Pearson–Praxis Assessments Review Teacher Certification Assessment Technology Education: A Report for the Council on Technology and Engineering Teacher Education

Objectives

1. Study and prepare a short report on Pearson and its implications for accreditation standards;
2. Disclose the primary areas of study topics for TE teachers; and
3. Describe the Pearson process and its relationship to Praxis.

Praxis

The Praxis Series, developed by Educational Testing Services (ETS), has been the long standing assessment for teacher licensure. It is comprised of three separate skills examinations:

- Praxis Core Academic Skills for Educators (Core)
    - Tests designed to measure academic skills in reading, writing, and mathematics.
    - Attempting to measure content knowledge of candidates entering teacher preparation programs.
- Praxis I Pre-Professional Skills Tests (PPST)
    - Tests measure basic skills in reading, writing, and mathematics.
    - Tests are often used to qualify candidates for entry into a teacher education program.
- Praxis II Subject Assessments
    - Tests measure subject-specific content knowledge, as well as general and subject-specific teaching skills, deemed necessary for beginning teaching. (Educational Testing Service [ETS], 2014a)

The Praxis Core and I Assessments attempt to measure educational skill sets deemed imperative to candidate teachers. They focus primarily on mathematical, reading, and writing skills. The Praxis II Subject Assessment is based on the content area specific to perspective teachers' chosen area of specialty. This assessment is usually taken toward the end of a candidate teachers' collegiate preparation. As of 2014, the Praxis II Subject Assessment for Technology Education (Praxis II) was provided in 29 states and U.S. territories (see Table 1; ETS, 2014b).

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Table 1
Praxis II Subject Assessments

Technology Education—State List							
Alabama	Arkansas	Connecticut	Delaware	Hawaii	Idaho	Iowa	Kansas
Kentucky	Louisiana	Maine	Maryland	Mississippi	Missouri	Nebraska	Nevada
New Jersey	North Carolina	North Dakota	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota
Tennessee	Utah	Virginia	West Virginia	Wisconsin			

Note. Adapted from Educational Testing Service (2014b).

The domains associated with the Praxis II assessments are standardized and replicated in all participating states. The domains are broken down into six areas (see Table 2). Within each of the six domains are a variety of subareas that are derived from the *Standards for Technological Literacy* (STL) from the International Technology and Engineering Education Association and the *National Educational Technology Standards for Teachers* (NETS-T) from the Society for Technology in Education. The product is a 120 question multiple-choice assessment that is administered over a 2 hour examination period. It is currently available in both paper and computer-based format and requires a test fee of $115 from the candidate teacher (ETS, 2014c).

Table 2
Praxis II: Technology Education Assessment Domains

Domains	Exam Percentage
• Technology and Society	15%
• Engineering or Technological Design and Problem Solving	20%
• Energy, Power, and Transportation	15%
• Information and Communication Technologies	15%
• Manufacturing and Construction Technologies	15%
• Pedagogical and Professional Studies	20%

Note. Adapted from *The Praxis Study Companion: Technology Education* (Educational Testing Service, 2014d).

Pearson

Since the early 2000s, Pearson Education began offering a series of updated teacher certification assessments. Pearson Education currently offers three

categories of assessment tools for candidate teachers. These include the following:

- National Evaluation Series (NES)
    - Entry-level assessment that attempts to reflect contemporary teacher knowledge and skill sets
- Custom Programs (CP)
    - Assessments designed for specific content and reflect individual state needs
    - edTPA (formerly the Teacher Performance Assessment developed at Stanford University) Performance-based assessment protocols developed to evaluate candidate teachers level of classroom preparation
    - Still owned and authored by Stanford University. (Pearson Education, 2014a)

The NES is similar to the Praxis Core and I assessments in that all attempt to measure candidate teacher basic skill sets prior to entrance into an education preparatory program. On the other hand, edTPA is a performance-based assessment (in the form of a portfolio) developed for candidate teachers whom are close to the end of their formal education. It was developed by Stanford University faculty and staff at the Stanford Center for Assessment, Learning, and Equity (SCALE). Institutions can elect to utilize the Pearson ePortfolio system, or they may utilize their own portfolio requirements. In either case, candidates can have their documentation reviewed and scored by edTPA. If institutions were to opt for the Pearson ePortfolio (integrated) approach, the faculty would have access to the candidates portfolios and would be able to provide feedback (edTPA, 2015). Because edTPA is not a Pearson product, universities, programs, and individuals may self-submit their work for review and ranking through edTPA. The individual fee for a portfolio assessment is $300 (etTPA, 2015).

Historically, this type of assessment was performed by the supervising educational program and their assigned faculty, with the end product being that of a course grade and student teacher portfolio after the required number of teaching hours was achieved. This relatively new assessment intends to aid educational programs by providing candidate teachers with multiple-measure assessments that reflect state and national standards in addition to current teacher necessities. The hopeful products are capable and equipped classroom teachers prepared for the contemporary classroom (Pearson Education, 2014).

Lastly, the Pearson CP (henceforth, Pearson TE) addresses specific content areas as individual states require. Unlike the Praxis II assessment, the Pearson TE is not standardized. Each state develops domains from which the specific content assessment is drafted. The identified domains do suggest that national standards are reflected but also highlight specific areas that may or may not be

of equal importance in other states or nationally. The Pearson TE variance is not only reflected in the domains of the assessment but also the formats and associated fees. Appendix A provides some evidence for the variance that is currently identified. Looking through the list, it is apparent that most states do possess similar domains (or topics within those domains). It also should be evident that some domains are exclusive to the state and reflect possible local educational objectives. As of today, 24 states are using Pearson Education assessment tools, 13 of which assess for technology education teacher certification (Pearson Education, 2014).

Comparison

Based upon this peripheral review, both the Pearson TE and the Praxis II – TE assessments share a majority of domains and topics with regard to assessment. The only discernable differences were presented in some of the state-specific domains on the individual Pearson TE assessments. Appendix B displays a frequency chart that depicts the occurrence of certain terms that were common in domain language. Thirteen terms were prevalent in both Praxis II and Pearson domains, appearing 30 times or more. The remaining accessory terms were associated with some of the variance in state-specific language and state-specific domains associated with the Pearson TE model.

The two assessment brands varied to a greater degree with regard to consistency. The Praxis II assessments were standardized and identical regardless of state or territory. They possessed the exact same number of items (120 multiple-choice questions), cost ($115), and were available in in both paper and computer-based formats. The Pearson TE currently offers both paper and computer-based formats like the Praxis II assessment. However, after reviewing several associated state websites, Pearson TE is transitioning to a fully computer-based format with online accessibility. The rationale for this transition is to improve transferability and communication of assessment scores between states. However, the Pearson TE assessment varies in format and cost (as depicted earlier in Table 1.2). Though most of the Pearson TE assessments share the basic constructs emulated within the STL and on the Praxis II assessments, the variance between states could present some difficulty when attempting to accredit various educational programs on a national scale or allow teachers to transfer to different states without having to retake local certification assessments.

It would also appear that the Praxis II assessment still retains the majority interest from states seeking teacher certification assessments for TE. Interestingly, after reviewing the current influence of the Pearson assessment system, there may be an upcoming shift in majority interest. As stated earlier, the Praxis II assessment is currently employed in 29 states, whereas the Pearson TE is only employed in the 13. Of the current 13 states, all had utilized the Praxis II prior to transitioning to the state specific version of the Pearson TE.

Additionally, there are currently 11 other states that are utilizing Pearson Education assessments for fields other than TE; seven of those states currently utilize the Praxis II (four do not currently possess a TE assessment under either Pearson or Praxis, see Figure 1). To further clarify the weight of this possible shift, a color-coded map of the United States was developed to better communicate the distribution of assessments (see Figure 2). All of the researched areas are represented on the map, with the exception of the District of Columbia, Guam, and the U.S. Virgin Islands (all of which fall under the "Neither" category with regard to TE assessment).

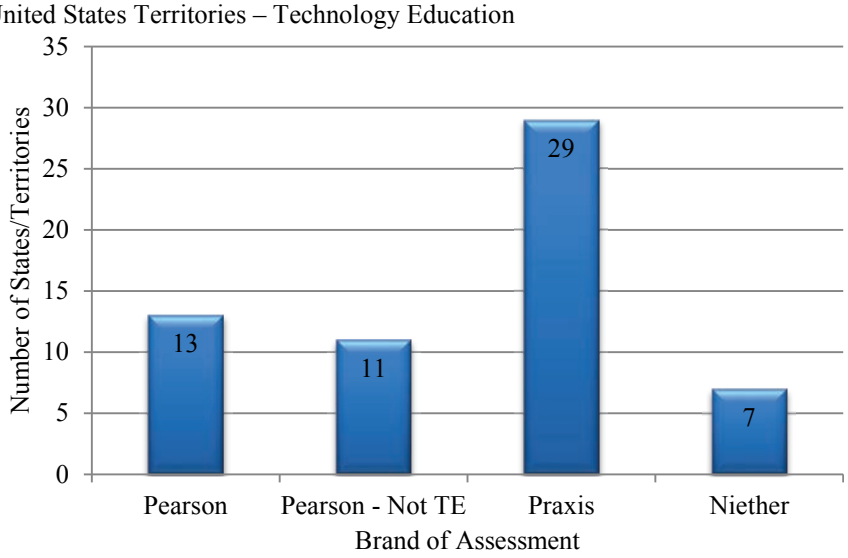

Figure 1. Teacher certification assessment brand distribution. Territories include the following: District of Columbia, Guam, and the U.S. Virgin Islands.

At this time, four possible rationales have been formulated that may explain the possible transition from the Praxis II assessment to the Pearson TE assessment. They are as follows:

1. Pearson Education is the first assessment brand to align with the Common Core standards.
2. Pearson Education is the first assessment to move to fully computerized, online assessment format.
3. Pearson Education possesses a more robust, action-based assessment component (edTPA) that the Praxis assessment series does not possess.

4. Pearson Education is the only teacher certification assessment that includes individual state standards in addition to state selected national standards. (Pearson Education, 2014)

Provided these four rationales, it may only be a matter of years before the Praxis Series assessments are replaced by the Pearson Education assessments. However, issues regarding non-standardized format, cost, and content may prolong, if not prevent, a full transition. Also, the ETS is in the process of developing its own version of the edTPA (Praxis Pre-Service Portfolio) to be provided along with the rest of their current assessment structure. As of 2013, 16 states had signed on to work with ETS in the development of their candidate performance-based, portfolio assessment system (ETS, 2013).

United States Territories—Technology Education

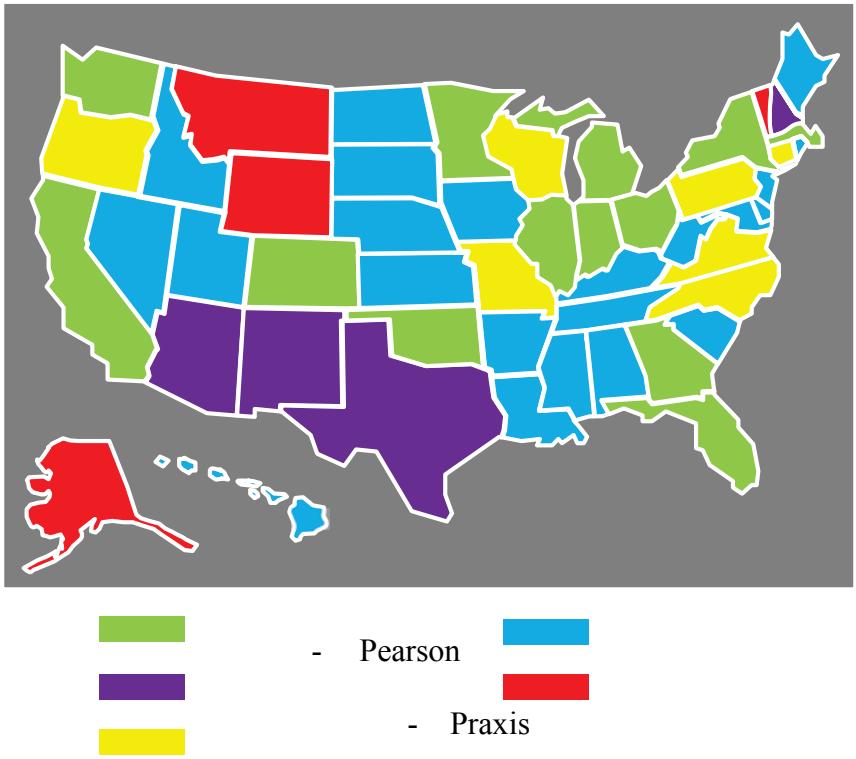

Figure 2. Teacher certification assessment brand distribution. Territories include the following: District of Columbia, Guam, and the U.S. Virgin Islands.

Accreditation

The U.S. Department of Education provides a list of requirements for basic accreditation eligibility (Subpart B) within categories 602.10–602.28. Each category addresses a specific aspect of the criteria that must be addressed prior to agency recognition. The categories include areas such as geographic scope, accrediting experience, and administrative and fiscal responsibilities. With regard to the previously detailed assessments, the sections that following the heading "Required Standards and Their Application" (sections 602.16–602.21) are of particular interest and may directly frame the candidacy for the Council on Technology and Engineering Teacher Education (CTETE) to become an accrediting agency (U.S Department of Education, 2014). These sections outline the need for rigorous agency accreditation standards that address the quality of a given teacher preparation institution. Also included are categories that address decision making, evaluation, and enforcement. As an example, areas of the teacher preparation institution or program that will be of interest include but are not limited to: student success, curricula, faculty, facilities, and equipment (U.S. Department of Education, 2014).

Each of the areas listed in the document do offer a certain amount of ambiguity to purposefully allow the agency leniency in assessing the institution or program. For instance, student success may include a variety of different elements that reflect institutional, state, or national standards. Additionally, student performance can be measured through course completion, job placement, or state licensing examinations (U.S. Department of Education, 2014). Therefore, if the CTETE were to become an accrediting agency for technology and engineering education, it could utilize either the Praxis II or Pearson TE assessments as evidence toward measuring student success. However, this would only be acceptable if the CTETE were to develop its own standards for teacher preparation institutions that account for the two assessment tools and their unique perspectives on student success. It is within areas like this example that the variances between the Praxis II and Pearson TE could provide some apprehension.

Conclusion and Recommendation

It is the recommendation of this researcher that the CTETE consider further investigation into becoming an accrediting agency for teacher certification institutions or programs in technology and engineering education. Though the variance between Praxis II and Pearson TE (and between state versions of Pearson TE) do present some challenges, it would be up to the purview of the CTETE as to how and to what degree the council wished to address the variance. In other words, the CTETE would have to decide the degree of accreditation that they wish to address—national, state, or a combination of the two. Also, as outlined in the accreditation requirements, the CTETE must establish a history of accreditation practices prior to applying for recognition.

Although no timeframe is clearly provided for what constitutes an appropriate history, if the CTETE were to seriously entertain the possibility of becoming an accrediting agency in the near future, it must attempt to be recognized as such an authority. Partnering with other organizations (e.g., the International Technology and Engineering Educators Association, the American Society for Engineering Education, and the Association for Career and Technical Education) may provide a more comprehensive and secure foundation from which to build an accrediting agency.

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Appendix A
Technology Education: Custom Program

State	Domains	Tests	Items	Cost
California	• Nature of Technology • Energy, Power, and Transportation • Information and Communication • Project and Product Development	2	Multiple Choice (MC), Constructed Response (CR)	$267
Colorado	• Fundamentals of Technology • Communication and Information Systems • Energy, Power, and Transportation Systems • Production and Construction Systems • Technology Education Programs	2	MC	$155
Florida	• Nature and Impacts of Technology • Principles of Drafting • Principles of Engineering • Energy and Power Technologies • Information and Communication Technologies • Transportation Technologies • Manufacturing Technologies • Construction Technologies • Laboratory Management and Safety • Technology Education, Professional Development, and Standards-based Instruction and Assessment	1	MC	$200
Georgia	• Technology and Society • Abilities for a Technological World • Professional Development • The Nature of Technology • Design • The Designed World	2	MC	$193
Illinois	• History and Nature of Technology	1	MC	$86

	• Design, Development, Management, and Assessment • Information, Energy, and Physical Technologies			
Indiana	• Foundations of Engineering and Technology • Energy, Power, and Communication Systems • Manufacturing and Construction Systems • Transportation, Biotechnology, and Medical Systems • Instruction and Assessment	1	MC	$114
Massachusetts	• Foundations and Engineering Design • Energy and Power Systems • Construction Technologies • Manufacturing Technologies • Communication Technologies • Transportation Technologies	1	MC, CR	$130
Michigan	• Concepts and Applications of Technology • Physical Technology • Information Technology • Bio-Related Technology	1	MC	$130
Minnesota	• Fundamentals of Technology • Energy and Power Technology • Transportation Technology • Communication Technology • Manufacturing and Biotechnology • Construction Technology	2	MC	$120
New York	• Fundamentals of Technology • Communication Systems • Power and Energy Systems • Manufacturing and Construction Systems • Transportation Systems • Bio-related Systems	1	MC, CR	$79

Ohio	• Nature of Technology • Energy, Power, and Transportation • Information and Communication • Manufacturing and Construction	2	MC, CR	$105
Oklahoma	• Fundamentals of Technology • Arts/AV, Communications, and Information Technologies • Architecture and Construction • Manufacturing • Transportation, Distribution, and Logistics	1	MC, CR	$130
Washington	• Foundations and Design • Energy and Power Technology • Information and Communication Technology • Transportation Technology • Manufacturing Technology • Construction Technology	1	MC	$155

Note. Adapted from Pearson Education (2014a).

Appendix B
Teacher Certification Assessment Domains: Common Terms