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Multistate Standard-Setting Technical Report

PRAXIS™ SPEECH-LANGUAGE PATHOLOGY (5331)

Licensure and Credentialing Research

ETS

Princeton, New Jersey

February 2014

EXECUTIVE SUMMARY

To support the decision-making process of the American Speech-Language-Hearing Association (ASHA) and state education agencies establishing a passing score (cut score) for the Praxis™ Speech-Language Pathology (5331) test, research staff from Educational Testing Service (ETS) designed and conducted a multistate standard-setting study.

PARTICIPATING STATES

ASHA recommended panelists from 16 states with (a) experience as either speech-language pathologists or college faculty who prepare speech-language pathologists and (b) familiarity with the knowledge and skills required of beginning speech-language pathologists.

RECOMMENDED PASSING SCORE

ETS provides a recommended passing score from the multistate standard-setting study to help (a) ASHA establish a passing score as part of its Certification of Clinical Competence in Speech-Language Pathology (CCC-SLP) and (b) state education agencies establish a state-specific passing score for licensure/certification. For the Praxis Speech-Language Pathology test, the recommended passing score is 74 out of a possible 108 raw-score points. The scaled score associated with a raw score of 74 is 162 on a 100–200 scale.

To support the decision-making process of the American Speech-Language-Hearing Association (ASHA) and state education agencies establishing a passing score (cut score) for the Praxis™ Speech-Language Pathology (5331) test, research staff from Educational Testing Service (ETS) designed and conducted a multistate standard-setting study in January 2014 in Princeton, New Jersey. ASHA recommended panelists with (a) experience as either speech-language pathologists or college faculty who prepare speech-language pathologists and (b) familiarity with the knowledge and skills required of beginning speech-language pathologists. Sixteen states (Table 1) were represented by 17 panelists. (See Appendix A for the names and affiliations of the panelists.)

Table 1
Participating States and Number of Panelists

Arkansas (1 panelist)	North Dakota (1 panelist)
Georgia (1 panelist)	New York (1 panelist)
Hawaii (1 panelist)	Ohio (2 panelists)
Iowa (1 panelist)	Oregon (1 panelist)
Indiana (1 panelist)	Pennsylvania (1 panelist)
Massachusetts (1 panelist)	South Carolina (1 panelist)
Maryland (1 panelist)	Tennessee (1 panelist)
Michigan (1 panelist)	Wisconsin (1 panelist)

The following technical report contains three sections. The first section describes the content and format of the test. The second section describes the standard-setting processes and methods. The third section presents the results of the standard-setting study.

ETS provides a recommended passing score from the multistate standard-setting study to ASHA and state education agencies. ASHA requires the Praxis Speech-Language Pathology test as a component of its Certification of Clinical Competence in Speech-Language Pathology (CCC-SLP) and is responsible to establishing a passing score for this purpose. Some states require the Praxis Speech-Language Pathology test as part of the state’s licensure/certification of beginning speech-language pathologists. In each state, the department of education, the board of education, or a designated certification/licensure board is responsible for establishing the operational passing score in accordance with applicable regulations.

This study provides a recommended passing score, which represents the combined judgments of a group of experienced speech-language pathologists. ASHA and each state may want to consider the recommended passing score but also other sources of information when setting the final Praxis Speech-Language Pathology passing score (see Geisinger & McCormick, 2010). A state or ASHA may accept the recommended passing score, adjust the score upward to reflect more stringent expectations, or adjust the score downward to reflect more lenient expectations. There is no *correct* decision; the appropriateness of any adjustment may only be evaluated in terms of its meeting ASHA's or a state's needs.

Two sources of information to consider when setting the passing score are the standard error of measurement (SEM) and the standard error of judgment (SEJ). The former addresses the reliability of the Praxis Speech-Language Pathology test score and the latter, the reliability of panelists' passing-score recommendation. Any test score on any standardized test—including a Praxis Speech-Language Pathology test score—is not perfectly reliable. A test score only *approximates* what a candidate truly knows or truly can do on the test. The SEM, therefore, addresses the question: How close of an approximation is the test score to the *true* score? The SEJ reflects the likelihood that the recommended passing score from the current panel would be similar to the passing scores recommended by other panels of experts similar in composition and experience. The smaller the SEJ, the more likely that another panel would recommend a passing score consistent with the recommended passing score. The larger the SEJ, the less likely the recommended passing score would be reproduced by another panel.

In addition to measurement error metrics (e.g., SEM, SEJ), ASHA and each state should consider the likelihood of classification errors. That is, when adjusting a passing score, policymakers should consider whether it is more important to minimize a false-positive decision or to minimize a false-negative decision. A false-positive decision occurs when a candidate's test score suggests that he should receive a license/certificate, but his actual level of knowledge/skills indicates otherwise (i.e., the candidate does not possess the required knowledge/skills). A false-negative decision occurs when a candidate's test score suggests that she should not receive a license/certificate, but she actually does possess the required knowledge/skills. ASHA and the states need to consider which decision error is more important to minimize.

OVERVIEW OF THE PRAXIS SPEECH-LANGUAGE PATHOLOGY TEST

The Praxis Speech-Language Pathology *Test at a Glance* document (ETS, in press) describes the purpose and structure of the test. In brief, the test measures whether entry-level speech-language pathologists have the knowledge/skills believed necessary for competent professional practice.

The two-hour and 30 minute test contains 132 selected-response items¹ covering three content areas: *Foundations and Professional Practice* (approximately 44 items), *Screening, Assessment, Evaluation, and Diagnosis* (approximately 44 items), and *Planning, Implementation, and Evaluation of Treatment* (approximately 44 items).² The reporting scale for the Praxis Speech-Language Pathology test ranges from 100 to 200 scaled-score points.

PROCESSES AND METHODS

The design of the standard-setting study included an expert panel. Before the study, panelists received an email explaining the purpose of the standard-setting study and requesting that they review the content specifications for the test. This review helped familiarize the panelists with the general structure and content of the test.

The standard-setting study began with a welcome and introduction by the meeting facilitator. The facilitator described the test, provided an overview of standard setting, and presented the agenda for the study. Appendix B shows the agenda for the panel meeting.

¹ Twenty-four of the 132 selected-response items are pretest items and do not contribute to a candidate's score.

² The number of items for each content area may vary slightly from form to form of the test.

REVIEWING THE TEST

The standard-setting panelists first reviewed the test and then discussed it. This discussion helped bring the panelists to a shared understanding of what the test does and does not cover, which serves to reduce potential judgment errors later in the standard-setting process.

The test discussion covered the major content areas being addressed by the test. Panelists were asked to remark on any content areas that would be particularly challenging for entry-level speech-language pathologists or areas that address content particularly important for entry-level speech-language pathologists.

DESCRIBING THE JUST QUALIFIED CANDIDATE

Following the review of the test, panelists described the just qualified candidate. The *just qualified candidate description* plays a central role in standard setting (Perie, 2008); the goal of the standard-setting process is to identify the test score that aligns with this description.

The panel created a description of the just qualified candidate —the knowledge/skills that differentiate a *just* from a *not quite* qualified candidate. To create this description, the panel first split into smaller groups to consider the just qualified candidate. The full panel then reconvened and, through whole-group discussion, determined the description of the just qualified candidate to use for the remainder of the study.

The written description of the just qualified candidate summarized the panel discussion in a bulleted format. The description was not intended to describe all the knowledge and skills of the just qualified candidate but only highlight those that differentiate a *just* qualified candidate from a *not quite* qualified candidate. The written description was distributed to panelists to use during later phases of the study (see Appendix C for the just qualified candidate description).

PANELISTS' JUDGMENTS

The standard-setting process for the Praxis Speech-Language Pathology test was a probability-based Modified Angoff method (Brandon, 2004; Hambleton & Pitoniak, 2006). In this study, each panelist judged each item on the likelihood (probability or chance) that the just qualified candidate would answer the item correctly. Panelists made their judgments using the following rating scale: 0, .05, .10, .20, .30, .40, .50, .60, .70, .80, .90, .95, 1. The lower the value, the less likely it is that the just qualified candidate would answer the item correctly because the item is difficult for the just qualified candidate. The higher the value, the more likely it is that the just qualified candidate would answer the item correctly.

Panelists were asked to approach the judgment process in two stages. First, they reviewed both the description of the just qualified candidate and the item and decided if, overall, the item would be difficult for the just qualified candidate, easy for the just qualified candidate or moderately difficult/easy. The facilitator encouraged the panelists to consider the following rules of thumb to guide their decision:

- Difficult items for the just qualified candidate are in the 0 to .30 range.
- Moderately difficult/easy items for the just qualified candidate are in the .40 to .60 range.
- Easy items for the just qualified candidate are in the .70 to 1 range.

Next, panelists decided how to refine their judgment within the range. For example, if a panelist thought that an item would be easy for the just qualified candidate, the initial decision located the item in the .70 to 1 range. The second decision for the panelist was to decide if the likelihood of answering it correctly is .70, .80, .90, .95 or 1.

After the training, panelists made practice judgments and discussed those judgments and their rationale. All panelists completed a post-training survey to confirm that they had received adequate training and felt prepared to continue; the standard-setting process continued only if all panelists confirmed their readiness.

Following this first round of judgments (*Round 1*), item-level feedback was provided to the panel. The panelists' judgments were displayed for each item and summarized across panelists. Items were highlighted to show when panelists converged in their judgments (at least two-thirds of the panelists located an item in the same difficulty range) or diverged in their judgments.

The panelists discussed their item-level judgments. These discussions helped panelists maintain a shared understanding of the knowledge/skills of the just qualified candidate and helped to clarify aspects of items that might not have been clear to all panelists during the Round 1 judgments. The purpose of the discussion was not to encourage panelists to conform to another's judgment, but to understand the different relevant perspectives among the panelists.

In Round 2, panelists discussed their Round 1 judgments and were encouraged by the facilitator (a) to share the rationales for their judgments and (b) to consider their judgments in light of the rationales provided by the other panelists. Panelists recorded their Round 2 judgments only for items when they wished to change a Round 1 judgment. Panelists final judgments for the study, therefore, consist of their Round 1 judgments and any adjusted judgments made during Round 2.

RESULTS

EXPERT PANELS

Table 2 presents a summary of the panelists' demographic information. The panel included 17 speech-language pathologists representing 16 states . (See Appendix A for a listing of panelists.) Eleven panelists were speech-language pathologists, four were college faculty, one was a director/administrator of a health service program, and one held another position.

Table 2***Panel Member Demographics***

	<i>N</i>	<i>%</i>
What is your primary employment function?		
Speech-Language Pathologist	11	65%
College faculty	4	24%
Director/Administrator of a Health Services Program	1	6%
Other	1	6%
What is your primary employment facility?		
School (Pre-K to 12 levels; public or private)	6	35%
College or University	6	35%
Hospital or Outpatient Clinic	2	12%
Other	3	18%
How many years of experience have you had as a speech-language pathologist?		
3 years or less	4	24%
4 - 7 years	3	18%
8 - 11 years	6	35%
12 - 15 years	1	6%
16 years or more	3	18%
Do you currently hold the ASHA Certificate of Clinical Competence in Speech-Language Pathology (CCC_SLP)?		
Yes	17	100%
No	0	0%
Have you had any experience supervising a newly graduated, entry-level speech-language pathologist in the past five (5) years?		
Yes	10	59%
No	7	41%
Gender		
Female	17	100%
Male	0	0%
Race		
White	11	65%
Black or African American	4	24%
Other	2	12%

STANDARD-SETTING JUDGMENTS

Table 3 summarizes the standard-setting judgments of panelists. The table shows the passing scores—the number of raw points needed to pass the test—recommended by each panelist.

Table 3 also includes estimate of the measurement error associated with the judgments: the standard deviation of the mean and the standard error of judgment (SEJ). The SEJ is one way of estimating the reliability or consistency of a panel’s standard-setting judgments.³ It indicates how likely it would be for several other panels similar in makeup, experience, and standard-setting training to the current panel to recommend the same passing score on the same form of the test.

Round 1 judgments are made without discussion among the panelists. The most variability in judgments, therefore, is typically present in the first round. Round 2 judgments, however, are informed by panel discussion; thus, it is common to see a decrease both in the standard deviation and SEJ. This decrease — indicating convergence among the panelists’ judgments — was observed (see Table 3). The Round 2 average score is the panel’s recommended passing score.

The panel’s passing score recommendation for the Praxis Speech-Language Pathology test is 73.57 (out of a possible 108 raw-score points). The value was rounded to the next highest whole number, 74, to determine the functional recommended passing score. The scaled score associated with 74 raw points is 162.

³ An SEJ assumes that panelists are randomly selected and that standard-setting judgments are independent. It is seldom the case that panelists are randomly sampled, and only the first round of judgments may be considered independent. The SEJ, therefore, likely underestimates the uncertainty of passing scores (Tannenbaum & Katz, 2013).

Table 3
Passing Score Summary by Round of Judgments

Panelist	Round 1	Round 2
1	71.85	73.40
2	75.20	74.65
3	73.90	73.70
4	70.35	75.65
5	71.90	72.35
6	73.20	74.60
7	58.60	65.20
8	58.05	68.65
9	75.15	77.15
10	65.85	68.05
11	78.80	79.80
12	78.10	79.20
13	61.60	62.40
14	79.05	78.40
15	72.80	75.55
16	73.90	73.60
17	77.35	78.30
Average	71.51	73.57
Lowest	58.05	62.40
Highest	79.05	79.80
SD	6.66	4.94
SEJ	1.62	1.20

Table 4 presents the estimated conditional standard error of measurement (CSEM) around the recommended passing score. A standard error represents the uncertainty associated with a test score. The scaled scores associated with one and two CSEMs above and below the recommended passing score are provided. The conditional standard error of measurement provided is an estimate.

Table 4***Passing Scores Within 1 and 2 CSEMs of the Recommended Passing Score⁴***

Recommended passing score (CSEM)		Scale score equivalent
	74 (4.85)	162
-2 CSEMs	65	150
-1 CSEM	70	157
+ 1 CSEM	79	169
+ 2 CSEMs	84	175

Note. CSEM = conditional standard error of measurement.

FINAL EVALUATIONS

The panelists completed an evaluation at the conclusion of their standard-setting study. The evaluation asked the panelists to provide feedback about the quality of the standard-setting implementation and the factors that influenced their decisions. The responses to the evaluation provided evidence of the validity of the standard-setting process, and, as a result, evidence of the reasonableness of the recommended passing score.

Panelists were also shown the panel's recommended passing score and asked (a) how comfortable they are with the recommended passing score and (b) if they think the score was too high, too low, or about right. A summary of the final evaluation results is presented in Appendix D.

All panelists *strongly agreed* that they understood the purpose of the study. All panelists *strongly agreed* or *agreed* that the facilitator's instructions and explanations were clear and that they were prepared to make their standard-setting judgments. All panelists *strongly agreed* or *agreed* that the standard-setting process was easy to follow.

All but one of the panelists indicated they were at least *somewhat comfortable* with the passing score they recommended; nine of the 17 panelists were *very comfortable*. Sixteen of the 17 panelists indicated the recommended passing score was *about right* with the remaining panelist indicated that the passing score was *too low*.

⁴ The unrounded CSEM value is added to or subtracted from the rounded passing-score recommendation. The resulting values are rounded up to the next-highest whole number and the rounded values are converted to scaled scores.

SUMMARY

To support the decision-making process of the American Speech-Language-Hearing Association (ASHA) and state education agencies establishing a passing score (cut score) for the Praxis Speech-Language Pathology (5331) test, research staff from Educational Testing Service (ETS) designed and conducted a multistate standard-setting study.

ETS provides a recommended passing score from the multistate standard-setting study to help (a) ASHA establish a passing score as part of its Certification of Clinical Competence in Speech-Language Pathology (CCC-SLP) and (b) state education agencies establish a state-specific passing score for licensure/certification. For the Praxis Speech-Language Pathology test, the recommended passing score is 74 out of a possible 108 raw-score points. The scaled score associated with a raw score of 74 is 162 on a 100–200 scale.

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APPENDIX A

PANELISTS' NAMES & AFFILIATIONS

Participating Panelists With Affiliation

<u>Panelist</u>	<u>Affiliation</u>
Jessica Conrad	Special Services, Johnson County and Surrounding Schools (IN)
Angelica Gunn	Wellstar Health System (GA)
Fran Hagstrom	University of Arkansas – Fayetteville (AR)
Melissa Herzig	Minot State University (ND)
Elisa Huff	St. Ambrose University (IA)
Tyese Hunter	Tennessee State University (TN)
Nia Johnson	Darlington County School District (SC)
Sarah Leslie	Carespring Health Care Management (OH)
Nicole Moran	Genesis Rehab Services (OH)
Rebecca Peixoto	Marlborough Public Schools (MA)
Ericka Shuptar	Capitol Area Physical Therapy Associates (MI)
Sarah Stuntebeck	University of Wisconsin-Madison (WI)
Joann Thompson	P186X Walter J. Damrosch School (NY)
Emily Tipograph	Montgomery County Public Schools (MD)
Leisha Vogl	Sensible Speech-Language Pathology, LLC (OR)
Sarah Wallace	Duquesne University (PA)
Tomoko Yokooji	Windward District, Dept. Of Education, Spec. Svs. Division (HI)

APPENDIX B
STUDY AGENDA

AGENDA

Praxis Speech-Language Pathology (5331) Standard-Setting Study

Day 1

Welcome and Introduction

Overview of Standard Setting and the Praxis Speech-Language Pathology Test

Review the Praxis Speech-Language Pathology Test

Discuss the Praxis Speech-Language Pathology Test

Lunch

Describe the Knowledge/Skills of a Just Qualified Candidate

Break

Standard-Setting Training

Round 1 Standard Setting Judgments

Collect Materials; End of Day 1

Day 2

Overview of Day 2

Round 1 Feedback and Round 2 Judgments

Lunch

Feedback on Round 2 Recommended Passing Score

Complete Final Evaluation

Collect Materials; End of Study

APPENDIX C

JUST QUALIFIED CANDIDATE DESCRIPTION

Description of the Just Qualified Candidate⁵

A just qualified candidate ...

- I. Foundations and Professional Practice
 - A. Foundations
 1. Knows common characteristics of common communication, cognitive and swallowing disorders
 2. Understands communication and cognitive, typical/atypical development (i.e., sequence, timeframe) and performance across the life span - recognizes “red flags”
 - B. Professional Practice
 1. Understands key elements of documentation and how to produce accurate documentation across settings
 2. Understands how to follow ethical guidelines within the scope of practice
 3. Can identify culturally and linguistically appropriate service delivery approaches and strategies for client advocacy
 4. Knows how to collaborate with team members to guide treatment and support prevention of communication, swallowing and cognitive disorders
 5. Knows common research methods and knows how to implement evidence-based practice
- II. Screening, Assessment, Evaluation, and Diagnosis
 - A. Screening
 1. Understands how to select appropriate screening procedures or tools and effectively identify areas needing further assessment
 - B. Approaches to Assessment and Evaluation
 1. Knows how to develop a comprehensive case history, select (common) appropriate formal and/or informal assessment measures and procedures, and make appropriate referrals
 - C. Assessment Procedures and Assessment
 1. Understands how to administer, score, and interpret formal and informal assessment measures for the Big 9 areas of speech-language pathology across the lifespan
 2. Knows when and how to adapt evaluation procedures to meet individual patient needs
 3. Knows ramifications of adapting evaluation
 - D. Etiology
 1. Can identify common genetic, developmental, disease-related, auditory, neurological, structural and functional, and psychogenic etiologies that may impact communication and swallowing disorders

⁵ Description of the just qualified candidate focuses on the knowledge/skills that differentiate a *just* from a *not quite* qualified candidate.

Description of the Just Qualified Candidate⁶ (continued)

A just qualified candidate ...

- III. Planning, Implementation, and Evaluation of Treatment
 - A. Treatment Planning
 - 1. Understands how to initiate, develop and communicate treatment plan and goals
 - 2. Knows how to prioritize, adapt, and revise treatment goals
 - 3. Knows positive and negative prognostic indicators related to provision of treatment and prognosis (e.g., lack of motivation, severity, culture, behavior)
 - B. Treatment Evaluation
 - 1. Knows different methods for monitoring treatment progress and outcomes
 - 2. Is familiar with the importance of and processes for following up on post-treatment referrals and recommendations
 - C. Treatment
 - 1. Knows typical treatments for the Big 9

⁶ Description of the just qualified candidate focuses on the knowledge/skills that differentiate a *just* from a *not quite* qualified candidate.

APPENDIX D

FINAL EVALUATION RESULTS

Table D1***Final Evaluation***

	Strongly agree		Agree		Disagree		Strongly disagree	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
• I understood the purpose of this study.	17	100%	0	0%	0	0%	0	0%
• The instructions and explanations provided by the facilitator were clear.	13	76%	4	24%	0	0%	0	0%
• The training in the standard-setting method was adequate to give me the information I needed to complete my assignment.	16	94%	1	6%	0	0%	0	0%
• The explanation of how the recommended passing score is computed was clear.	14	82%	3	18%	0	0%	0	0%
• The opportunity for feedback and discussion between rounds was helpful.	16	94%	1	6%	0	0%	0	0%
• The process of making the standard-setting judgments was easy to follow.	11	65%	6	35%	0	0%	0	0%

Table D1 (continued)

Final Evaluation

How influential was each of the following factors in guiding your standard-setting judgments?	Very influential		Somewhat influential		Not influential			
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%		
• The description of the just qualified candidate	15	88%	2	12%	0	0%		
• The between-round discussions	10	59%	7	41%	0	0%		
• The knowledge/skills required to answer each test item	12	71%	5	29%	0	0%		
• The passing scores of other panel members	2	12%	14	82%	1	6%		
• My own professional experience	6	35%	9	53%	2	12%		
	Very comfortable		Somewhat comfortable		Somewhat uncomfortable		Very uncomfortable	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
• Overall, how comfortable are you with the panel's recommended passing score?	9	53%	7	41%	1	6%	0	0%
	Too low		About right		Too high			
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%		
• Overall, the recommended passing score is:	1	6%	16	94%	0	0%		