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# The Value of Computer-Based Teacher Certification Testing

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A paper from the Evaluation Systems group of Pearson

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## Introduction

A growing body of research concludes that the efforts of qualified, effective classroom teachers have a significant impact on student academic achievement. Today, with an increased focus on accountability in education and simultaneously diminished state and local budgets, it is highly critical that school districts know that the teachers they are hiring are prepared to teach in twenty-first century classrooms.

From the federal to the local level, policymakers have long focused on ensuring that new teachers are prepared to use effective and current instructional methods, and that they are knowledgeable in specific content areas. While the need for qualified, knowledgeable teachers is shared throughout the United States, individual states and regions often have unique demands for teachers in certain certification areas. For example, while the need for certified bilingual/English language learner (ELL) teachers is rapidly becoming prevalent throughout the country, the southwestern states, such as Arizona and New Mexico, and large population states, such as California and Texas, are faced with even greater demand for teachers in this specialty area. Special education, foreign language, mathematics, and science are other areas in which teachers are in increasingly high demand around the United States.

In addition, there has been much national discourse in recent years about ensuring that students graduate with twenty-first century skills. The corollary to achieving this important goal is ensuring that the teachers who are placed in the classrooms to educate today's students enter the profession with twenty-first century skills. States must be confident that the teachers they are certifying are technologically literate—ready to teach students in the digital world in which they live—and that they possess a strong foundation in critical-thinking skills, an understanding of strategies for encouraging collaborative learning, and outstanding communication skills. Contemporary educator certification examinations must begin to assess these skills and abilities, as well as the knowledge of instructional strategies and competency in content areas that they have measured in the past.

Finally, states must respond to an increased demand for qualified teachers due to local, regional, and national teacher shortages that are occurring as a result of retirements and attrition. In particular, many states grapple with the continued challenge of low numbers of certified teachers in specific content areas. Subsequently, some states and school districts facing shortages must assign teachers to instruct classes when they are not trained to teach the specific subject matter or grade level, or do not have the appropriate content or pedagogical knowledge to provide targeted instruction to students with special learning needs.

To help states and school districts address these critical teacher certification challenges, Pearson has developed the NES<sup>®</sup> (National Evaluation Series<sup>™</sup>), the advanced system for educator

certification. The NES is a contemporary, 100 percent computer-based testing (CBT) program, using state-of-the-art methods in test development, delivery, and support. Developed by the Evaluation Systems group of Pearson, the most experienced developer of standards-based teacher certification testing programs, the NES offers states a new choice in educator certification testing to meet the demand for knowledgeable teachers. Delivered using innovative and secure methods, the NES combines Evaluation Systems' extensive experience in teacher test development, administration, and scoring, with the added value of delivery through CBT.

This paper explores the vision of how CBT can now and will in the future provide states with new methods for testing and recruiting knowledgeable teachers, as well as offer teacher certification candidates a more convenient, immediate testing experience.

## Computer-Based Testing (CBT): Another Approach to Professional Test Administration

Key to the value of any test or examination is its professional administration. To effectively measure an individual's knowledge or qualifications, each test taker must have the proper amount of time allocated to complete the examination, be assessed using comparable test questions, and complete the assessment in a similar setting. In addition, the test must be proctored—or monitored—by qualified test administrators who enforce consistency to ensure a valid result. When a test is professionally administered, these crucial principles are followed.

CBT reinforces and enhances the core benefits of professionally administered tests. The rigor of the test is consistently maintained because every test taker completes a computer-based test in the same way, during a designated test session in a professional testing center that is convenient to his or her college, university, or home. In general, modern test delivery centers are completely dedicated to testing and employ state-of-the-art security technology for test delivery, as well as for identification and verification of test takers. For example, Pearson Professional Centers, a network of dedicated testing centers around the country, have been awarded a patent for their unique security design, which features biometric verification of test takers. With this innovative system, when a test taker arrives at the center, he or she presents photo identification and then staff digitally collect the test taker's signature, photographic image, and fingerprint, creating a biometric record. If the test taker returns to the center to take another examination, staff repeat the process to verify the individual's identity, allowing access to a complete record of previous examination registrations, results, and other pertinent information attached to that test taker.

CBT facilities are staffed by trained professional proctors who ensure that each candidate seeking certification has the same testing experience. The centers are controlled environments designed and maintained specifically for test taking, with an emphasis on minimizing or eliminating potential distractions that might distort test results.

### *Advanced Question Types, Consistent, Immediate Scoring*

Comparable to paper tests, computer-based tests assess knowledge and skills using a variety of question types. Computer-based examinations can include multiple-choice, essay, and short-answer questions. In addition, advanced question types may be included that mirror an actual teaching environment, such as asking test takers to make instructional decisions as they are led through a simulated classroom experience. These advanced question types may integrate audio, video, or constructed-response simulations where each incremental step taken while arriving at a conclusion is noted by the computer.

CBT also provides added value when it comes to test scoring. Answers to multiple-choice questions are automatically scored, providing test takers and states with almost immediate results. CBT allows essays written by certification candidates to be routed quickly to educators for scoring using a series of secure, computer-driven procedures, such as through Pearson's patented distributed scoring system. This performance scoring technology integrates multiple processes—such as routing candidate responses, scoring responses, monitoring scorer reliability, and tracking process and workflow—in a single system. Responses requiring second scores or evaluation by additional scorers are automatically routed to qualified scorers, and all scores assigned to responses are captured and available for internal review.

In the future, state-of-the-art technology may offer states delivering their teacher certification examinations via CBT a variety of automated scoring options, initially on practice tests and later on operational tests. These current and emerging technologies may allow states to delve more deeply into the evaluation of candidates' specific skills or abilities. For example, in the high-demand specialty areas of ELL and foreign language, advanced technology, such as Ordinate<sup>®</sup> speech testing technology from Pearson, may be employed to evaluate the candidates' spoken language skills in an authentic conversation. Ordinate technology uses a proprietary speech processing system that is specifically designed to analyze and automatically score speech. CBT also allows responses to essay questions to be scored by computer, using technology such as Pearson's patented, state-of-the-art Knowledge Analysis Technologies<sup>™</sup> (KAT) engine, which automatically evaluates the meaning of text by examining whole passages.

Finally, CBT has the potential to provide states and teacher preparation programs with access to more data to inform the development of future examinations and enhance the teacher preparation program curriculum. For example, states may someday choose to extract specific diagnostic data from each candidate's test session, such as time spent on each question or changes made to answers during the completion of the examination. By aggregating and examining these critical data, states and teacher preparation programs can develop an overall view of the strengths and weaknesses of the candidate pool and then use that information to guide the development of their testing and preparation programs.

### ***Offering Candidates Flexible Test Scheduling, Immediate Results***

Delivering teacher certification examinations using CBT allows states to better meet the needs of candidates. Candidates can take the test on their own schedule at a testing center that is convenient to them. They do not have to wait for a specific testing date and time for an examination to be offered, but rather can schedule an examination for one of several days each week. They are not limited to one testing location. A candidate may take a certification examination for teaching in a state thousands of miles away, without leaving the state in which he or she is completing a teacher preparation program.

In most instances, CBT will also deliver immediate results to both candidates and states. This means that candidates do not have to wait for weeks to learn if they are likely to be certified to teach in a state where they want to live and work. With quick notification of their examination results, successful candidates can begin their job search promptly, and unsuccessful candidates can immediately prepare to remediate and retest.

### ***Expanding the Pool of Knowledgeable Teachers for States***

CBT offers states access to a large pool of knowledgeable teachers, which has the potential to improve teaching and subsequently learning for all students. Because candidates can take any licensing state's certification examination, no matter where they live or attend college, CBT allows states to recruit new teachers nationwide—and, in the future, possibly worldwide. CBT will also allow states to compare their candidates' test results with both national benchmarks and other states' results and make modifications in their requirements based on an interpretation of these outcomes.

## **Conclusion**

As a worldwide leader in test development and delivery, Pearson believes that all teacher certification examinations should be professionally administered to ensure valid results. Now the NES (National Evaluation Series), using computer-based testing (CBT), brings added benefits in test scheduling, delivery, and scoring to states and candidates around the United States. It gives states greater access to a larger pool of knowledgeable teachers, and it expands the opportunities and better meets the needs of candidates seeking certification.

The NES is a contemporary and comprehensive testing program developed based on Evaluation Systems' more than three decades of experience in standards-based teacher certification testing. Each of the tests is based on national, and in some cases global, content and pedagogy standards from leading education organizations in each content area, such as the National Council of Teachers of English and National Council of Teachers of Mathematics. More than 400 educators nationwide have participated in the test development process through the review of test

objectives and test questions, and more will participate in the setting of a national performance benchmark and in the establishment of passing standards state by state.

This rigorous test development process, combined with the benefits of CBT, allows states looking for a new choice in educator certification testing to use the NES to build a strong teacher workforce.

For more information about the NES, go to **[www.NEStest.com](http://www.NEStest.com)**.

## About Evaluation Systems and the NES

Evaluation Systems has more than three decades of experience developing, administering, and scoring tests for prospective teachers in the United States and, through its custom work for states, has created teacher certification tests for more than 100 content fields, professional teaching skills, and the basic skills of college-level reading, writing, and mathematics. Available in addition to Evaluation Systems' custom certification testing programs, the NES is a completely new dynamic testing program that offers states carefully developed, comprehensive examinations aligned to professionally accepted national learning standards. The NES teacher certification tests cover areas such as essential academic skills, professional knowledge, and commonly taught elementary, middle, and secondary grade-level subjects.

## About Pearson

Pearson (NYSE: PSO), the global leader in education and education technology, provides innovative print and digital education materials for pre-kindergarten through college, student information systems and learning management systems, teacher professional development, career certification programs, and testing and assessment products that set the standard for the industry. Pearson's other primary businesses include the Financial Times Group and the Penguin Group. The company's respected brands include Scott Foresman, Prentice Hall, Addison Wesley, Benjamin Cummings, the Stanford Achievement Test Series, the Wechsler family of assessments, SuccessNet, MyLabs, PowerSchool, SuccessMaker, and many others. For more information, visit **[www.pearson.com](http://www.pearson.com)**.

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