Among the purposes for the Texas Master Teacher Examination (TMTE) program was the desire to establish in Texas a uniform process and standard for recognition of teaching excellence and professional accomplishment. Key among any plans for improving the quality of education is the role of the classroom teacher. While there are a large number of factors that can affect the schools, the classroom teacher is the central element of any educational reform and improvement plan.

The Texas Master Teacher Examination is one component of the professionalization of teaching in Texas. A professional work environment can provide teachers the following.

- acknowledgment of their role in education
- career patterns and paths for their advancement
- encouragement for development and growth
- incentives for continuing participation in the profession

The master teacher concept in Texas is an attempt to recognize that qualitative differences in teaching expertise can develop through classroom experience and formal and informal learning. The principles of expert practice in instruction and classroom management, reflective consideration of effectiveness, ongoing learning in both formal and informal settings, and qualitative performance growth are central to the companion notions of the professional teacher and the master teacher. In addition, a substantial component of extraclassroom responsibility (including—potentially—mentoring or guiding other developing professionals, contributing to curriculum development and instructional improvement, and working with school administrators) was included.
in the Texas definition of the master teacher role; such extraclassroom activities are also frequently encountered in the definition of teacher professionalism.

The TMTE was designed to be dependent upon a substantive definition of the master teacher in Texas, which had been arrived at through the careful crafting of a set of research-based and practice-based master teacher competency statements. The competency statements were derived in part from recent research on teacher professionalism and in part from the input of practicing classroom teachers, particularly in Texas. The competency statements have been validated as appropriate for the TMTE program with substantial input from Texas educators. These statements, which have been made public to all examinees through a widely disseminated Texas Master Teacher Examination Preparation and Registration Manual, were designed to form the basis of all assessment questions in the TMTE and of the scoring of the written assignments.

A consideration of the master teacher competencies yields an appreciation of their substance, their complexity, and their congruence with recent research on professional teaching. The image of the teacher that emerges from the competencies is of the same active, astute, concerned, flexible, reflective, and informed practitioner that has been emerging from the professionalism literature. The competencies are provided in the TMTE Preparation and Registration Manual.

**Major Test Development Features**

Three key features of the examination development process were the involvement of Texas educators, the consistent and continuing attention to bias prevention, and the customization of the Texas Master Teacher Examination to the needs and environment of Texas. These features are described below.

**Texas Educator Participation**

The involvement of Texas educators was central to each stage of the examination development process. Texas educators were involved as members of advisory committees, as Master Teacher Survey and pilot test participants, and as pilot test scorers.
Advisory committees. The involvement of Texas educators included three groups established by the Texas Education Agency (TEA) to review and provide input on the examination materials. Four sets of review meetings were held throughout the development of the TMTE. These reviews provided involvement of Texas educators, consistent and continuing attention to bias prevention, and customization of the program to the needs and environment of Texas.

One of the groups established by the TEA was the Bias Review Committee (BRC), which included members representing various minority groups in Texas. The focus of the Bias Review Committee was on reviewing examination materials for potential bias and producing recommendations concerning bias prevention to be considered by the Content Advisory Committee and the TEA.

The second group established by the TEA was the Content Advisory Committee. The focus of the Content Advisory Committee (CAC) was on reviewing examination materials for content validity, freedom from bias, and accuracy, and on considering and incorporating comments from the Bias Review Committee into final recommendations to the TEA.

The Bias Review Committee and the Content Advisory Committee met three times during the examination development process. The first set of meetings was held in January 1990; its purpose was to review the draft list of competencies defining the content of the examination and the assessment specifications. The second set of meetings was held in April 1990; its purpose was to review the Master Teacher Survey results and the draft assessment questions. The third set of meetings was held in July 1990; its purpose was to review the pilot test results and to refine the content of the assessment questions for use in actual administrations of the TMTE.

The third group established by the TEA to review and provide input on the examination materials was the Item Validation and Standard Setting Panel. The panel comprised Texas educators who met independent of the BRC and the CAC. The panel was convened in August 1990 to reaffirm the validity of assessment questions and to provide judgments that would assist the state in setting the passing score for the examination.
Master Teacher Survey. In February and March 1990 approximately 2,000 Texas teachers and school administrators participated in a survey to establish the validity of the competencies proposed as a basis for examination content.

Pilot test. In May 1990 approximately 1,700 Texas teachers participated in a pilot test of assessment questions developed for the examination.

Pilot test scoring. In June 1990 approximately 65 Texas educators were involved in the scoring of written assignments that were pilot tested in May 1990.

Bias Prevention

The prevention of bias was addressed throughout the development of the TMTE. The following steps and reviews to prevent bias were included in the examination development process.

NES Equity Advisory Board. The NES Equity Advisory Board reviewed draft competencies and assessment specifications, draft assessment questions, the results of the Master Teacher Survey, and results of the pilot test. The focus of the Equity Advisory Board was on the prevention of potential bias. The Equity Advisory Board is composed of minority teachers, administrators, and university faculty trained in bias detection and equity issues.

Members of the Equity Advisory Board have been involved in development of the NES publication Bias Concerns in Test Development. That manual was used in this review and the manual itself was reviewed in light of the specific requirements of the TMTE.

Bias Review Committee. The Bias Review Committee established by the TEA was composed of minority Texas educators who reviewed competencies and assessment specifications, draft assessment questions, the results of the Master Teacher Survey, and the results of the pilot test. The focus of the Bias Review Committee was on the prevention of potential bias.

Content Advisory Committee. The Content Advisory Committee established by the TEA included minority educators. The committee reviewed the recommendations of the Bias Review Committee during its review of competencies and assessment specifications, draft assessment questions, the results of the Master Teacher Survey, and
the results of the pilot test. In addition, during each of these reviews, the Content Advisory Committee used freedom from bias as one criterion for its review.

**Master Teacher Survey.** The educators surveyed included members of various minority groups. The results of the survey were analyzed in part to determine if there were significant differences among various groups in the ratings given to each competency. The results of the survey were reviewed by the Bias Review Committee and the Content Advisory Committee.

**Pilot test.** The educators participating in the pilot test included members of various minority groups. Minority educators were also included in the scoring of pilot test written responses. The results of the pilot test were analyzed in part to determine if there were any significant differences in item functioning among various groups. Pilot test results were reviewed for potential bias by the Bias Review Committee and the Content Advisory Committee.

**Item validation and standard setting.** The item validation and standard setting panel, established by the TEA, included members of various minority groups. Members of the panel used freedom from bias as one criterion for rating item validity. Panel members were instructed to rate an item not valid if they considered it to be potentially biased against any group of examinees.

**Standard setting.** In making recommendations to the State Board of Education concerning the passing standard, the TEA considered input from practicing educators as well as data on the relative impact of various cutscore options on different groups of examinees.

**Customization**

An important feature of the TMTE is that its design and content were customized to the needs and requirements of the state of Texas. The examination was designed to be responsive to the legislation and program policies that engendered it. Texas educators were directly involved in each stage in the development process. Policies relating to the development and implementation of the TMTE were designed and/or approved by the TEA, with input from Texas educators.
Examination Design

A discussion of the design of the TMTE follows. Examination content and framework, TMTE item types, the length and structure of the TMTE, and scoring and scaling of the TMTE are addressed below.

Basis for Examination Content

The TMTE was designed to measure the knowledge and skills required of a master teacher in Texas. The sources used in defining the content to be assessed included the following.

- state rules and regulations pertaining to the definition of a master teacher, master teacher duties, and Texas Teacher Career Ladder level four entry and maintenance
- TEA Commissioner’s Master Teacher Appraisal Advisory Committee definition of a master teacher
- the Texas Teacher Appraisal System
- the National Board for Professional Teaching Standards
- research literature on expertise in teaching

Examination Framework

The TMTE is a criterion-referenced test. The content of the examination is defined by an examination framework designed to serve three main functions: (1) to clearly communicate to prospective examinees what content is covered on the examination; (2) to clearly communicate to examination developers what content is to be assessed and how that content is to be assessed; and (3) to provide a context for interpreting examination results. The framework includes the following components: domains, competencies, and contextual statements, each of which is described below.

Domains. The TMTE comprises two domains, Instruction and Professional Leadership. Each represents a major component of the definition of a master teacher in Texas. The relative size of each domain depends on the importance and breadth of content contained within it. The Instruction domain is organized into two subareas: Planning and Delivery, and Management and Assessment.

Competencies. Each domain is defined by a set of competencies. Each competency is a broad statement describing a significant aspect of the job of a master teacher in Texas. There are a total of 11 competencies; eight in the Instruction domain and three in Professional Leadership.
**Contextual statements.** Each competency is further defined and clarified by a contextual statement.

**Item Types**

The Texas Education Code (TEC § 13.316) stipulated that the TMTE be a written examination. A variety of assessment formats were developed for the TMTE in order to provide a range of measures of the competencies. Items are in two basic categories: Written Assignments and Multiple-Choice Questions, each of which is described below.

**Written Assignments.** Three types of written assignments were developed for the TMTE: Written Analysis assignments, Work-Sample Product assignments, and Educational Management Problem assignments. Written Analysis assignments require examinees to describe, analyze, and/or evaluate relevant aspects of instruction and/or professional leadership in their assignment area and level; Work-Sample Product assignments require examinees to produce a work-related product pertaining to instruction and/or professional leadership in their assignment area and level; and Educational Management Problem assignments require examinees to explain and justify how to manage a given situation or problem related to instruction and/or professional leadership. Items were written for each of these types of assignments and were designed to measure the competencies and to allow examinees to respond in their own assignment area and level, drawing on their professional knowledge and experience in education.

**Multiple-Choice Questions.** All multiple-choice questions were designed to measure a specified competency. Items were written to include common classroom and educational situations representing a range of grade levels and subject areas as context/setting but were designed to be content-independent in terms of any given examinee’s ability to select the correct answer. These questions were written in three formats.

The first of these formats is the Four-Response Option. These items were based on descriptions of educational situations, simulated or actual samples of teacher materials or student materials, or professional readings. Some items were written as single questions. Others were clustered in groups of three or more to a single stimulus.
Another multiple-choice question format is the Multiple Correct Responses format. Some items were written in a format requiring examinees to choose a set of responses rather than a single response. These items were linked to stimuli similar to those used for the four-response option questions (i.e., descriptions of educational situations, simulated or actual samples of teacher materials or student materials, or professional readings).

The third type of multiple-choice question is the Latent-Image Question. These were developed as educational management problems in a multiple-choice format. Questions were clustered in sets of three, each set of three questions linked to a given educational situation. Each set begins with a description of the situation. Each question asks for a specified number of recommendations or actions to be selected from the six response options provided. Latent-image technology was employed to provide examinees feedback on each option selected. The feedback (additional information, results of action) is hidden from the examinee until the option is chosen and the information is revealed with a special pen. The feedback revealed is then considered by the examinee in selecting options in subsequent items in each set of items.

Length and Structure of the Examination

The length and the structure of the TMTE are discussed below.

Length. The length of the examination was established as one full day comprising eight hours of testing time. The length of the examination was designed to do the following.

- provide a valid and reliable decision regarding each examinee’s knowledge and skills in relation to the definition of a master teacher in Texas as contained in the TMTE competencies
- provide a comprehensive measure of the range of the knowledge and skills required of a master teacher in Texas as defined by the TMTE competencies

Structure. Each form of the examination is designed to include 66 multiple-choice items and three written assignments. Domain 1 (Instruction) includes eight of the 11 competencies, approximately three quarters of the competencies and the test. Domain 2 (Professional Leadership) includes three of the 11 competencies, approximately one quarter of the competencies and the test. And the three written assignments on each form represent one or more of the three types of assignments developed.
Scaling and Scoring

The scaling and the scoring of the TMTE are described below. The Texas State Board of Education provided two possible routes for passing the TMTE: one route is compensatory, the other is disjunctive.

Scaling. The two sections of the examination are defined as the multiple-choice section and the written assignment section. The examinee score on each section is reported on a scale of 0 to 100, with the raw cutscore for each section set to 85 on the scale of 0 to 100, using a linear transformation. An examinee’s total scaled score is the sum of the two section scaled scores, and ranges from 0 to 200.

Compensatory model. The total passing score in the compensatory scoring model is 170 on the scale of 0 to 200. An examinee’s total scaled score is the sum of the two section scaled scores. In the compensatory model, any combination of section scaled scores totaling 170 or above represents a passing score for the examination as a whole.

Disjunctive model. An examinee may also pass a single section by achieving a section scaled score of 85 or above. Accordingly, in this disjunctive model, an examinee can pass one section at one administration and pass the other section at a subsequent administration.

Examination Development Process

Development Activities

Examination development activities began in the fall of 1989 and were completed in the fall of 1990. The development activities are summarized below.

Define the competencies to be measured. The process for defining what the examination should measure began with the establishment of a general examination framework to guide the initial and subsequent examination development activities. In the fall of 1989 the initial list of domains and competencies proposed as a basis for the examination was developed in accordance with the examination design framework and with the initial input of classroom teachers. Other sources were consulted in the preliminary examination definition process, including State Board of Education rules, the Texas Master Teacher Advisory Committee, teacher appraisals in other states, and research on
teaching. The Content Advisory Committee (CAC) and Bias Review Committee (BRC) of Texas educators used this preliminary draft definition in constructing the final list of competencies to be assessed.

**Develop assessment specifications.** In December 1989 and January 1990 assessment specifications were written to provide guidance to the writers of the examination questions on what was to be covered on the examination and how questions should be written. Sources included those used in the development of the competencies, as well as examination formats and assessment methods used in professions other than teaching. The CAC and BRC reviewed and finalized the assessment specifications.

**Conduct the Master Teacher Survey.** In February and March 1990 a survey was conducted to establish that the list of competencies proposed as the basis for the examination represented the competencies that define the job of a master teacher in Texas. Texas teachers and school administrators participated in the survey. Each survey participant was asked to rate the importance of each competency. The results of the survey were presented to the members of the BRC and the CAC for review.

As a supplement to the survey, interviews with and observations of Texas teachers on level three of the career ladder were conducted in January and February 1990. The interviews and observations were conducted to determine if the proposed competencies were evidenced by superior teachers through direct contact with practicing teachers at level three of the Texas career ladder representing a range of schools, assignment areas, and grade levels.

**Develop and review assessments.** In the winter and spring of 1990 examination questions were developed to assess the domains and competencies defining the job of a master teacher in Texas. During development, items were reviewed by and piloted with experienced teachers. The CAC and the BRC reviewed and revised the draft questions in April 1990.

**Conduct pilot test and review assessments.** In May 1990 a pilot test of the examination questions was conducted with Texas teachers. The results of the pilot test were presented to the CAC and the BRC. Both groups used the pilot test results to review the examination questions and suggest revisions.
Conduct item validation and standard setting. In August 1990 an item validation and standard setting panel was convened. At this meeting, educators not previously involved in TMTE development activities met to independently review and revalidate the examination questions and to provide judgments that were considered by the state in establishing the passing score for the TMTE.

Summary

The TMTE uses a variety of assessment methods, including three types of written assignments, to assess the professional knowledge of experienced teachers in relation to a well-defined set of competencies. The written assignment portion of the examination is designed to assess teachers’ professional knowledge as applied to their content area of expertise. The multiple-choice portion is designed to assess professional knowledge independent of a particular content area or grade level.

The examination was developed through a multistage process. A wide range of sources were employed, and experienced educators were involved at every step in the development process. Texas educators in particular played a central role throughout the development of the TMTE.