Critical Tasks to Measure Teacher Performance: A Design Model

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Statement of the Problem

NCATE (2002) requires the measurement of knowledge, skills, and dispositions as part of its accreditation requirements for teacher education programs (Standard 1) and the use of unit assessment systems to aggregate and analyse data with a view toward program improvement (Standard 2). Data must indicate that candidates meet professional, state, and institutional standards. Institutions nationally are struggling with meeting these two standards.

In this presentation, we will provide ten recommendations then describe a five-step design model for developing a standards-driven, task based assessment system that can yield valid, reliable and fair decisions about teacher candidates’ knowledge, skills, and dispositions on all three sets of standards. This model is integrally linked to sound measurement theory and practice, most notably the Standards of Educational and Psychological Testing (APA, AERA, and NCME, 1999). The recommendations are drawn directly from those standards. This model has evolved over a four year period.

Critical Flaws Impeding Validity

There are four critical flaws in the typical assessment process, which make meeting psychometric requirements virtually impossible. These flaws result in a hodgepodge or haphazard collection of evidence assembled without use of design frameworks or blueprints (AERA, APA, NCME Section 3, 1999):

- No design frameworks or blueprints were established to chart a path for how the assessment system would come together.

- Evidence is typically drawn from a collection of class assignments, designed based on course objectives to determine a course grade and then used as summative assessments of standards to which they may be partially aligned. Thus, they are being used for a purpose for which they were neither designed not intended.

- The collection of artefacts, self-selected by the student or chosen solely on the basis of a tangential relationship to a standard rather than a predetermined alignment with all important aspects of a standard, typically fail to stand the test of construct representativeness (or domain sampling). Sampling (through a test blueprint) was not the design starting point.
• Decisions made about teacher competency based on a self-assessment through reflection do not stand the test of job-relatedness. In service teachers rarely analyse their work against teaching standards once they are in the classroom full-time, and few schools require reflections to be turned in and reviewed by building administrators.

So, from the outset, some fundamental tenets of establishing validity are jeopardized in the assessment design processes used by most teacher preparation institutions. With an “I’ll think about it tomorrow” attitude, institutions typically skip past validity, focus on inter-rater reliability, and conclude that they are consistently rating portfolios, forgetting that without validity, statistics about reliability are meaningless (Cureton, 1950; Wilkerson and Lang, 2003b). Furthermore, the correlations are artificially high and report a false positive, since few faculty members have the energy to adequately assess portfolios and even fewer are ready to fail a teacher candidate at a late date in their program. As Wright and Stone (2004) remind us, without difference there cannot be a valid measure of sameness. The ceiling effect, combined with a lack of adequate and appropriate evidence of job performance, leave the institution in a quandary.

More on Validity: Conflicting Paradigms and Purpose

The validity problem in teacher assessment begins with a common confusion about assessment purpose. We touched on that in the first flaw we noted in the previous section, but that is just the tip of the iceberg. Colleges of education need to respond to accreditation and approval requirements that are based on different purposes, and these purposes often remain undifferentiated. So the real beginning of an assessment system needs to be an understanding of purpose. NCATE accredits units, looking for evidence of overall program quality. That is their purpose. States approve programs, looking for evidence that individual teachers are minimally competent. Their purpose is to credential teachers through licensure or certification. NCATE conceptual frameworks focus on the unique aspects of graduates of an accredited program; state expectations focus on the consistency of graduate qualifications. While both types of agencies review results for teachers on the same or similar sets of teaching standards, they look at them through a different lens because their purposes are different (Wilkerson and Lang, 2004).

Despite these differences in purpose, institutions often attempt to meet both sets of requirements with the same data housed in the same containers, typically in a portfolio (often electronic) of student-selected work. The conflicting paradigms of ensuring minimal competence (protecting the public from unqualified practitioners) from the state perspective and preparing unique practitioners from the NCATE perspectives create a potential validity conflict. This lack of clarity about purpose or multiple purposes also often results in dissonance when faculty are trying to author a conceptual framework prior to an institutional review (Wilkerson and Lang, 2004).

Barrett (2004) describes the conflict of paradigms rooted in these two different purposes with two different needed products often rolled unsuccessfully into one – the assessment management system and the reflective portfolio. Difficulties in data aggregation result; and weaknesses in NCATE Standard 2 (NCATE, 2001) are then cited. The tension created by this conflict cannot be resolved until institutions recognize the need for different approaches based on different purposes. While there certainly will be overlap in the data collected for these purposes and approaches, there may also be differences. Successful assessment must simultaneously serve two or more different masters.
Recommendations to Help Achieve Validity

We have previously provided a series of recommendations with regard to the use of portfolios or other assessments in certification and licensure decisions (Wilkerson and Lang, 2003b). Two of those suggestions bear heavily on developing the assessments described in this article:

**Recommendation #1:** The knowledge and skills to be demonstrated in the assessment must be essential in nature. They must represent important work behaviours that are job-related and be authentic representations of what teachers do in the real world of work.

**Recommendation #2:** The entire assessment system must meet the criteria of representativeness, relevance, and proportionality.

The standards-based recommendations establish some points to consider in the planning stages of an assessment system.

The following is a list of ten new recommendations now being proposed that have been culled from the Standards for all assessment systems. The recommendations establish some points to consider in the planning stages of an assessment system.

1. **Identify the construct to be measured.** In this case, the Standards provide an example of a construct as “performance as a computer technician.” This can easily be converted for teacher educators as “performance as a teacher.” (Chapter 1, p. 9, Validity)

2. **Define the purpose.** Chapter 14 describes the requirements for credentialing. If the teacher preparation unit or the school district is advising the state on whether or not to license or certify, then this chapter applies. The Standards clarify that credentialing decisions are valid when they protect the public from unqualified practitioners, which then becomes the purpose. (Chapter 1, Validity)

3. **Determine the use.** Institutions need to decide if they will deny graduation to a teacher candidate based on the results of the assessment. Some states require this use; others do not require such a high stakes decision. Districts need to determine if they will fire a teacher based on the results of the assessment. In Florida, this is required. (Chapter 1, Validity)

4. **Identify the measurable conceptual framework.** Both NCATE and the Standards refer to observation of knowledge, skills, and dispositions when discussing a conceptual framework, so the framework can be all the teacher standards that define competency in these three categories. (Chapter 1, Validity)

5. **Develop a blueprint or framework to guide the design process.** Chapter 3 clarifies the need to build an assessment system, like any test, based on the domains to be measured – the conceptual framework. This is the reverse of what most teacher preparation institutions do. They start with what they have and hope it fits. (Chapter 3, Test Development and Revision)

6. **Keep checking validity – both construct and content.** Ensure that the system that is being built measures teacher performance, through job-related tasks (construct
validity). Also show evidence that the set of assessments adequately represent the most important elements of the domains to be measured – with not too much and not too little and nothing irrelevant targeted for any given standard (content validity). (Chapter 1, Validity)

7. **Build assessments that can be studied for internal consistency.** Rater agreement is important, but so are other sources of measurement error. A common scale on various tasks may help provide an adequate number of “items” to check for reliability. (Chapter 2, Reliability)

8. **Develop systems to ensure fairness toward all those candidates assessed.** This includes the policies and procedures to implement and monitor the system as well as specified checks for bias in the way tasks are written and differential results for protected populations. (Chapters 7-10 on Fairness in Testing)

9. **Check the consequences of the decisions.** Show evidence that (1) remediation attempts are appropriate and (2) the decisions made reduce to a minimum the number of poor teachers being certified (“false positives”) and the number of good teachers being excluded (“false negatives”). (Chapter 1, Validity)

10. **Build it once, and revise it.** Many institutions attempt to build parallel systems for each individual set of the many sets of standards. Align the standards from the beginning, and develop a single system to measure all of the standards. The system may have branches or tracks to fit multiple purposes, but all standards and all purposes should be considered at one time. Then revise based on experience, changes in institutional mission and standards, and problems identified related to validity, reliability, and fairness. (Chapter 3, Test Development and Revision)

**The Need for Performance-Based Tasks**

Much has been written about the shortcomings of licensure tests in sorting the qualified from the unqualified teacher (Pascoe and Halpin, 2001; Zirkel, 2000) and the need for including performance tasks with licensure tests to measure teacher competence (Lee and Owens, 2001; Rebell, 1991; Mehrens, 1991; Nweke & Noland, 1996). The National Commission on Teaching and America’s Future (1996) makes it clear that continuous assessment is a major component of accountability and improvement, noting that “documentation efforts should include the extent to which graduates have developed and mastered the qualities of a highly qualified teacher” (p. 22). They recommended that licensure be based, not just on a single test, but also on demonstrated performance in the teaching skills that reflect the core competencies of a highly qualified beginning teacher.

In a study commissioned by the National Research Council (2001), the researchers concluded that even a set of well-designed licensure tests is inadequate to measure all of the prerequisites for a competent beginning teacher. Among other things, they recommended that licensure tests should be used only as part of an assessment system of teacher competence. Similarly, researchers from the Southeast Center for Teaching Quality (2003) concluded that assessment systems need to use multiple methods, including student work samples and the demonstration of new knowledge and skills known to increase achievement. Hawley (1985) noted that tasks such as these may prove to be more reliable and valid for identifying and rewarding accomplished teachers.
Darling-Hammond, et al. (2002) also supported the use of a task-based system of teaching and assessing in their analysis of teacher education programs and pathways to certification. In that study, the authors identified some of the core tasks of teaching, such as the ability to make subject matter knowledge accessible to students, to plan instruction, to meet the needs of diverse learners and to construct a positive learning environment. They concluded that many teachers do not feel that their programs adequately prepared them for certain teaching tasks.

The CAATS Model: Competency Assessments Aligned with Teacher Standards

The Competency Assessments Aligned with Teacher Standards (CAATS) model was designed to address the need for valid assessment systems comprised of standards-based, job-related (authentic) tasks to determine basic teacher competency. The CAATS model consists of five steps. They are less linear than they appear, since designers need to revisit constantly the systems they are building. Ideas change; standards change; people change.

CAATS Step 1: Define purpose, use, propositions, content, and other contextual factors.

In this step, designers begin by determining why they need an assessment system (assessment purpose), the decisions they will need to make (use), what givens underlie their work (propositions), and what they want to know (assessment content). Each purpose and use are conceptualized and evaluated separately as a matter of validity. At the end of this step, designers analyse all the local factors that would affect the system, e.g., conceptual framework, resources, faculty resistance/cooperation, since these factors can impede or help them in their work.

CAATS Step 2: Develop a valid sampling plan.

A critical next step is the identification of all relevant standards and the alignment of standards with each other into assessment domains. This is the beginning of the job analysis, and common threads that run through all of the sets of standards are identified and aligned. When considered together, as a kind of content domain or a set of content domains, one can clearly see the similarities and differences between and among the perceptions of what is important from each group of professionals. Designers should also develop a condensed version of the standards, or critical skills, to be used by the institution as part of its conceptual framework. Next, faculty members should visualize the competent teacher performing the critical skills and the standard, brainstorm a series of product and performance based tasks that the teach must do to demonstrate the skills, and then sort the tasks into formative and summative so that only the most important tasks remain in the decision-making structure. Once the list is complete, a series of design frameworks can be used to ensure that the list provides for a balanced and appropriate sampling plan that will lead to valid inferences about teacher competency in a way that is feasible for the college or district.

CAATS Step 3: Create or update tasks aligned with standards and consistent with the sampling plan.

A common format for all tasks is recommended in order to make data aggregation across tasks easier. Clear directions and rubrics containing the language of target standards need to be written, preferably with a common rating scale with an equal number of points on the scale. Then evidence of content validity should be gathered to ensure that the tasks are
representative of the construct and its conceptual framework, proportional, and in fact job-related. Evidence that adequate instruction is provided for each task needs to be gathered.

CAATS Step 4: Design and implement data aggregation, tracking, and management systems.

The data must be accumulated and managed for decision making, so decisions need to be made about how this will be done and what the standards for minimal competency should be. Tracking systems, recordkeeping, and other procedural details, are necessary to do this. Consensus around the system needs to be built and supported. Reward systems could include anything that makes faculty or other assessors more amenable to the accountability requirements. A maintenance program is necessary and should be created to include training of assessors, collection of scored examples showing different levels of proficiency, orientation of teachers being assessed, alternative strategies or tasks for teachers who need them, advising materials (including due process), and an appeals process. Formal review times to update and improve the tasks and the system should be established in advance. Identified people or committees responsible for data collection in a timely and regular fashion are also important for the valid implementation of the system.

CAATS Step 5: Ensure credibility and utility of data.

There are increasing calls for ensuring the credibility of assessments, including validity, reliability, and fairness. Assessment designers should make use of the Standards (1999), including blueprints; a focus on job-relatedness; and evidence of validity (particularly content validity), reliability, and fairness. Logical as well as empirical data should be gathered.

Substeps of the model and a list of worksheets to be included in the book are included in Appendix B.

Application of the CAATS Model

We have successfully used the CAATS Model to design an assessment system for the Florida Alternative Certification Program (FACP), which is described in detail in the literature (Wilkerson and Lang, 2004). The FACP assessment system is comprised of 42 job-related tasks that have been adopted by about 45 of the 68 Florida school districts. Variations of it are being used by several teacher preparation programs, as well. A list of the tasks is included in Appendix A.

We are now combining the tasks into thematic portfolios that can serve as four of the six to eight pieces of required evidence for review by the Specialty Professional Associations as part of NCATE accreditation. The four mini-portfolios are described in the following sections. Reference numbers are to the tasks in Appendix A.

Thematic Portfolio #1: Planning for Instruction and Assessment

In this thematic portfolio, teachers demonstrate their ability to align curriculum, instruction, and assessment, providing evidence of many aspects of planning. They identify objectives at multiple learning levels, incorporate specific interdisciplinary targets, and use a variety of instructional and assessment strategies.

The development process for this portfolio begins with planning for the entire grading period and includes more specific planning of a unit within the grading period (Task 10A)
and the assessment system that will be used with it (1C). The teacher also manages instruction and assessment using technology (12B).

The complete portfolio will include lessons in which the teacher plans to teach critical and creative thinking skills through questioning and the use of higher order thinking objectives (4A/4B). There are also lessons that use cooperative learning (9B) and strategies based on specific theories of learning and development (7A/7B). Teachers are encouraged to incorporate these lessons into a single interdisciplinary unit (8A/10A), demonstrating their ability to integrate both literacy and mathematics skills into instruction (8C/8D). The teacher also develops and uses two assessments – one traditional and one alternative (1A and 1B) – ideally as part of this unit. The summative product in this portfolio is a record and analysis of the results of planning (10B).

For this portfolio, teachers may complete a single comprehensive and well-planned unit that includes most of the required tasks, or they may provide discrete evidence from multiple units, depending on their specific needs, curriculum, creativity, and interests. An example of task combining would be a science unit that includes research on the Internet. If the students work in cooperative groups and prepare a research report that incorporates graphs of data on their topic, this unit could meet the requirements of six separate tasks: 8A (interdisciplinary unit), 8D (math integration), 9B (cooperative learning), 4B (Critical Thinking), 12A (computer-enhanced instruction), and 1B (alternative assessment).

**Thematic Portfolio #2: Interacting with Stakeholders**

In this thematic portfolio, teachers will demonstrate their ability to work with children and their parents, individually and in groups, verbally and in writing. The tasks in this portfolio are mostly observational in nature; hence the portfolio is a predominantly a record of the observation results but also includes materials prepared in advance for the observations. The observations include general interactions between the teacher and students in the classroom (2C), focused observations with regard to diverse learners (5D), classroom management (9D), and interactions with parents and students in a conferencing context. In addition to the observations, teachers prepare a folder of written communication (2A) and a video-tape of their performance evaluated for professional behaviours (2B).

**Thematic Portfolio #3: Supporting Learning in a Positive Environment**

The third thematic portfolio provides evidence of the ability of the teacher to help all children learn both through documentation of students’ progress and through the creation of an environment that supports their growth as individuals and collectively. As in the first portfolio, this portfolio contains many sub-parts or tasks, including planning and then working with diverse learners with special needs (5A-5C), understanding and improving students motivation and attitudes toward learning (7C and 9C), developing a classroom management plan that supports learning (9A), identifying an individual child who needs assistance and working with the child and (and parents and colleagues) demonstrating that student’s growth (1D and 11D). The teacher also demonstrates a positive impact on student learning (1E) in a major unit (which could be the one planned in the first portfolio) by analyzing the results of multiple assessment (possibly including the two prepared for the first portfolio). The culminating work in this portfolio is a portfolio of K-12 Learning in which the teacher provides evidence of learning both content and critical thinking skills based on the products of his/her students (4C/8B).

**Thematic Portfolio #4: Becoming a Professional**
In this final thematic portfolio, the teacher explores some issues important to professional behaviours and attitudes, begins collecting resource materials, and initiates plans for continuing improvement. Specifically, the teacher examines ethical issues and the consequences of infractions (6A-6C), responsibilities to children experiencing personal crises (11C), and responsibilities for school improvement and work with parents (3B and 11A). This portfolio culminates with a professional development plan (3A) based on the results of all prior assessments.

Conclusions

Designing comprehensive assessment systems that provide opportunities for teachers to demonstrate the full breadth of their skills, as defined by national and state standards, is an important way to protect the public from unqualified practitioners and to ensure that all children have access to qualified teachers. This design model, and the tasks and mini-portfolios created using it, help achieve those goals. Quality decisions are based on quality data. This model helps assure quality in teacher training and assessment and addresses the most common and difficult problems of establishing validity evidence for teacher education.
Appendix A

FEAP #1 and INTASC #8: Assessment
  01A: Unit Exam/ Semester Final Assessment
  01B: Alternative Assessment
  01C: Classroom Assessment System
  01D: Case Study of a Student Needing Assistance
  01E: Demonstration of Positive Student Outcomes

FEAP #2 and INTASC #6: Communication
  02A: Written Communication from the Teacher
  02B: Evaluation of Video-Taped Teaching
  02C: Interaction between Teacher and Students

FEAP #3 and INTASC #9: Continuous Improvement
  03A: Professional Development Plan
  03B: School Improvement Team Involvement

FEAP #4 and INTASC #4: Critical Thinking
  04A: Questioning Using a Taxonomy
  04B: Lesson(s) to Teach Critical and Creative Thinking
  04C: Portfolio of K-12 Student Work
  04D: Critical Thinking Strategies and Materials File

FEAP #5 and INTASC #3: Diversity
  05A: A Demographic Study of Your Students and a Plan to Meet Their Needs
  05B: Documentation of Diversity Accommodations
  05C: Individual Planning for Intervention
  05D: Observation for Diversity

FEAP #6 and INTASC #9: Ethics
  06A: Analysis of Slippery Situations
  06B: Multiple Jeopardies and Infraction Penalties
  06C: Potential Infractions and Teacher Responses

FEAP #7 and INTASC #2: Human Development and Learning
  07A: Assessing Developmental Characteristics
  07B: Assessing Learning Modalities
  07C: Student Attitudes about School Learning

FEAP #8 and INTASC #1: Knowledge of Subject Matter
  08A: Interdisciplinary Unit
  08B: Portfolio of K-12 Student Work (cont.)
  08C: Integrating Literacy Skills in Instruction
  08D: Integrating Mathematics Skills in Instruction

FEAP #9 and INTASC #5: Learning Environment
  09A: Classroom Management System
  09B: Cooperative Learning Activity
  09C: Case Study on Classroom Management and Motivation
  09D: A Productive Classroom Environment
FEAP #10 and INTASC #7: Planning
10A: Semester/Year Curriculum Plan and Individual Unit Plan
10B: Semester Planning Record and Analysis
10C: Comprehensive Resource File

FEAP #11 and INTASC #10: Role of the Teacher
11A: Open House and Other Professional Involvement Plan
11B: Parent/Teacher/Student Conference
11C: Kids in Crisis
11D: Case Study of a Student Needing Assistance (cont.)

FEAP #12: Technology
12A: Computer-Enhanced Instructional Delivery
12B: Computer-Enhanced Management of Instruction
12C: Resource Materials from the Web
Appendix B
The CAATS Model Sub-Steps and Worksheets in Press

**CAATS Step 1: Define purpose, use, propositions, content, and other contextual factors.**

CAATS Step 1A: Define the purpose(s) and use(s) of the system.
CAATS Step 1B: Define the propositions or principles that guide the system.
CAATS Step 1C: Define the conceptual framework or content of the system.
CAATS Step 1D: Review local factors that impact the system.

*Worksheets*

Worksheet #1: Purpose, Use, Propositions, Content, and Context Checksheet
Worksheet #2: Purpose, Use, Content, Draft
Worksheet #3: Contextual Analysis

**CAATS Step 2: Develop a valid sampling plan.**

CAATS Step 2A: Organize standards into assessment domains.
CAATS Step 2B: Visualize the competent teacher.
CAATS Step 2C: Brainstorm summative tasks.
CAATS Step 2D: Sort out formative tasks from summative tasks.
CAATS Step 2E: Build assessment frameworks.

*Worksheets*

Worksheet #1: Organizing for Alignment (Version 1)
Worksheet #1: Organizing for Alignment (Version 2)
Worksheet #2: Our Critical Skills
Worksheet #3: Visualizing the Competent Teacher
Worksheet #4: Critical Task List
Worksheet #5: Sorting Formative and Summative Tasks
Worksheet #6: List of Summative Assessments by Competency Type
Worksheet #7: List of Summative Assessments by Levels of Inference
Worksheet #8: List of Summative Assessments by Points in Time
Worksheet #9: Matrix of Standard by Competency Type
Worksheet #10: Matrix of Critical Tasks by Competency Type and Benchmark
Worksheet #11: Aligning Tasks with NCATE Thematic Portfolios

**CAATS Step 3: Create or update tasks aligned with standards and consistent with the sampling plan.**

CAATS Step 3A: Determine the task format for data aggregation.
CAATS Step 3B: Create new tasks or modify existing tasks.
CAATS Step 3C: Conduct first validity study.
CAATS Step 3D: Align tasks with instruction.

*Worksheets*

Worksheet #1: Proficiency Level Descriptions
Worksheet #2: Task Design
Worksheet #3: Standards and Indicators Coverage Report
Worksheet #4: Individual Task Review for Job-Relatedness
Worksheet #5: Checklist for Reviewing Individual Tasks
Worksheet #6: Instructional Alignment

**CAATS Step 4: Design and implement data aggregation, tracking, and management systems.**

CAATS Step 4A: Determine how data will be aggregated.
CAATS Step 4B: Set standards for minimal competency.
CAATS Step 4C: Select and develop a tracking system.
CAATS Step 4D: Develop implementation procedures and materials.

**Worksheets**

Worksheet #1: Decision Making Levels
Worksheet #2: Sample Format for Candidate/Teacher Tracking Form
Worksheet #3: Format for Data Aggregation
Worksheet #4: Decision Making Tool for Measurement Method
Worksheet #5: Management Plan

**CAATS Step 5: Ensure credibility and utility of data.**

CAATS Step 5A: Create a plan to provide evidence of validity, reliability, & fairness.
CAATS Step 5B: Implement the plan conscientiously.

**Worksheets**

Worksheet #1: Assessment Specifications
Worksheet #2: Sample 2: Expert Rescoring
Worksheet #3: Sample 3: Fairness Review
Worksheet #4: Fairness Review
Worksheet #5: Analysis of Remediation Efforts and EO Impact
Worksheet #6: Psychometric Plan Format
References


