considered developing the performance domain to be included in the new practice analysis. These materials included the previous practice analysis survey instrument and study report (Rosenfeld, 2010) as well as relevant professional literature. Next, these materials were reviewed by the SME panel by mail, and suggestions were made to revise the domain that comprised the previous practice analysis survey instrument. The purpose of this review was to refine and update that domain so that it accurately reflected the content believed to be most important for safe and effective practice for a newly certified SLP entering independent professional practice and to facilitate the conduct of the SME panel meeting that was to follow this initial review by the

individual panel members. Next, the panel of SMEs was brought together to review the draft performance domain. The panel's charge was to review, evaluate, and revise the content of the performance domain from the perspectives of its members' varied practice settings, content expertise, and practice experience so that it described the important clinical activities and knowledge domain necessary for safe and effective independent professional practice by a newly certified SLP functioning as a generalist, regardless of practice setting.

The revised domain was then placed into survey format and administered over the Internet to 41 SLPs for pilot testing. Results from the pilot test were used by ASHA staff and the SME panel to revise the survey instrument. The major change involved the development of three surveys. One survey was the full survey consisting of both the clinical activity and knowledge domains and was to be completed by academic program directors, both academic and nonacademic clinic directors, and other faculty. Although other faculty were provided with the total survey, they were requested to complete the clinical activity portion of the survey only if they were engaged in clinical practice; otherwise they were asked to complete only the knowledge portion of the survey. A second survey was designed to assess the clinical activity domain; the third was designed to assess the knowledge domain. The second and third surveys were to be administered to clinical service providers. These latter two surveys were produced to reduce the time required by clinical service providers. Surveys were administered over the Internet to approximately 10% of all ASHA-certified SLPs, to all academic and clinical program directors of CAA accredited SLP programs, to all nonacademic clinic directors, and to all other academic faculty. Overall, more than 16,000 surveys were distributed. Recipients of the full survey were asked to make two sets of judgments: First, they were asked to rate the importance of each clinical activity for a newly certified SLP for safe and effective independent professional practice as a generalist, regardless of practice setting. Then they were asked to indicate where a newly certified SLP should learn to competently perform this clinical activity in order to provide safe and effective independent professional practice as a generalist, regardless of practice setting. Similar ratings for importance and where the activity should be learned were also to be made for the knowledge domain. Clinical service providers who received either the clinical activity survey or the knowledge survey were asked to provide ratings on the Importance and Where Should the Activity Be Learned scales relevant for their survey instrument. Other academic faculty used the same two rating scales when they were only responding to the knowledge survey.

The judgments of those responding to the survey were then analyzed to identify core clinical activities and knowledge areas—that is, clinical activities and knowledge areas that the total group of respondents, groups of respondents defined by employment function and primary employment facility, as well as relevant subgroups of respondents defined by demographic variables judged to be important. Ratings also were analyzed to determine where the clinical activities and knowledge areas should be learned (acquired).

Data Analysis of Survey Responses

Levels of Analysis

Analyses were conducted at multiple levels of aggregation. First, analyses were conducted for the total group of respondents. Then analyses were conducted for two major groups of respondents defined by the following: Employment Function (i.e., clinical service provider, college/university professor/instructor, director/chair of an academic program, director/supervisor of a clinical program, supervisor of clinicians, and special education teacher) and Primary Employment Facility (i.e., school, college/university, hospital facility, residential health care facility, and nonresidential health care facility). These group-level analyses were followed by a series of subgroup analyses of clinical service providers. That is, clinical service providers were partitioned into subgroups as defined by their responses to the background information.[1] The following variables were used to create subgroups: geographic region of the country, education level, gender, years of experience employed in the speech-language pathology profession, years of experience providing clinical services in speech-language pathology, experience providing clinical supervision in the past five years, and race/ethnicity. Each level of analysis is important for ensuring the relevance and fairness of the decisions that will be made based upon the outcomes of this practice analysis.

Frequency Counts of Zero Responses

As noted above, each clinical activity statement and each knowledge area were rated on a 6-point Importance scale. The zero point on this scale indicated that the clinical activity statement or knowledge area was either not performed or not needed by a newly certified SLP entering independent professional practice. For each statement and knowledge area, the percent of zero responses was computed separately at each level of analysis. If 51% or more of the respondents in any analysis provided a zero response, the clinical activity statement and/or knowledge area was flagged (Rosenfeld, Freeberg, & Bukatko, 1992). Any flagged statements or areas would signify, therefore, that less than a majority of the respondents from any group believed them to be relevant parts of the performance domain of a newly certified SLP entering independent professional practice. Clearly, if the job-relatedness of clinical activity statements and knowledge areas are to be supported, a majority of respondents should indicate that the statements and areas are a part of the performance domain of a newly certified SLP entering independent professional practice.

[1]A minimum of 50 respondents was needed in a group or subgroup to be included in any formal analyses. This minimum was established to ensure the stability and accuracy of the outcomes. All respondents were included in the total group analysis.

Mean Importance Ratings and the Standard Error of the Mean

The mean importance rating and standard error of the mean were computed for each clinical activity statement and each knowledge area. The zero rating was not included in the computation of the mean or the standard error of the mean. Means and standard errors were computed separately for the total group analysis, for each group level analysis, and for each subgroup analysis. The mean provides an indication of the absolute level of importance attributed to the clinical activity statements and knowledge areas. It is used to differentiate between more important and less important clinical activity statements and more important and less important knowledge areas. The standard error of the mean is the standard deviation of a group of sample means about the population mean. It allows us to estimate the probability that a sample mean will fall within a given range of values about the population mean. A small standard error would indicate that the sample mean is relatively close to the population mean and that if another similar sample were to be drawn, it is likely that the mean of that sample would be similar to the mean of the initial sample.

It is recommended that a mean rating of 3.50 be applied as a standard to distinguish more important clinical activity statements and knowledge areas from less important ones. Mean ratings equal to or greater than 3.50 (rounds to a rating of "Important") will be classified as more important. Although all judgmental standards may be subject to debate, experience indicates that a mean value of 3.50 on these types of rating scales provides a solid foundation for claims of job relatedness. As noted by Tannenbaum and Rosenfeld (1994), this 3.50 criterion is consistent with a content validation strategy that appropriately reduces the probability of defining performance domains by job content that is judged to be of minimal importance by large numbers of practicing professionals.

Level of Agreement Analyses

Level of agreement indices were computed for all group and subgroup analyses based on mean importance ratings. Contingency tables were generated using the 3.50 standard and the percent of classification agreement within the groups or subgroups being compared. For example, in the case of geographic regions of the country, the percent agreement between the mean importance ratings of each region relative to the 3.50 standard and to each other was computed.

Correlation of Mean Importance Ratings

Correlations of mean importance ratings were computed for each group and subgroup analysis to assess the similarity of the profile of their ratings.

Content Coverage Ratings

Respondents were asked to rate how well the clinical activity statements covered what a newly certified SLP entering independent professional practice should be able to do and how well the knowledge areas covered what a newly certified SLP

entering independent professional practice should know. These judgments provide an indication of the comprehensiveness of the performance domain defined in the practice analysis survey. The rating scale anchors for these judgments ranged from (1) *very poorly* to (5) *very well*; the midpoint was (3) *adequately*.

Summary of Results

Response Rates

Deliverable surveys were sent via the Web to 15,994 SLPs holding the CCC-SLP or dual certification (both CCC-A and CCC-SLP) and who reside in the United States. Responses were received from 2,673 SLPs for an overall return rate of 16.7%. However, 435 of those cases just completed the biographical information and did rate any of the clinical activity or knowledge statements. Therefore, the usable return rate was 14%. There were a sufficient number of respondents to conduct stable analyses.

Summary of Analyses of Importance Ratings for Clinical Activities

There were no instances in which a majority of respondents in either the total group or any group or subgroup indicated that a clinical activity was not performed or used by a newly certified SLP entering independent professional practice. All clinical activity statements were judged to be part of the practice of a newly certified SLP entering independent professional practice by the vast majority of respondents.

Seventeen of the 97 ratable clinical activity statements (18%) were rated as being critically important for a newly certified SLP entering independent professional practice. These activities were found in the General Clinical Responsibilities, Screening and Assessment, and Treatment—Planning, Implementation, Effectiveness sections of the survey. Careful consideration should be given to the knowledge and/or skills necessary to perform all of these activities when considering academic and certification standards.

Thirteen of the 97 ratable clinical activity statements (13%) were rated below 3.50 by the total group of respondents. They were judged to be moderately important for a newly certified SLP entering into independent professional practice. These activities were found in the Screening and Assessment, Treatment—Planning, Implementation, Effectiveness, and Professional Practice Responsibilities sections of the survey. While these clinical activities were all judged to be performed by a newly certified SLP entering independent professional practice, they were considered to be less important than 87% of the clinical activities contained in the survey instrument. While these activities can and perhaps should be included in the training and preparation of newly certified SLPs entering independent professional practice, they may not warrant inclusion in a certification examination for newly graduated SLPs.

Group level analyses conducted for employment function and employment facility resulted in the identification of three additional clinical activities that did not meet the 3.50 standard. Subgroup analyses identified two additional clinical activities that had not been identified in the total group or group analyses.

Seventy-nine of the 97 ratable clinical activity statements (81%) were judged to be important by the total group, all groups, and all subgroups of respondents and can be considered the core clinical activities judged to be important for safe and effective independent professional practice by a newly certified SLP entering independent professional practice. Overall, there were 45 group and subgroup comparisons made (25 group comparisons and 20 subgroup comparisons). All statements receiving a mean rating below 3.50 should be reviewed by the CAA and CFCC to determine whether or not to include them in academic and certification standards.

Percent agreement analyses by groups and subgroups were quite high, ranging from 91% to 100%. This indicates there was very good agreement regarding those clinical activities rated either above or below 3.50. Correlational analyses for all groups and subgroups were also high. Correlations ranged from .81 to .99 indicating a high level of agreement on the profiles of ratings of importance.

Survey respondents were also asked to rate how well the clinical activity statements covered what a newly certified SLP entering independent professional practice should be able to do. Judgments were made on a 5-point scale. The scale points were as follows: (1) *Very poorly*, (2) *Poorly*, (3) *Adequately*, (4) *Well*, and (5) *Very well*. The mean rating by the total group of respondents was 4.01, indicating they believed the domain was well covered. All but 11 of the 841 respondents to this question (99%) thought the domain was at least covered adequately, whereas 72% of respondents thought the domain was covered well or very well.

Summary of Analyses of Importance Ratings of Knowledge Areas

There were no instances in which a majority of respondents in either the total group or any group or subgroup indicated that a knowledge statement was not used by a newly certified SLP entering independent professional practice as a generalist. All knowledge statements were judged to be part of the practice of newly certified SLPs entering independent professional practice by the vast majority of respondents.

Seventeen of the 138 knowledge statements (12%) were rated as being critically important for a newly certified SLP entering independent professional practice. These activities were found in all four sections of the knowledge domain: Foundational Knowledge, Screening and Assessment, Treatment—Planning, Implementation, Effectiveness, and Professional Practice Responsibilities. Careful consideration should be given to these knowledge areas when considering academic and certification standards.

Seventeen of the 138 ratable knowledge statements (12%) were rated below 3.50 by the total group of respondents and were judged to be moderately important for a newly certified SLP entering into independent professional practice. These

knowledge statements were found in the Foundational Knowledge, Treatment—Planning, Implementation, Effectiveness, and Professional Practice Responsibilities sections of the survey instrument. While these knowledge statements were all judged to be used by a newly certified SLP entering independent professional practice as a generalist, they were considered to be less important than 88% of the knowledge statements contained in the survey instrument. While these knowledge areas can and likely should be included in the training and preparation of newly certified SLPs entering independent professional practice, they may not warrant inclusion in a certification examination for newly graduated SLPs.

Group level analyses conducted for employment function and employment facility resulted in the identification of 16 additional knowledge statements that did not meet the 3.50 standard. Subgroup analyses did not identify any additional knowledge areas that had not already been identified in the total group and group analyses.

One hundred and five of the 138 ratable knowledge statements (76%) were judged to be important by the total group, all groups, and all subgroups of respondents and can be considered the core set of knowledge areas judged to be important for safe and effective independent professional practice by a newly certified SLP entering independent professional practice as a generalist. Overall, there were 45 group and subgroup comparisons made (25 group and 20 subgroup comparisons). All statements receiving a mean rating below 3.50 should be reviewed by the CAA and CFCC to determine whether or not to include them in academic and certification standards.

Percent agreement analyses by groups and subgroups were high ranging from 85% to 98% with 41 of the 45 comparisons yielding percent agreement levels of 90% or higher. This indicates there was very good agreement regarding those knowledge statements rated either above or below 3.50. Correlational analyses for all groups and subgroups were generally high ranging from .70 to .98. Overall, 35 of 45 comparisons yielded correlations of .90 or higher, indicating a high level of agreement on the profiles of ratings of importance.

Survey respondents also were asked to rate how well the knowledge statements covered what a newly certified SLP entering independent professional practice should know. Judgments were made on a 5-point scale. The scale points were as follows: (1) *Very poorly*, (2) *Poorly*, (3) *Adequately*, (4) *Well*, and (5) *Very well*. The mean rating by the total group of respondents was 4.21, indicating they believed the domain was well covered. Ninety-nine percent of the 886 respondents to this question thought the domain was at least covered adequately, whereas 78% of respondents thought the domain was covered well or very well.

Summary of Where Should the Activity or Knowledge Be Learned

The majority of the 97 ratable clinical activity statements rated by the total group of respondents (68%) were judged to be primarily learned by the completion of the graduate education program, 16% were primarily learned by the completion of the Clinical Fellowship experience, and 16% were judged to be primarily learned after certification on the job or through professional development. The clinical activities that were rated as primarily learned on the job were generally statements that received lower ratings of importance (received a mean rating below 3.50). All but one of the statements was located in the Professional Responsibilities section of the survey. Analyses by employment function and one subgroup involved in the clinical supervision of undergraduate and graduate SLPs and clinical fellows yielded similar results.

Eighty-three percent of the 138 ratable knowledge statements were rated by the total group of respondents to primarily be acquired by the completion of the graduate education program, 11% during the Clinical Fellowship experience, and 6% were judged to be primarily acquired after certification. The majority of the statements judged to be primarily acquired after certification received lower ratings of importance. Analyses by employment function and one subgroup involved in the clinical supervision of undergraduate and graduate SLPs and clinical fellows yielded similar results.

Implications

Content and Weighting for the National Praxis Examination

One of the major purposes of this practice analysis was to provide data to aid in the identification and weighting of content for the Praxis Examination as well as providing data to support documentation of its validity. The procedures used in this study were designed to be consistent with professional standards for the design and validation of certification examinations. Professional guidelines indicate that if content is to be included in a certification examination, the developer or user must be able to demonstrate that it is related to an important part of professional practice. The 3.50 cut-point used in this study is consistent with this requirement of demonstrating job relevance and importance. Clinical activities and knowledge areas rated 3.50 or above were judged as being important for safe and effective independent practice by a newly certified SLP by more than 2,200 certified SLPs representing clinical service providers, educators, clinic directors, and clinical supervisors from a variety of employment functions and facilities. This cut-point or standard will reduce the likelihood of including content in the Praxis Examination that is not important for a newly certified SLP entering independent professional practice.

Implications for documenting validity. The domain of clinical activity statements and knowledge areas was developed by a panel of 12 SMEs that included educators, clinic directors and supervisors, and clinical service providers

from a variety of practice settings. The experts had representation by gender and geographic region. The panel members utilized the previous practice analysis, relevant professional literature, and their knowledge and experience as ASHA-certified SLPs to revise and update the performance domain of clinical activities and knowledge areas. After much discussion, the domain they developed consisted of 97 ratable clinical activity statements and 138 ratable knowledge areas. The domain was placed in survey format and administered via the Web to 15,994 ASHA-certified SLPs. Surveys were sent to all academic and clinical program directors of CAA accredited SLP programs, to all non-academic clinic directors, as well as to an approximately 10% sample of all ASHA certified clinical service providers. A total of 2,238 responses were received and analyzed. Analyses indicated that all the clinical activity statements and knowledge areas were judged to be part of the performance domain of a newly certified SLP prepared to enter independent professional practice in a safe and effective manner. Data were presented indicating that respondents believed that the clinical activities and knowledge areas contained in the survey instrument covered those domains well. Analyses were conducted for the total group of respondents, groups of respondents defined by employment function, employment facility, and by subgroups of respondents defined by demographic variables. The most important clinical activities and knowledge areas were identified and there was strong agreement among groups and subgroups of respondents on the importance of the clinical activities and knowledge areas. A subset of clinical activity statements (81%) and knowledge areas (76%) was judged to be important by the total group of respondents as well as by all groups and subgroups of respondents and can be considered the core clinical activities and knowledge areas judged to be important for safe and effective independent professional practice by a newly certified SLP. These clinical activities and knowledge areas provide a sound basis for use in setting test specifications.

Implications for exam development committees. The clinical activity statements and knowledge areas passing the 3.50 cut-point should be considered as the primary pool from which test specifications are built. If exam development committees composed of certified SLPs decide to include clinical activity statements and knowledge areas that were not universally endorsed as being important in the test specifications, a compelling written justification should be provided. Survey respondents were asked for input on the appropriate balance of questions on the examination based on the different sections of the knowledge survey. The percentage of items assigned to each section of the survey should be used as guidance by exam development committees as they consider the number of items to assign to each section of the examination. The results of the practice analysis provide a sound defensible rationale for building test specifications. Test questions and formats need to be developed to measure each part of the test specifications. Exam development committees may wish to design simulations to assess clinical activities or to identify the knowledge or skills required to perform those activities. Questions written for the exam need to be linked back to the test specifications by the question writer as well as by an independent group of SLPs. Linkages from test

questions to test specifications, and from test specifications to the practice analysis, provide a strong network for use in documenting the validity of certification examinations.

Implications for the CAA and CFCC. The CAA formulates the standards for the accreditation of graduate education programs that provide entry-level professional preparation in speech-language pathology and applies these standards in the accreditation of these programs. The CFCC sets the standards for the certification of individuals and verifies that individuals have met those standards. These standards are designed to demonstrate that newly certified SLPs possess the knowledge and skills necessary for entry-level independent professional practice and maintain their expertise through continuing education. It is important to note that in the development of test specifications for the Praxis Examination, an example of high stakes testing, it was recommended that the 3.50 cut-point be used to identify potential test content; the 3.50 cut-point need not apply to curriculum-related standards. As long as a clinical activity or knowledge area is judged to be part of the performance domain of a newly certified SLP entering independent professional practice, it may be included in the consideration of both academic and certification standards.

The results of this practice analysis study can be used by the CAA and CFCC as a database to inform their decision making and assist in ensuring that the standards they develop are consistent with the scope and practice of the profession. The ratings in this study were obtained from 2,238 ASHA-certified SLPs that included clinical service providers, educators, academic directors, clinic directors, and clinical supervisors from a range of employment functions and facilities providing a broad view of newly certified SLPs entering independent professional practice. The results from this study provide relevant findings that are important for both the CAA and CFCC to consider:

- All 97 ratable clinical activities and 138 ratable knowledge areas were judged to be part of the practice of a newly certified SLP entering independent professional practice. Therefore, all the clinical activities and knowledge areas can be considered for standard setting by both the CAA and the CFCC.
- The 79 clinical activities (81%) that were judged to be important (received an importance rating of 3.50 or above) by the total group of respondents, all groups of respondents, and all subgroups of respondents should be considered as part of the core set of clinical activities for newly certified SLPs entering independent professional practice. These clinical activities were judged to be important virtually everywhere a newly certified SLP entering independent professional practice is likely to work. In addition, 17 of these clinical activity statements were rated as being critically important for a newly certified SLP entering independent professional practice to be able to perform in a safe and effective manner by the total

group of respondents. These activities should be reviewed carefully when both academic and certification standards are being considered to ensure they are appropriately represented in both sets of standards.

- Opportunities should be provided in the curriculum to ensure that the knowledge and skills necessary to carry out these activities are provided and assessment made to ensure they have been mastered.
- One hundred and five of the 138 ratable knowledge statements (76%) were judged to be important by the total group, all groups, and all subgroups of respondents, and can be considered to be core knowledge areas judged to be important for safe and effective independent professional by newly certified SLPs. Special attention should be paid to the 17 knowledge statements that were rated as being extremely important to ensure they have been covered and mastered.
- The majority of clinical activity statements (68%) were judged by the total group of respondents to be primarily learned by the completion of the graduate education program, 16% were primarily learned during the Clinical Fellowship experience and 16% were judged to be primarily learned after certification either on the job or through professional development (e.g., continuing education). The clinical activity statements that were rated as being primarily learned on the job were generally statements that received lower ratings of importance. Most of these statements were found in the Professional Practice Responsibilities section of the survey. Even though respondents indicated that the ability to perform these clinical activities was primarily learned on the job, both the CAA and CFCC should consider whether some of the knowledge and skills necessary to carry out these activities should be included in academic and certification standards.
- One hundred and fourteen knowledge statements (83%) were judged by the total group of respondents to be primarily learned by the completion of the graduate education program. Seventeen knowledge statements (11%) were judged to be primarily learned during the fellowship experience, and eight statements (6%) were judged to be primarily learned after certification.

The CAA and CFCC should consider both the importance ratings obtained for each clinical activity and knowledge statement along with the judgments of where they should best be learned or acquired when deciding whether or not to include the relevant knowledge and skills in academic and certification standards and the relative emphasis to apply to each. These decisions require the expert judgment of these council members informed by the structured input from the 2,238 ASHA-certified SLPs who participated in this practice analysis. Though certain criteria

have been applied in this study to evaluate the defined performance domain, it is ultimately the CAA and CFCC that need to come to agreement in terms of what they consider to be important and relevant clinical activities and knowledge areas for a newly certified SLP entering independent professional practice. To this end, the CAA and CFCC may elect to apply their own criteria to the judgments obtained in this study as well as to consider the results of other studies or judgments made by other professional bodies.