



**Passing Score Review Report
Early Childhood Generalist -**

Subtest 1: Reading and English Language Arts

Subtest 2: Mathematics

Subtest 3: Science, Health, and Physical Education

Subtest 4: Social Studies and Fine Arts

Career and Technical Education – Agriculture

Career and Technical Education – Family and Consumer Sciences

Science – Chemistry

Science – Life Science

Science – Physics

Social Studies – Historical Perspectives

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Indiana CORE Assessments for Educator Licensure

Passing Score Review Report

Introduction

The Evaluation Systems group of Pearson is working with the Indiana Department of Education (IDOE) to develop and administer the Indiana CORE Assessments for Educator Licensure program. The tests are based on IDOE-approved Indiana educator standards and include the following assessments.

- Core Academic Skills Assessment (CASA), an assessment of basic skills in reading, writing, and mathematics that may be used to satisfy entrance requirements at Indiana educator preparation programs.
- Developmental (pedagogy) area assessments that are based on the Indiana school setting developmental teacher standards and are required for educator licensure.
- Content area assessments that are based on the Indiana content area (and administrator) educator standards and are required for educator licensure.

CASA became operational in July 2013. The developmental and content area tests required for licensure became operational in February 2014. IDOE and Pearson have been monitoring candidate performance on the assessments in the program. As a result of this monitoring, IDOE has requested that Pearson conduct a passing score review meeting for the following tests.

- Early Childhood Generalist Subtest 1: Reading and English Language Arts
- Early Childhood Generalist Subtest 2: Mathematics
- Early Childhood Generalist Subtest 3: Science, Health, and Physical Education
- Early Childhood Generalist Subtest 4: Social Studies and Fine Arts
- Career and Technical Education – Agriculture
- Career and Technical Education – Family and Consumer Sciences
- Science – Chemistry
- Science – Life Science
- Science – Physics
- Social Studies – Historical Perspectives

Report Purpose. This report presents results of the passing score review meeting that was conducted on June 23-24, 2015 for the tests listed previously. The results of the meeting may be used by the IDOE as they recommend new passing scores for the tests to the Indiana State Board of Education (SBOE). Evaluation Systems will work with the IDOE to provide additional information as needed for the presentation of the passing score recommendations to the SBOE.

Background

Evaluation Systems group of Pearson conducted a passing score review meeting with licensed Indiana educators and college faculty who prepare teachers in the content areas listed above. A modified-Angoff approach was used to gather passing score recommendations (standard

setting judgments) for each test. Panel members participated in three rounds of standard setting judgments.

Final panel recommended passing scores for the tests are provided to the Indiana Department of Education. These recommendations are based on the informed judgments of Indiana educators and educator preparation faculty who participated on the Passing Score Review panels. The IDOE may use the panel recommendations as they determine passing scores to recommend for the tests. The passing score review process employed for the Indiana CORE Assessments for Educator Licensure program is consistent with recognized psychometric principles and procedures, as outlined below.

Indiana Passing Score Review Panels

Educators and educator preparation faculty from across Indiana were invited to participate in the Passing Score Review activities. Educators were eligible to participate on a passing score review panel if they were licensed to teach the content area. Educator preparation faculty members were eligible to participate if they prepared prospective educators in the content area. The following table provides information about the composition of the Passing Score Review Panel.

Panel	Number Invited	Number Accepted	Number Attended
Early Childhood Generalist *	37	12	11
Career and Technical Education – Agriculture	24	8	6
Career and Technical Education – Family and Consumer Sciences	24	9	7
Science – Chemistry	30	12	12
Science – Life Science	49	9	9
Science – Physics	30	11	11
Social Studies – Historical Perspectives	35	10	9

* Panel reviewed four Early Childhood Generalist subtests.

Summary of Passing Score Review Meeting Procedures

The Indiana panels followed industry-accepted procedures for setting standards on licensing exams and certification tests. These procedures were used to determine a passing score recommendation for each assessment. Panel members first participated in a simulated test administration in which they were instructed to “take the test.” The purpose of this activity was to provide a context for panel members prior to making standard setting judgments.

Following the simulated test administration, panel members were trained in the procedures to be used to make passing score recommendations (i.e., standard setting judgments). Training included a discussion of the hypothetical reference group of candidates who have the “just acceptable” level of knowledge and skills to receive an initial educator license in Indiana. Panel members were referred to the Indiana educator standards to define the knowledge and skills expected of Indiana teachers. Panel members completed three rounds of standard setting judgments.

Panel members provided item-by-item judgments during the first round of the standard setting process. Following the first round of item-by-item judgments, panel members were provided with the results of their item ratings, the median rating provided by the panel, and the distribution of item ratings by other members on their panel. They were also provided with information on the percentage of candidates who answered each item correctly. During the second round of standard setting judgments, panel members were provided an opportunity to revise any item-by-item judgment in light of the round one ratings and the information on candidate performance on the items.

Following the second round of item-by-item judgments, each panel member's final item ratings were used to calculate a recommended passing score for the test. Panel members were provided with the results of their recommended passing score for the test, the panel recommended passing score for the test, and the distribution of the recommended passing scores by other members on their panel. They were also provided with information on the impact of the panel recommended passing score on candidate pass rates. During the third round of the passing score review process, panel members were asked to provide a test-based recommended passing score for the test.

The test-based panel recommended passing score reflects the median rating of all panelists of their final judgments regarding estimated performance of candidates who have the "just acceptable" level of knowledge and skills to receive an initial Indiana educator license in the content area.

Determination of Passing Scores

The Indiana State Board of Education (SBOE) will establish a passing score for each of these assessments. These passing scores will be based on the recommendations of Indiana educators and educator preparation faculty who participated on Standard Setting Panels. The SBOE may consider setting the passing score for each test at the panel recommended passing score or setting the passing scores at one or more standard errors of measurement (SEM)¹ above or below the panel recommended passing scores. See "Standard Error of Measurement" in Appendix A for a discussion of the considerations behind such a policy decision.

Once the tests have been operational for an additional period of approximately six months to one year, the IDOE may wish to review the impact of the passing scores and may choose to recommend that the SBOE adjust the passing scores on the basis of candidate performance on the assessments.

¹ Standard error of measurement (SEM) refers to an estimated SEM that is calculated based on Frederic Lord's classic paper (Lord, 1955).

Appendix A

Considerations in Setting Passing Scores

As described in the *Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education, 1999), the standard setting process is a key piece of validity evidence supporting a testing program.

Defining the minimum level of knowledge and skill required for licensure or certification is one of the most important and difficult tasks facing those responsible for credentialing. Verifying the appropriateness of the cutscore or scores on the tests is a critical element in validity. The validity of the inference drawn from the test depends on whether the standard for passing makes a valid distinction between adequate and inadequate performance. Often, panels of experts are used to specify the level of performance that should be required. Standards must be high enough to protect the public, as well as the practitioner, but not so high as to be unreasonably limiting. Verifying the appropriateness of the cutscore or scores on a test used for licensure or certification is a critical element of the validity of test results (p. 157).

In determining the passing score for each test, the Indiana State Board of Education may consider the following factors and options that affect the standard setting process in determining a passing score recommendation.

Professional Judgments

The recommended passing scores for the tests are based upon the professional judgments provided by the members of the Indiana Standard Setting Panel for that field. An industry-accepted method for conducting standard setting for licensure and certification tests was employed to gather passing score recommendations. Panel members were trained in the standard setting process. They were provided opportunities to ask questions and seek clarification about the standard setting process. Specifically panel members were trained in how to make judgments regarding just acceptable candidates who have the knowledge and skills needed to receive an initial Indiana educator license.

Standard Error Adjustments of Passing Scores

Based on the number of scorable items answered correctly (or number of possible score points for constructed-response items), the candidate is awarded a raw score on the test. This score is the candidate's "observed" score. Each candidate's observed score is expected to be in a range around the true score. Thus, if a candidate were to take the same test multiple times, without studying or contemplating the answers between tests, there is a random chance that the observed score will be slightly different each time. For candidates whose knowledge and skills are slightly above or below the minimum required level, this may result in:

- a candidate classified as having the required level of knowledge and skills on the basis of their observed score being at or above the panel recommended passing score, when they would be classified differently on the basis of their true score (false positive)
- a candidate classified as *not* yet having the required level of knowledge and skills on the basis of their observed score being below the panel recommended passing score,

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when they would be classified differently on the basis of their true score (false negative)

One way to adjust for this level of measurement error is to set the passing score for the test at one or more standard errors of measurement (SEM) above or below the panel recommended passing score, with consideration to the relative consequences of false positives and false negatives.

For example, a false positive decision on the test may result in a not-yet-qualified candidate receiving a passing score and, if the candidate had also met all other licensure requirements, being awarded an Indiana educator license. On the other hand, a false negative decision on the test may result in a qualified candidate, who had met all licensure requirements, being temporarily denied an Indiana educator license for not yet receiving a passing score on the test. The candidate would have the opportunity to retake the test at a subsequent test administration.

In determining the passing score, the State Board of Education should take into consideration that setting the passing score at one or more SEMs above or below the panel recommended passing score would potentially reduce *either* the incidence of false positives *or* the incidence of false negatives, but not both.

For example, setting the passing score above the panel recommended passing score may reduce the incidence of false positives, but would potentially increase the incidence of false negatives, depending upon the number of candidates whose knowledge and skills are only slightly above the minimum required level. Conversely, setting the passing score below the panel recommended passing score may reduce the incidence of false negatives, but would potentially increase the incidence of false positives, depending on the number of candidates whose knowledge and skills are only slightly below the minimum required level.

Thus, when determining whether or not to set the final passing scores at the panel recommended passing score or at one or more SEMs above or below the panel-based passing scores, the State Board of Education should consider the issues of protecting the public (i.e., children in the classroom) from not-yet qualified candidates (limiting false positive decisions) versus ensuring that qualified candidates are identified as such (limiting false negative decisions).