

**STANDARDS FOR THE ACCREDITATION OF
SCHOOL MEDIA SPECIALIST
AND
EDUCATIONAL TECHNOLOGY SPECIALIST PROGRAMS**

EDITED BY

RODNEY S. EARLE
Brigham Young University

DOCUMENT REVISIONS (January 2005) BY

KAY A. PERSICHITE
University of Wyoming

FOURTH EDITION
2000

ASSOCIATION FOR EDUCATIONAL COMMUNICATIONS AND TECHNOLOGY
BLOOMINGTON, IN

Standards Approved by NCATE in October 2000
Standards Revised in October 2001

Institutions seeking NCATE accreditation are required to respond to AECT's program standards for programs that prepare school media specialists and/or educational technology specialists.

These standards may be downloaded at no cost from the AECT website (aect.org)

Prepared by the Association for Educational Communications and Technology (AECT) to accompany the *Standards, Procedures, and Policies for the Accreditation of Professional Education Units* of the National Council for Accreditation of Teacher Education (NCATE).

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Association for Educational Communications and Technology
1800 North Stonelake Drive, Bloomington IN 47404
(812) 335-7675
aect@aect.org

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SPECIAL ACKNOWLEDGEMENTS

Clarence Bergeson, SUNY Albany, whose ideas and initial work led to the accomplishment this document represents.

William F Grady, former AECT President, and longtime AECT Liaison to NCATE.

Members of the Accreditation Committees, 1971-1994 for sustaining and supporting the effort.

For the 1989 revisions, special recognition goes to John Berling, Accreditation Committee Chairman, and the Committee members: Carol Carlisle, E. S. Cridge, Rodney Earle, William Grady, Nancy Hamm, Walter Hanclosky, Ralph Hawkins, Phyllis Lacroix, AND George Pfothauer.

For 1994 revisions, special recognition goes to the AECT/ NCATE Guidelines Task Force: Edward Caffarella, Chairperson, Mark Bugler, Phil Doughty, Rodney Earle, William Grady, Walter Hanclosky, Annette Lamb, Rita Richey, and Mike Streibel.

For the 2000 revision, we recognize the contributions of members of the Accreditation Committee: Thomas Blevins, Rodney Earle, Patricia Fewell, Mary Ann Kolloff, Edna Mory, Kay Persichitte, George Pfothauer, Pal Rao, and Roger Tipling.

PREFACE

The Association for Educational Communications and Technology (AECT) has a long history of concern for the place of instructional media and technology in teacher education and for the professional preparation of media personnel. In 1971, AECT President Robert Heinich appointed two task forces to work on accreditation and certification. The task forces were chaired by Clarence Bergeson and William Grady, respectively. The task forces worked for three years reviewing the literature, conducting work sessions and open hearings, publishing documents, and receiving written responses. In total, some 700 educators and trainers from education and business/industry participated in the work. The work was completed when the AECT Board of Directors formally adopted the recommendations and published the results in the November, 1974 issue of *Audiovisual Instruction*. A continuing outgrowth of this activity has been the accreditation of professional education programs. AECT's actions in the area of accreditation have primarily been in cooperation with the National Council for the Accreditation of Teacher Education (NCATE). In 1972, under the direction of Clarence Bergeson and later William Grady, AECT began conducting workshops to train members of the Association to serve on NCATE visiting teams. AECT's efforts in conjunction with NCATE were recognized when AECT was accepted as a liaison member in 1978 and was granted constituent membership on the Council in 1980.

NCATE standards have for some time stipulated that institutions should consider, in both the design of basic teacher education and advanced professional preparation programs, guidelines developed by appropriate professional associations. To meet this requirement and to assist institutions in program design, AECT, again under the leadership of Clarence Bergeson, developed and published the *Basic Guidelines for Media Technology in Teacher Education* (AECT, 1971). The basic guidelines were followed by the *Guidelines for Advanced Programs in Educational Communications and Technology* (AECT, 1974b). Both were designed to accompany and amplify the NCATE standards.

Problems with, and omissions in, the original guidelines were soon identified. In 1977 AECT decided to conduct a major expansion and revision of the guidelines to correspond more closely with the NCATE Standards. An initial draft revision was prepared by the AECT Accreditation Committee and presented to the membership of the Association during open hearings in 1978. Suggestions and comments offered during the hearings were reviewed by the committee and a revised draft was prepared for further membership review during open hearings in 1981. Minor editorial changes were made by the committee following the hearings, and the final draft of the guidelines for media support to basic teacher education and for advanced professional programs was adopted by the AECT Board of Directors in April, 1981. While revision of the existing guidelines was taking place, a draft of guidelines for undergraduate professional programs was being developed. These guidelines were completed and approved by the AECT Board in January, 1983.

In 1983, a new set of NCATE standards became effective. The previous standards called for institutions to only show that they have studied the professional association guidelines. The new standards called for an institution to adapt and show the effect of professional association guidelines on the design of the institution's professional preparation programs. Programs in educational communications and instructional technologies were also added to the annual listing of accredited programs published by NCATE. The AECT guidelines were first adopted by NCATE in 1984, one of four association guidelines used in a pilot study to develop procedures for the implementation of the new NCATE standards.

During the early 1990's two AECT groups worked in concert to redefine the field and to revise the NCATE guidelines. The two groups were the Definitions and Terminology Committee chaired by Barbara Seels and the NCATE Guidelines Task Force chaired by Edward Caffarella. The Definitions and Terminology Committee prepared a new document entitled *Instructional Technology: The Definition and Domains of the Field* (Seels & Richey, 1994). They described the field in terms of five domains namely: design, development, utilization, management, and evaluation. The revised guidelines are based largely upon this work and oriented around the knowledge base of the field.

The NCATE Guidelines Task Force developed a new set of guidelines for basic and advanced programs in educational communications and instructional technologies. Those guidelines were approved by the AECT Board of Directors in February 1994 and by the NCATE Specialty Areas Studies Board in the Fall of that year. The older *Basic Guidelines for Media and Technology in Teacher Education* has been merged into the general NCATE Standards. All programs seeking NCATE accreditation must now describe the use of technology as part of the teacher education program in the Institutional Report to NCATE rather than in a separate program report as was previously the case.

These AECT guidelines (now renamed “standards”) for initial and advanced professional programs that prepare school media specialists and educational technology specialists have been published as a single document. However, although they are complementary, each serves a different purpose and is aimed at different audiences within the educational community. These purposes are stated in the introduction to each section of the new standards.

Based upon NCATE's 1996 call to move to performance-based accreditation, a task force chaired by Rodney Earle revised the 1994 guidelines to reflect a performance perspective as evidence for addressing the major domains of the field as described by Seels and Richey (1994). These new standards were approved by the AECT Board of Directors in July 2000 and by the NCATE Specialty Areas Studies Board in the Fall of that year.

In 2004, a series of discussions facilitated by NCATE led to the document changes evident here: a title change for the AECT Standards and the removal of the word

“library” from the text of the standards and indicators. Additional revisions to this document include reference to a completely redesigned program review process and a standardized template for the submission of program reports.

CHAPTER I

INTRODUCTION TO STANDARDS FOR SCHOOL MEDIA SPECIALIST AND EDUCATIONAL TECHNOLOGY SPECIALIST PROGRAMS

The Association for Educational Communications and Technology (AECT) sponsors two sets of standards under the National Council for the Accreditation of Teacher Education (NCATE): 1) Standards for the Accreditation of Initial Programs that prepare School Media Specialists and Educational Technology Specialists, and 2) Standards for the Accreditation of Advanced Programs that prepare School Media Specialists and Educational Technology Specialists.

This chapter includes a brief description of the program review process, a short history of the field, and an overview of the knowledge base for the field of educational technology. Chapters II and III contain explanations of the specific standards for program review purposes. Appendix A offers suggestions for performance assessment.

NCATE/AECT PROGRAM REVIEW PROCESS

The purpose of this section is two fold: to provide an overview of the NCATE/AECT program review process and to assist individuals with the successful compilation of information and evidence related to programs that prepare school media specialists and educational technology specialists. This is best accomplished through an understanding of the past and present program review process.

Historical Overview

From its inception, AECT has been concerned with the development of competent teachers as well as the development of quality media personnel. In 1970, a special AECT commission on teacher education was established to study the use of media in teacher education. One year later this group published the *Basic Guidelines for Media and Technology in Teacher Education* (AECT, 1971). This document outlines recommendations for appropriate selection, utilization, and production of media by classroom teachers. Then in 1971, AECT established two task forces to study certification and accreditation guidelines for educational media professionals (Bergeson, 1973). This intensive three year research study produced three significant documents: the *Accreditation and Certification Frame of Reference* (Prigge, 1974), the *Guidelines for the Certification of Personnel in Educational Communications and Technology* (AECT, 1974c), and the *AECT Guidelines for Advanced Programs in Educational Communications and Technology* (AECT, 1974a).

These efforts typify AECT's longstanding relationship with NCATE. Since the early 1970s, the Association has played a significant role in the accreditation of general teacher education programs as well as programs in the technology field. Over the years, AECT guidelines have been designed to accompany and amplify the NCATE standards.

NCATE's decision in 1977 to adopt a major revision of accreditation standards prompted a corresponding review of the AECT guidelines (AECT, 1982). In 1980, AECT's admission to constituent membership in NCATE placed the association in a position of significant influence in the accreditation process. This made AECT one of three professional associations to be affiliated with NCATE. Today, over twenty professional associations use their performance standards to evaluate professional programs in higher education through NCATE.

A redesign of NCATE operations in 1986 resulted in the requirement that teacher education institutions submit curriculum folios for review by NCATE affiliated professional societies (Grady, 1987). This resulted in the AECT Accreditation Committee's revision of existing guidelines to reflect current practices, changes in the field, and adjustments in the review process.

The guidelines were again revised during 1992 and 1993, using the newly developed definition of the field (Seels & Richey, 1994). During this revision cycle the teacher education folio guidelines were merged with the overall NCATE standards and AECT discontinued the separate folio guidelines for educational communications and instructional technologies in teacher education. The document, *Standards for Accreditation of Programs in Educational Communications and Instructional Technologies*, was adopted by the AECT Board of Directors in 2000, and it reflected NCATE's move towards performance-based accreditation. The Current document, *Standards for the Accreditation of School Media Specialist and Educational Technology Specialist Programs*, provides a revision to the title of the Standards and updates the program review process, but provides no substantive revision to the Standards, themselves.

NCATE/AECT Process

To establish eligibility for **initial accreditation** evaluation by NCATE, an institution submits a preconditions report which addresses a variety of areas ranging from governance to curriculum. One of the preconditions requires the institution to submit program review documentation for specific programs for which there are NCATE approved standards. As part of the NCATE review process, the role of the professional organization is to focus on the program review documentation. This documentation is, in effect, a description of the programs that prepare personnel in specialized fields and includes performances required of candidates as well as evidence of achievement of those performances. The **continuing accreditation** process is implemented every five years after initial accreditation (revised to seven years once the unit has earned accreditation under the NCATE 2000 Standards) and requires institutions to demonstrate ongoing compliance with NCATE standards and to address previously noted areas for improvement.

One of the most important outcomes of the 1986 NCATE redesign was that affiliated professional organizations were responsible for individually guiding the review of their professional programs. This is the case today, though the review process is now

guided and prescribed by NCATE in collaboration with respective specialized professional associations (SPAs).

The AECT Accreditation Committee identifies qualified AECT members to participate in reviewer training sessions organized and delivered by NCATE to prepare our colleagues to conduct the review of programs of higher education programs seeking “national recognition” under the standards presented in this document. An invitation to apply for positions as Board of Examiner (BOE) site-visitors and Program Reviewers is distributed to all AECT members through the organizational publications, *Tech Trends* and *Educational Technology Research and Development*, and on the AECT web page (<http://www.aect.org>). Nominations are also sought from current reviewers, committee members, and the AECT leadership. Candidates are asked to submit a vita to the AECT Accreditation Committee. Those who respond are sent a letter specifying the duties and responsibilities of the positions and inviting them to attend the session on accreditation training at the next AECT conference. The vitae are evaluated by the committee and invitations to participate as program reviewer and/or BOE member are issued.

Six months prior to a scheduled NCATE Board of Examiners (BOE) visit, program reports are submitted to the NCATE office for dissemination to a Review Team of three reviewers for respective SPAs. [See the NCATE website for the detailed Program report template for each SPA and for instructions for the completion and electronic submission of the Program Report.] The NCATE office notifies three trained reviewers for the SPA that they have a report to review and a revised, online, collaborative review begins. Once the recommendation of the Review Team is submitted to NCATE, the NCATE office constitutes a three-person Audit Team (from trained SPA reviewers) to review the recommendation of the Review Team. The Audit Team submits a response to the NCATE office. The NCATE office takes the recommendations of both teams and makes a final decision, then notifies the institution of the recognition decision. Recognition decisions fall into one of these four categories:

- ❑ **Program is nationally recognized.** The program is recognized through the semester and year of the institution’s next NCATE accreditation visit in 5-7 years. To retain recognition, another program report must be submitted before that review. The program will be listed as nationally recognized through the semester of the next NCATE review on websites and/or other publications of the SPA and NCATE. The institution may designate its program as nationally recognized by NCATE, through the semester of the next NCATE accreditation review, in its published materials. **National recognition is dependent upon NCATE accreditation.**
 - **Subsequent action by the institution:** None. Nationally recognized programs may not file revised reports addressing any unmet standards or areas for improvement.
- ❑ **Program is nationally recognized with conditions.** The program is recognized through **[date to be filled in by NCATE]**. The program will be listed as nationally recognized on websites and/or other publications of the SPA and NCATE. The institution may designate its program as nationally recognized by NCATE,

through the time period specified above, in its published materials. **National recognition is dependent upon NCATE accreditation.**

- ***Subsequent action by the institution:*** To retain accreditation, a report addressing the conditions to recognition must be submitted within 18 months of the date of this report, no later than [date to be filled in by NCATE]. The report must address the conditions specified in the box below. Failure to submit a report by the date specified above will result in loss of national recognition.

- **Program recognition decision is deferred.** Programs that retain recognition from a prior review will remain recognized until a decision is reached following the submission of a revised report, as described in the following paragraph.
 - ***Subsequent action by the institution:*** A revised report addressing the issues identified in the box below must be submitted within approximately two months of the date of this report, no later than [date to be filled in by NCATE]. Failure to submit a report by the date specified above will result in loss of national recognition.

- **Program is not nationally recognized.** Programs that retain recognition from a prior review will lose recognition at the end of the semester in which the NCATE accreditation visit is held, unless a revised program report is submitted in or before that semester.
 - ***Subsequent action by the institution:*** A revised report, addressing unmet standards, may be submitted within 18 months of the date of this report, no later than [date to be filled in by NCATE].
 - The institution may submit a new program report at any time. In states that require NCATE program review, another program report must be submitted before the next NCATE accreditation visit.

The Program Report and the reviewer documents are used later by an NCATE site evaluation team from the Board of Examiners as part of the review of evidence to make a recommendation to the NCATE Unit Accreditation Board regarding accreditation of the unit.

Overview of Program Types

AECT is responsible for reviewing two types of programs. These are: 1) *Initial* School Media and Educational Technology Specialist (SMETS) Programs and 2) *Advanced* School Media and Educational Technology Specialist (SMETS) Programs. Authors of the earlier guidelines chose to use the term "media and technology" while the term "educational technology" reflects a broader representation of the field. This umbrella term provides for programs as diverse as multimedia, distance learning, computer technologies, instructional design, as well as school media.

Initial SMETS programs are defined as those which represent initial entry into the field. They are rooted in design and practice and, perhaps, could be likened to the knowledge, comprehension, and application stages of Bloom's taxonomy. **Advanced**

SMETS programs are defined as those which represent additional study in the field. They emphasize theory, research, and higher level management processes and, perhaps, could be likened to the analysis, synthesis, and evaluation stages of Bloom's taxonomy. For example, a Baccalaureate or Master's program which prepares individuals for either initial school certification or entry level positions in business or industry may be considered an Initial SMETS program. A graduate program which advances knowledge and skills beyond the entry level for the profession constitutes an Advanced SMETS program. Currently, SMETS initial programs are typically certification, licensure, or Master's degree programs. *It is anticipated that advanced candidates are able to demonstrate the competencies outlined in the initial standards as well as those identified for advanced programs.*

Composition of the Program Report

In May 2004, NCATE adopted a standardized template for the development of program reports. The template resulted from collaborations with all the NCATE SPAs over more than a year's period and is customized for the respective standards of each SPA. All program reports now consist of these parts: contextual information including statements reflecting the conceptual framework for the program and the unit; certification or licensure test results (if required by the state or the program); program description and alignment with SPA standards; assessment of candidates' knowledge, skills, and dispositions; use of candidate assessment data. A critical part of this program documentation is the data from 6 to 8 performance assessments of all candidates in the program. Separate reports must be submitted for initial and advanced programs.

Please feel free to contact the AECT Accreditation Committee through the national office (aect@aect.org) if you require additional assistance in your efforts to develop your program report(s).

HISTORY OF THE FIELD

Today, the field is fascinated with the instructional possibilities presented by the computer as a medium of communication and as a tool for integrating a variety of media into a single piece of instruction. Video has replaced the educational film, and television can be two-way and interactive.

At the turn of this century a number of technological inventions and developments were made that provided new, and in some cases, more efficient means of communication. In the 1920s, the motion picture passed through the stage of being a mere curiosity to a serious medium of expression, paralleling live theater. Its usefulness and influence on learning was explored. This educational research continued into the 1930s, when new instructional projects such as teaching by radio were implemented. Within 20 years both film and radio became pervasive communication systems, providing both entertainment and information to the average citizen.

The advent of World War II created many demands for a new skilled workforce. Media took a prominent place in educational and training systems attempting to fill such needs, and much research centered on the use of these media in a wide variety of teaching and learning situations. Media were among the innovations that made possible the changes and growth in the industrial complex that were so essential to the defense of the western world.

After the war, schools and industry alike attempted to settle back into the old, familiar methods of operation. Within a few years, however, the increase in the birth rate and public school enrollment forced a re-evaluation of the older and slower approaches to education. Again, media were employed, this time to upgrade the curriculum of the public schools.

With the late 1940s and early 1950s came considerable experimentation with television as an instructional tool. Industry was expanding and began to develop its own in-house educational systems. Simultaneously, a search was begun for more efficient and effective means by which such education could be accomplished.

Concurrent with the introduction and development of the study of instructional media, the notion of a science of instruction was evolving. The educational psychologists provided a theoretical foundation which focused on those variables which influenced learning and instruction. The nature of the learner and the learning process took precedence over the nature of the delivery media.

Some of the early audiovisual professionals referred to the work of Watson, Thorndike, Guthrie, Tolman, and Hull. But it was not until the appearance of Skinner's (1954) work with teaching machines and programmed learning that professionals in the field felt that they had a psychological base. Skinner's work in behavioral psychology, popularized by Mager (1961), brought a new and apparently more respectable rationale for the field. Lumsdaine (1964) illustrated the relationship of behavioral psychology to the field, and Wiman and Meierhenry (1969) edited the first major work that summarized the relationship of learning psychology to the emerging field of instructional technology. Bruner (1966) offered new insights that eventually led to broader participation of cognitive psychologists like Glaser (1965) and Gagné (1985). Today, the field not only seems convinced of the importance of the various aspects of cognitive processing of information, but is placing new emphasis upon the role of instructional context, and the unique perceptions and views of the individual learner.

Perhaps one of the most profound changes in instructional technology has come in the expansion of the arenas in which it is typically practiced. From its beginnings in elementary and secondary education, the field was later heavily influenced by military training, adult education, post-secondary education, and much of today's activity is in the area of private sector employee training. Consequently, there is increased concentration on issues such as organizational change, performance improvement, school reform, and cost benefits.

Use of the principles, products, and procedures of instructional technology, however, continue to be vital to school effectiveness, especially in times of school restructuring. In addition, the new technologies and new delivery media offer expanded ways of meeting the special needs of learners and schools.

Instructional technology and instructional design procedures in particular, are also becoming more common in health care education, training, and non-formal educational settings. Each of these instructional contexts highlights the diverse needs of learners of many ages and interests, and of organizations with many goals. The many settings also provide laboratories for experimenting with and perfecting the use of the new technologies.

However, the disparate contexts also highlight a wide range of organizational, cultural, and personal values and attitudes. Cultures vary among the different communities, creating new issues and possibilities for new avenues of disciplinary growth and development.

The historical context which has surrounded the development of the field has implications that reach beyond the actual events themselves. This is equally true of the development of modern technology responsible for an increasing number of new media and new uses for existing media. Such developments have redirected the energies of many people, causing today's society to be much broader and richer than was ever contemplated in the early 1900s.

Prior to the twentieth century, the only formal means of widespread communication was the printing press. The technological developments since then have provided many different modes of expression, enabling ideas, concepts, and information gained from experience to be conveyed in ways and with contextual richness never before possible.

The unique means of expression that have expanded with each new medium have added new dimensions through which creative talents can be applied. For example, the photographic and cinematographic media have long been accepted as legitimate avenues for creative work in the arts, and television has provided new avenues for expanding views of society.

Still photography, motion picture photography, television, and the computer have proved to be excellent tools for a variety of academic endeavors. Historians consider film coverage of public events to be important primary documentation. Psychologists now use film, computers, and interactive video to control experiences and to collect data on a wide variety of problems in human behavior. Medical researchers employ both color photography and color television in their studies. In fact, it would be difficult for modern scholars to maintain a position of leadership in their fields of investigation without the assistance from media that present day technology makes possible. Further, the future of humanity's understanding of the universe and the pursuit of greater self knowledge

depends upon increasingly sophisticated applications and utilizations of these technologies.

Alternative modes for teaching and learning are most important in today's educational environment. Opportunities for self-directed learning should be provided by institutions of higher education. Other forms of alternative teaching and learning patterns which require increased student involvement and higher levels of learning (application, synthesis, evaluation) also rely upon media as an invaluable tool in the preparation of students.

Teaching and communication, though not synonymous, are related. Much of what the teacher does involves communication. From the spoken word to the viewing of the real world, directly or by means of some technological invention, communication permeates instructional activities.

Media, materials, and interactive technologies, though not the exclusive ingredients in learning, are an integral part of almost every learning experience. The raw materials for scholarship increasingly reside in these means. The scholarly experiences for the student can often be afforded only through these options. The young scholar, the college student, is a deprived scholar without access to these learning tools.

The scholar must have available all that modern technology can provide. Media, materials, and interactive technologies have a crucial role to play in any teacher education program if that program hopes to meet the needs of our dynamic, sophisticated world.

KNOWLEDGE BASE

These standards have been developed within the context of several years of effort by AECT to define the field of educational technology and to specify the knowledge base for the field. The general curriculum overview is based on *Instructional Technology: The Definition and Domains of the Field* (Seels & Richey, 1994) and *The Knowledge Base of Instructional Technology: A Critical Examination* (Richey, Caffarella, Ely, Molenda, Seels, & Simonson, 1993). The *Instructional Technology* document provides a definition of the field and describes the domains and sub-domains of the field. The *Knowledge Base* document provides an in-depth examination of the knowledge base for each domain.

The current standards are significantly changed from earlier versions that were based upon roles and functions of instructional technology professionals. The new standards are grounded in the research and theory of the field as described in the knowledge base of the field.

The definition of instructional technology prepared by the AECT Definitions and Terminology Committee is as follows:

Instructional Technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for

learning. ... The words Instructional Technology in the definition mean a discipline devoted to techniques or ways to make learning more efficient based on theory but theory in its broadest sense, not just scientific theory. ... Theory consists of concepts, constructs, principles, and propositions that serve as the body of knowledge. Practice is the application of that knowledge to solve problems. Practice can also contribute to the knowledge base through information gained from experience. ... Of design, development, utilization, management, and evaluation ... refer to both areas of the knowledge base and to functions performed by professionals in the field. ... Processes are a series of operations or activities directed towards a particular result. ... Resources are sources of support for learning, including support systems and instructional materials and environments. ... The purpose of instructional technology is to affect and effect learning. (Seels & Richey, 1994, pp. 1-9)

This definition is clearly grounded in the knowledge base of the field of instructional technology.

These standards for the NCATE program review documentation are likewise grounded in the knowledge base of the field. The knowledge base for the field is divided into five interrelated domains: design, development, utilization, management, and evaluation as shown in Figure 1 (Seels & Richey, 1994, p. 21). Within each domain there are sub-domains that serve to describe each domain. For example, evaluation is divided into problem analysis, criterion-referenced measurement, formative evaluation, and summative evaluation.

The relationship among the domains shown in Figure 1 is not linear, but synergistic. Although research may focus on one specific domain or sub-domain, practice, in reality, combines functions in all or several domains.

For example, a practitioner working in the development domain uses theory from the design domain, such as instructional systems design theory and message design theory. A practitioner working in the design domain uses theory about media characteristics from the development and utilization domains and theory about problem analysis and measurement from the evaluation domain. (Seels & Richey, 1994, p. 25)

Each domain also contributes to the other domains as well as to the research and theory shared by the domains.

An example of shared theory is theory about feedback which is used in some way by each of the domains. Feedback can be included in both an instructional strategy and message design. Feedback loops are used in management systems, and evaluation provides feedback. (Seels & Richey, 1994, pp. 25-26)

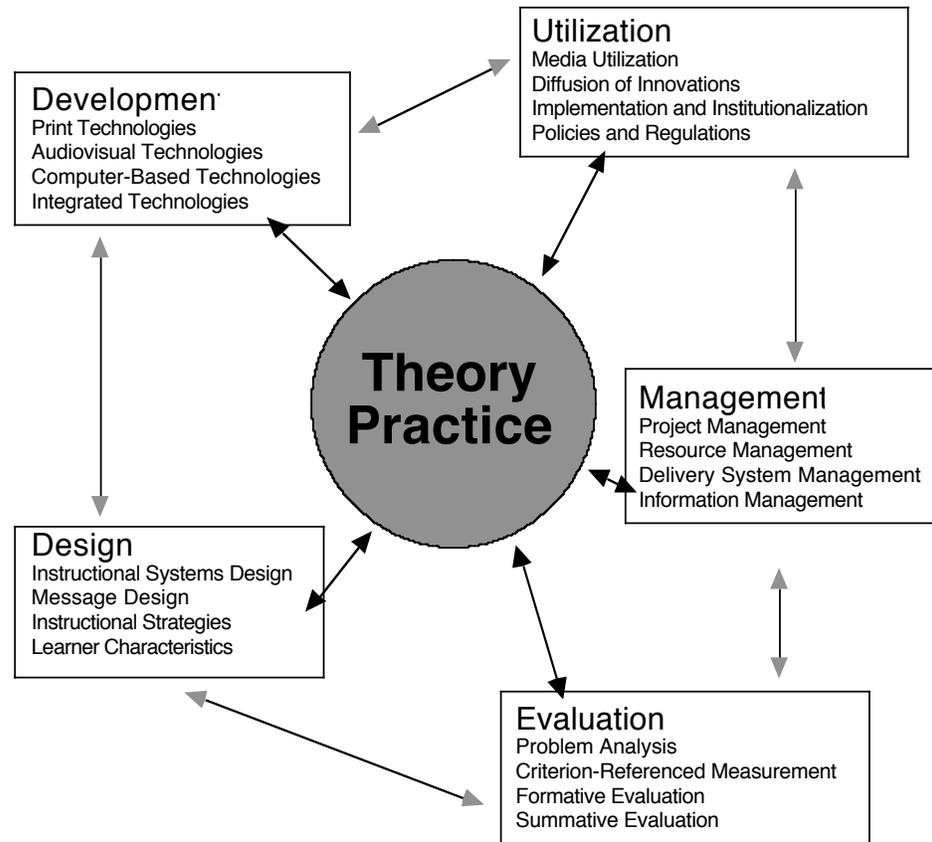


Figure 1 . Domains of the Field

The Definition and Terminology Committee has provided descriptions for each of the domains:

Design refers to the process of specifying conditions for learning. ... Development refers to the process of translating the design specifications into physical form. ... Utilization refers to the use of processes and resources for learning. ... Management refers to processes for controlling instructional technology. ... Evaluation is the process for determining the adequacy of instruction. (Seels & Richey, 1994, pp. 24-43)

The Committee has also provided a description for each of the sub-domains of the knowledge base.

The content for the knowledge base of each domain is provided in a series of papers entitled *The Knowledge Base of Instructional Technology: A Critical Examination* (Richey, Caffarella, Ely, Molenda, Seels, & Simonson, 1993). The key elements of the knowledge base of each domain are described in detail in these papers. Although

researchers may concentrate their efforts in only one domain, most SMETS practitioners will be employed in roles that draw upon multiple domains.

CLARIFICATION OF APPROPRIATE NCATE STANDARDS

There are three sets of NCATE approved specialty association standards related in some way to technology:

- International Technology Education Association/Council on Technology Teacher Education (ITEA/CTTE)
- International Society for Technology in Education (ISTE)
- Association for Educational Communications and Technology (AECT)

The following information is intended to help institutions decide which set of standards is appropriate for a particular program:

- Use ITEA/CTTE for programs preparing teachers for technology education which focuses on human innovations in communications, construction, manufacturing, and transportation (formerly vocational education programs).
- Use ISTE for endorsement programs preparing teachers of computer literacy and applications and endorsement/degree programs for secondary computer science teachers.
- Use AECT for programs preparing school media specialists.
- Use AECT for programs preparing educational personnel for positions in the broader arena of school media and educational technology in areas such as K-12 education, higher education, business, industry, military services, government, and health/community services.
- Use either AECT or ISTE (or both) for programs preparing K-12 technology leaders, technology specialists, and technology coordinators at the state, district, or building levels.

CHAPTER II

STANDARDS FOR THE ACCREDITATION OF INITIAL PREPARATION PROGRAMS FOR SCHOOL MEDIA AND EDUCATIONAL TECHNOLOGY SPECIALISTS (SMETS)

These standards are concerned primarily with the curriculum and candidate competencies required for initial programs in the area of school media and educational technology specialists (SMETS). Initial SMETS programs are defined as those which represent initial entry into the field. For example, a Baccalaureate or Master's program which prepares individuals for either initial school certification or entry level positions in business or industry may be considered an initial SMETS program. The intended audiences for the standards are those faculty members and administrators who have responsibility for, and control of, such programs. The standards are intended to accompany NCATE's *Standards, Procedures, and Policies for the Accreditation of Professional Education Units*, and to address Standard 1 of the NCATE standards.

Introduction

Definitions of educational technology and a discussion of the philosophical basis for training programs are provided in Chapter I of this document and should be reviewed prior to developing program review documentation in response to the initial standards defined in this chapter. Initial program standards are built on the assumption that the institution provides an adequate base of school media services for all educational programs. In addition, NCATE's program standards specify specialized facilities and services deemed necessary to support the development of the competencies required of graduates of the program.

Details of content and organization for initial programs are not specified in the standards. All initial programs should provide for minimal competencies within each domain of the instructional technology knowledge base. The intent of the standards is to provide the maximum degree of flexibility enabling institutions to develop soundly conceived and defined programs. It is not expected that every program will include all standards, since the very nature of a program will provide a focus in one area while not including other areas.

Curricula and candidate performances for the initial preparation of personnel in the fields of school media and educational technology should be grounded in the knowledge base of the field. The domains of the field include design, development, utilization, management, and evaluation. Programs will vary in their concentration on each of the domains.

The complete domains and sub-domains are listed below:

Design

- Instructional Systems Design
- Message Design
- Instructional Strategies
- Learner Characteristics

Development

- Print Technologies
- Audiovisual Technologies
- Computer-Based Technologies
- Integrated Technologies

Utilization

- Media Utilization
- Diffusion of Innovations
- Implementation and Institutionalization
- Policies and Regulations

Management

- Project Management
- Resource Management
- Delivery System Management
- Information Management

Evaluation

- Problem Analysis
- Criterion-Referenced Measurement
- Formative Evaluation
- Summative Evaluation

Within these five domains and twenty sub-domains, the program may be composed of those competencies most appropriate to the intended roles of the candidates.

SPECIAL NOTE:

School media specialists are expected to provide evidence related to each of the five domains. Thus, indicators related to each standard can and should be used to evaluate the professional competency of school media specialists whose programs are focused on P-12 school applications. As with all indicators within each Standard, candidates are not expected to provide evidence of **every** indicator. Additionally, indicators marked with a “*” are specifically oriented toward the preparation of school media specialists and have particular relevance to their role.

Standard 1: DESIGN

Candidates demonstrate the knowledge, skills, and dispositions to design conditions for learning by applying principles of instructional systems design, message design, instructional strategies, and learner characteristics.

Supporting Explanations:

“Design is the process of specifying conditions for learning” (Seels & Richey, 1994, p. 30). The domain of design includes four sub-domains of theory and practice: Instructional Systems Design (ISD), Message Design, Instructional Strategies, and Learner Characteristics.

1.1 Instructional Systems Design (ISD)

“Instructional Systems Design (ISD) is an organized procedure that includes the steps of analyzing, designing, developing, implementing, and evaluating instruction” (Seels & Richey, 1994, p. 31). Within the application of this definition, ‘design’ is interpreted at both a macro- and micro-level in that it describes the systems approach and is a step within the systems approach. The importance of process, as opposed to product, is emphasized in ISD.

- 1.1.1 Analyzing: process of defining what is to be learned and the context in which it is to be learned.
- 1.1.2 Designing: process of specifying how it is to be learned.
- 1.1.3 Developing: process of authoring and producing the instructional materials.
- 1.1.4 Implementing: actually using the materials and strategies in context.
- 1.1.5 Evaluating: process of determining the adequacy of the instruction.

1.2 Message Design

“Message design involves planning for the manipulation of the physical form of the message” (Seels & Richey, 1994, p. 31). Message design is embedded within learning theories (cognitive, psychomotor, behavioral, perceptual, affective, constructivist) in the application of known principles of attention, perception, and retention which are intended to communicate with the learner. This sub-domain is specific to both the medium selected and the learning task.

1.3 Instructional Strategies

“Instructional strategies are specifications for selecting and sequencing events and activities within a lesson” (Seels & Richey, 1994, p. 31). In practice, instructional strategies interact with learning situations. The results of these interactions are often described by instructional models. The appropriate selection of instructional strategies and instructional models depends upon the learning situation (including learner characteristics), the nature of the content, and the type of learner objective.

1.4 Learner Characteristics

“Learner characteristics are those facets of the learner’s experiential background that impact the effectiveness of a learning process” (Seels & Richey, 1994, p. 32). Learner characteristics impact specific components of instruction during the selection and implementation of instructional strategies. For example, motivation research influences the selection and implementation of instructional strategies based upon identified learner characteristics. Learner characteristics interact with instructional strategies, the learning situation, and the nature of the content.

Performances Indicative of the Design Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the design standard. You may wish to identify additional performance indicators related to your program.

1.1 Instructional Systems Design

1.1.a Utilize and implement design principles which specify optimal conditions for learning.

1.1.b Identify a variety of instructional systems design models and apply at least one model.

1.1.c Identify learning theories from which each model is derived and the consequent implications.

1.1.1 Analyzing

1.1.1.a Write appropriate objectives for specific content and outcome levels.

1.1.1.b Analyze instructional tasks, content, and context.

1.1.1.c Categorize objectives using an appropriate schema or taxonomy.

1.1.1.d Compare and contrast curriculum objectives for their area(s) of preparation with federal, state, and/or professional content standards.

1.1.2 Designing

1.1.2.a Create a plan for a topic of a content area (e.g., a thematic unit, a text chapter, an interdisciplinary unit) to demonstrate application of the principles of macro-level design.

1.1.2.b Create instructional plans (micro-level design) that address the needs of all learners, including appropriate accommodations for learners with special needs.

1.1.2.c* Integrate information literacy skills into classroom and media center instruction.

1.1.2.d Incorporate contemporary instructional technology processes in the development of interactive lessons that promote student learning.

1.1.2.e* Collaborate with teachers on subject-area curriculum teams to ensure that information literacy standards are integrated within the curriculum.

1.1.3 Developing

1.1.3.a Produce instructional materials which require the use of multiple media (e.g., computers, video, projection).

1.1.3.b Demonstrate personal skill development with at least one: computer authoring application, video tool, or electronic communication application.

1.1.4 Implementing

1.1.4.a Use instructional plans and materials which they have produced in contextualized instructional settings (e.g., practica, field experiences, training) that address the needs of all learners, including appropriate accommodations for learners with special needs.

1.1.4.b* Establish a well-organized and professionally managed school media collection based on the principles of cataloging and classification of library media center resources.

1.1.4.c* Organize materials based on the AACR2, MARC, Library of Congress, Sears and other systems as appropriate for the cataloging and classification of school media center resources for efficient access and retrieval by the students, teachers, administrators and community members.

1.1.4.d* Organize, classify, and maintain bibliographic records within the media center to ensure efficient access to resources for students and teachers.

1.1.5 Evaluating

1.1.5.a Utilize a variety of assessment measures to determine the adequacy of learning and instruction.

1.1.5.b Demonstrate the use of formative and summative evaluation within practice and contextualized field experiences.

1.1.5.c Demonstrate congruency among goals/objectives, instructional strategies, and assessment measures.

1.2 Message Design

1.2.a Apply principles of educational psychology, communications theory, and visual literacy to the selection of media for macro- and micro-level design of instruction.

1.2.b Apply principles of educational psychology, communications theory, and visual literacy to the development of instructional messages specific to the learning task.

1.2.c Understand, recognize and apply basic principles of message design in the development of a variety of communications with their learners.

1.3 Instructional Strategies

1.3.a Select instructional strategies appropriate for a variety of learner characteristics and learning situations.

1.3.b Identify at least one instructional model and demonstrate appropriate contextualized application within practice and field experiences.

1.3.c Analyze their selection of instructional strategies and/or models as influenced by the learning situation, nature of the specific content, and type of learner objective.

1.3.d Select motivational strategies appropriate for the target learners, task, and learning situation.

1.4 Learner Characteristics

1.4.a Identify a broad range of observed and hypothetical learner characteristics for their particular area(s) of preparation.

1.4.b Describe and/or document specific learner characteristics which influence the selection of instructional strategies.

1.4.c Describe and/or document specific learner characteristics which influence the implementation of instructional strategies.

1.4.d* Describe and/or document specific learner characteristics which influence the selection of instructional strategies and resources within the media center.

1.4.e* Describe and/or document specific learner characteristics which influence the implementation of instructional strategies and resources within the media center.

Standard 2: DEVELOPMENT

Candidates demonstrate the knowledge, skills, and dispositions to develop instructional materials and experiences using print, audiovisual, computer-based, and integrated technologies.

Supporting Explanation:

“Development is the process of translating the design specifications into physical form” (Seels & Richey, 1994, p. 35). The domain of development includes four sub-domains : Print Technologies, Audiovisual Technologies, Computer-Based Technologies, and Integrated Technologies. Development is tied to other areas of theory, research, design, evaluation, utilization, and management.

2.1 Print Technologies

“Print technologies are ways to produce or deliver materials, such as books and static visual materials, primarily through mechanical or photographic printing processes” (Seels & Richey, 1994, p. 37). Print technologies include verbal text materials and visual materials; namely, text, graphic and photographic representation and reproduction. Print and visual materials provide a foundation for the development and utilization of the majority of other instructional materials.

2.2 Audiovisual Technologies

“Audiovisual technologies are ways to produce or deliver materials by using mechanical devices or electronic machines to present auditory and visual messages” (Seels & Richey, 1994, p. 38). Audiovisual technologies are generally linear in nature, represent real and abstract ideas, and allow for learner interactivity dependent on teacher application.

2.3 Computer-Based Technologies

“Computer-based technologies are ways to produce or deliver materials using microprocessor-based resources” (Seels & Richey, 1994, p. 39). Computer-based technologies represent electronically stored information in the form of digital data. Examples include computer-based instruction(CBI), computer-assisted instruction (CAI), computer-managed instruction (CMI), telecommunications, electronic communications, and global resource/reference access.

2.4 Integrated Technologies

“Integrated technologies are ways to produce and deliver materials which encompass several forms of media under the control of a computer” (Seels & Richey, 1994, p. 40). Integrated technologies are typically hypermedia environments which allow for: (a) various levels of learner control, (b) high levels of interactivity, and (c) the creation of integrated audio, video, and graphic environments. Examples include hypermedia authoring and telecommunications tools such as electronic mail and the World Wide Web.

Performances Indicative of the Development Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the development standard. You may wish to identify additional performance indicators related to your program.

2.0.1 Select appropriate media to produce effective learning environments using technology resources.

2.0.2 Use appropriate analog and digital productivity tools to develop instructional and professional products.

2.0.3 Apply instructional design principles to select appropriate technological tools for the development of instructional and professional products.

2.0.4 Apply appropriate learning and psychological theories to the selection of appropriate technological tools and to the development of instructional and professional products.

2.0.5 Apply appropriate evaluation strategies and techniques for assessing effectiveness of instructional and professional products.

2.0.6 Use the results of evaluation methods and techniques to revise and update instructional and professional products.

2.0.7 Contribute to a professional portfolio by developing and selecting a variety of productions for inclusion in the portfolio.

2.0.8* Develop school media collections focused on curricular needs, including a full range of print, non-print, and electronic resources.

2.1 Print Technologies

2.1.1 Develop instructional and professional products using a variety of technological tools to produce text for communicating information.

2.1.2 Produce print communications (e.g., flyers, posters, brochures, newsletters) combining words and images/graphics using desktop publishing software.

2.1.3 Use presentation application software to produce presentations and supplementary materials for instructional and professional purposes.

2.1.4 Produce instructional and professional products using various aspects of integrated application programs.

2.2 Audiovisual Technologies

2.2.1 Apply principles of visual and media literacy for the development and production of instructional and professional materials and products.

2.2.2 Apply development techniques such as storyboarding and or scriptwriting to plan for the development of audio/video technologies.

2.2.3 Use appropriate video equipment (e.g., camcorders, video editing) to prepare effective instructional and professional products.

2.2.4 Use a variety of projection devices with appropriate technology tools to facilitate presentations and instruction.

2.3 Computer-Based Technologies

2.3.1 Design and produce audio/video instructional materials which use computer-based technologies.

2.3.2 Design, produce, and use digital information with computer-based technologies.

2.3.3 Use imaging devices (e.g., digital cameras, video cameras, scanners) to produce computer-based instructional materials.

2.3.4* Incorporate the use of the Internet, online catalogs and electronic databases to meet the reference and learning needs of students and teachers.

2.4 Integrated Technologies

2.4.1 Use authoring tools to create effective hypermedia/multimedia instructional materials or products.

2.4.2 Develop and prepare instructional materials and products for various distance education delivery technologies.

2.4.3 Combine electronic and non-electronic media to produce instructional materials, presentations, and products.

2.4.4 Use telecommunications tools such as electronic mail and browsing tools for the World Wide Web to develop instructional and professional products.

2.4.5 Develop effective Web pages with appropriate links using various technological tools (e.g., print technologies, imaging technologies, and video).

2.4.6 Use writable CD-ROMs to record productions using various technological tools.

2.4.7 Use appropriate software for capturing Web pages, audio wave files, and video files for developing off-line presentations.

2.4.8* Prepare instructional materials, bibliographies, resource lists for instructional units, and other materials as appropriate to support students and teachers.

Standard 3: UTILIZATION

Candidates demonstrate the knowledge, skills, and dispositions to use processes and resources for learning by applying principles and theories of media utilization, diffusion, implementation, and policy-making.

Supporting Explanations

“Utilization is the act of using processes and resources for learning” (Seels & Richey, 1994, p. 46). This domain involves matching learners with specific materials and activities, preparing learners for interacting with those materials, providing guidance during engagement, providing assessment of the results, and incorporating this usage into the continuing procedures of the organization.

3.1 Media Utilization

“Media utilization is the systematic use of resources for learning” (Seels & Richey, 1994, p. 46). Utilization is the decision-making process of implementation based on instructional design specifications.

3.2 Diffusion of Innovations

“Diffusion of innovations is the process of communicating through planned strategies for the purpose of gaining adoption” (Seels & Richey, 1994, p. 46). With an ultimate goal of bringing about change, the process includes stages such as awareness, interest, trial, and adoption.

3.3 Implementation and Institutionalization

“Implementation is using instructional materials or strategies in real (not simulated) settings. Institutionalization is the continuing, routine use of the instructional innovation in the structure and culture of an organization” (Seels & Richey, 1994, p. 47). The purpose of implementation is to facilitate appropriate use of the innovation by individuals in the organization. The goal of institutionalization is to integrate the innovation within the structure and behavior of the organization.

3.4 Policies and Regulations

“Policies and regulations are the rules and actions of society (or its surrogates) that affect the diffusion and use of Instructional Technology” (Seels & Richey, 1994, p. 47). This includes such areas as web-based instruction, instructional and community television, copyright law, standards for equipment and programs, use policies, and the creation of a system which supports the effective and ethical utilization of instructional technology products and processes.

Performances Indicative of the Utilization Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the utilization standard. You may wish to identify additional performance indicators related to your program.

3.0.1* Assess, analyze and design a media facility for optimal use and functionality to support contemporary educational goals of the school media program.

3.0.2* Use automated processes and technologies related to school media center operations.

3.1 Media Utilization

3.1.1 Identify key factors in selecting and using technologies appropriate for learning situations specified in the instructional design process.

3.1.2 Use educational communications and instructional technology (SMETS) resources in a variety of learning contexts.

3.1.3* Provide services and resources to all users in all formats that support curriculum needs and recreational reading interests of the students and teachers that are consistent with the mission, goals, and objectives of the local school community.

3.1.4* Provide accurate and prompt reference information and exhibit strong communication skills when responding to reference inquiries.

3.1.5* Use interlibrary loan and other resources, such as statewide and/or other electronic gateways, to acquire resources for students and teachers through the school media center.

3.1.6* Identify collection development resource tools to establish, maintain and evaluate a high quality collection for the media center in a variety of formats that supports standards-based curricula and addresses the information and learning needs of all learners.

3.2 Diffusion of Innovations

3.2.1 Identify strategies for the diffusion, adoption, and dissemination of innovations in learning communities.

3.2.2* Publicize the value of school media programs within the school, community, and local school district.

3.3 Implementation and Institutionalization

3.3.1 Use appropriate instructional materials and strategies in various learning contexts.

3.3.2 Identify and apply techniques for integrating SMETS innovations in various learning contexts.

3.3.3 Identify strategies to maintain use after initial adoption.

3.3.4* Understand and apply the principles of management theory to the operations of the school media center.

3.3.5* Use automated processes and technologies related to design, production and implementation of instructional materials and information systems in the operations of the school media program.

3.4 Policies and Regulations

3.4.1 Identify and apply standards for the use of instructional technology.

3.4.2 Identify and apply policies which incorporate professional ethics within practice.

3.4.3 Identify and apply copyright and fair use guidelines within practice.

3.4.4 Identify and implement effective policies related to the utilization, application, and integration of instructional technologies.

3.4.5 Identify policies and regulations which apply to the utilization, application, and integration of distance delivery technologies.

3.4.6* Identify current local, state, and federal policies and procedures and apply them within the school media program and the operation of the school media center.

3.4.7* Identify and apply contemporary laws related to copyright, fair use, and intellectual freedom in the school media program.

3.4.8* Develop acceptable use policies (AUPs) for Internet use in P-12 settings.

3.4.9* Develop circulation policies and procedures which ensure students and teachers have access to media center resources in all formats.

3.4.10* Develop and use policies and procedures that include collection development/selection, reconsideration of challenged materials, and weeding criteria that are consistent with the ethics of the information profession and with the mission, goals and objectives of the local school district.

Standard 4: MANAGEMENT

Candidates demonstrate knowledge, skills, and dispositions to plan, organize, coordinate, and supervise instructional technology by applying principles of project, resource, delivery system, and information management.

Supporting Explanations:

“Management involves controlling Instructional Technology through planning, organizing, coordinating, and supervising” (Seels & Richey, 1994, p. 49). The domain of management includes four sub-domains of theory and practice: Project Management, Resource Management, Delivery System Management, and Information Management. Within each of these sub-domains there is a common set of tasks to be accomplished: organization must be assured, personnel hired and supervised, funds planned and accounted for, facilities developed and maintained, and short- and long-term goals established. A manager is a leader who motivates, directs, coaches, supports, monitors performance, delegates, and communicates.

4.1 Project Management

“Project management involves planning, monitoring, and controlling instructional design and development projects” (Seels & Richey, 1994, p. 50). Project managers negotiate, budget, install information monitoring systems, and evaluate progress.

4.2 Resource Management

“Resource management involves planning, monitoring, and controlling resource support systems and services” (Seels & Richey, 1994, p. 51). This includes documentation of cost effectiveness and justification of effectiveness or efficiency for learning as well as the resources of personnel, budget, supplies, time, facilities, and instructional resources.

4.3 Delivery System Management

“Delivery system management involves planning, monitoring and controlling ‘the method by which distribution of instructional materials is organized’ . . . [It is] a combination of medium and method of usage that is employed to present instructional information to a learner” (Seels & Richey, 1994, p. 51). This includes attention to hardware and software requirements, technical support for the users and developers, and process issues such as guidelines for designers, instructors, and SMETS support personnel.

4.4 Information Management

“Information management involves planning, monitoring, and controlling the storage, transfer, or processing of information in order to provide resources for learning” (Seels & Richey, 1994, p. 51). Information is available in many formats and candidates must be able to access and utilize a variety of information sources for their professional benefit and the benefit of their future learners.

Performances Indicative of the Management Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the management standard. You may wish to identify additional performance indicators related to your program.

4.0.1 Demonstrate leadership attributes with individuals and groups (e.g., interpersonal skills, group dynamics, team building).

4.0.2* Establish mission, goals and objectives of the school media program that align with and support those of the local school district and community.

4.0.3* Develop a collaborative working relationship with school administration and staff which results in a strong understanding and widespread use of the school media program.

4.1 Project Management

4.1.1 Apply project management techniques in various learning and training contexts.

4.1.2* Use knowledge of school, district, state, regional, and national organizations to support efficient and effective operations in contemporary school media programs.

4.2 Resource Management

4.2.1 Apply resource management techniques in various learning and training contexts.

4.2.2* Manage and evaluate qualified personnel and volunteer staff for an effective school media program.

4.2.3* Prepare and justify a budget that supports standards-based curricula and that provides necessary resources to ensure the success of the school media program.

4.2.4* Identify effective school media program services that promote collaborative planning and curriculum development with classroom teachers.

4.2.5* Facilitate collaborative teaching practices among school faculty, staff, curriculum specialists, and teacher aides.

4.2.6* Mentor and empower students, teachers, administrators and community members in their use of the school media center.

4.3 Delivery System Management

4.3.1 Apply delivery system management techniques in various learning and training contexts.

4.4 Information Management

4.4.1 Apply information management techniques in various learning and training contexts.

4.4.2* Apply a planning process for the development of school media programs using tools such as flowcharts and timelines.

Standard 5: EVALUATION

Candidates demonstrate knowledge, skills, and dispositions to evaluate the adequacy of instruction and learning by applying principles of problem analysis, criterion-referenced measurement, formative and summative evaluation, and long-range planning.

Supporting Explanations:

“Evaluation is the process of determining the adequacy of instruction and learning” (Seels & Richey, 1994, p. 54). SMETS candidates demonstrate their understanding of the domain of evaluation through a variety of activities including problem analysis, criterion-referenced measurement, formative evaluation, and summative evaluation.

5.1 Problem Analysis

“Problem analysis involves determining the nature and parameters of the problem by using information-gathering and decision-making strategies” (Seels & Richey, 1994, p. 56). SMETS candidates exhibit technology competencies defined in the knowledge base. Candidates collect, analyze, and interpret data to modify and improve instruction and SMETS projects.

5.2 Criterion-Referenced Measurement

“Criterion-referenced measurement involves techniques for determining learner mastery of pre-specified content” (Seels & Richey, 1994, p. 56). SMETS candidates utilize criterion-referenced performance indicators in the assessment of instruction and SMETS projects.

5.3 Formative and Summative Evaluation

“Formative evaluation involves gathering information on adequacy and using this information as a basis for further development. Summative evaluation involves gathering information on adequacy and using this information to make decisions about utilization” (Seels & Richey, 1994, p. 57). SMETS candidates integrate formative and summative evaluation strategies and analyses into the development and modification of instruction, SMETS projects, and SMETS programs.

5.4 Long-Range Planning

Long-range planning that focuses on the organization as a whole is strategic planning....Long-range is usually defined as a future period of about three to five years or longer. During strategic planning, managers are trying to decide in the present what must be done to ensure organizational success in the future.” (Certo et al., 1990, p. 168). SMETS candidates demonstrate formal efforts to address the future of this highly dynamic field including the systematic review and implementation of current SMET developments and innovations.

Performances Indicative of the Evaluation Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the evaluation standard. You may wish to identify additional performance indicators related to your program.

5.1 Problem Analysis

5.1.1 Identify and apply problem analysis skills in appropriate school media and educational technology (SMET) contexts (e.g., conduct needs assessments, identify and define problems, identify constraints, identify resources, define learner characteristics, define goals and objectives in instructional systems design, media development and utilization, program management, and evaluation).

5.1.2* Apply knowledge of current trends and issues in the field of school media.

5.2 Criterion-Referenced Measurement

5.2.1 Develop and apply criterion-referenced measures in a variety of SMET contexts.

5.2.2* Identify and collect appropriate data to support decision-making, short-and long-term, for the school media program.

5.3 Formative and Summative Evaluation

5.3.1 Develop and apply formative and summative evaluation strategies in a variety of SMET contexts.

5.3.2* Develop and implement a school media program evaluation process.

5.3.3* Use a variety of summative and formative assessment techniques for the evaluation of the school media center and for the school media program.

5.4 Long-Range Planning

5.4.1 Develop a long-range strategic plan related to any of the domains or sub-domains.

5.4.2* Develop and update a long-range strategic school media program plan.

CHAPTER III

STANDARDS FOR THE ACCREDITATION OF ADVANCED PREPARATION PROGRAMS OF SCHOOL MEDIA AND EDUCATIONAL TECHNOLOGY SPECIALISTS (SMETS)

These standards are concerned with candidate performances, curriculum, faculty, specialized support services, and evaluation procedures required for the accreditation of advanced programs for the preparation of school media and educational technology specialists (SMETS). Advanced SMETS programs are defined as those which represent additional study in the field. A graduate program which advances knowledge and skills beyond the entry level for the profession constitutes an advanced SMETS program. *It is expected that advanced candidates are able to demonstrate the competencies outlined in the initial program.* The intended audience for the standards are those faculty members and administrators who have the responsibility for, and control of, such programs. These standards are intended to accompany and amplify NCATE's *Standards, Procedures, and Policies for the Accreditation of Professional Education Units*, and to address Standard 1 of the NCATE standards.

INTRODUCTION

These standards for accrediting advanced programs in school media and educational technology (SMET) are built upon the same definitions and domains as the standards for initial programs. Definitions of educational technology and a discussion of the philosophical basis for SMETS programs are provided in Chapter I of this document which should be reviewed prior to developing a program report in response to the advanced standards in this chapter.

Details of content and organization for advanced programs are not specified in the standards. All advanced programs should provide for at least minimal competencies within each domain of the instructional technology knowledge base. Advanced programs should also indicate the domains and sub-domains that are germane to their program and the roles filled by their graduates. The intent of the standards is to provide the maximum degree of flexibility to institutions as they develop soundly conceived and defined programs.

The advanced standards are built upon the assumption that basic media support for teacher training is available to support advanced programs in educational communications and instructional technologies. These advanced standards require evidence of the specialized facilities and services necessary to support the development of competencies required of graduates from the program. The advanced standards also concentrate on the candidate's preparation in the research, application of theory, and theory development within the field.

Curricula and candidate performances for the advanced preparation of personnel in the fields of school media and educational technology should be grounded in the knowledge base of the field. The domains of the field include design, development, utilization, management, and evaluation. Programs will vary in their concentration on each of the domains.

The complete domains and sub-domains are listed below:

Design

- Instructional Systems Design
- Message Design
- Instructional Strategies
- Learner Characteristics

Development

- Print Technologies
- Audiovisual Technologies
- Computer-Based Technologies
- Integrated Technologies
- Utilization

Utilization

- Diffusion of Innovations
- Implementation and Institutionalization
- Policies and Regulations

Management

- Project Management
- Resource Management
- Delivery System Management
- Information Management

Evaluation

- Problem Analysis
- Criterion-Referenced Measurement
- Formative Evaluation
- Summative Evaluation

Within these five domains and twenty sub-domains, the program may be composed of those competencies most appropriate to the intended roles of the candidates.

Standard 1: DESIGN

Candidates demonstrate the knowledge, skills, and dispositions to design conditions for learning by applying principles, theories, and research associated with instructional systems design, message design, instructional strategies, and learner characteristics.

Supporting Explanations:

“Design is the process of specifying conditions for learning” (Seels & Richey, 1994, p. 30). The domain of design includes four sub-domains of theory and practice: Instructional Systems Design (ISD), Message Design, Instructional Strategies, and Learner Characteristics.

1.1 Instructional Systems Design (ISD)

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- 1.1.1 Analyzing: process of defining what is to be learned and the context in which it is to be learned.
- 1.1.2 Designing: process of specifying how it is to be learned.
- 1.1.3 Developing: process of authoring and producing the instructional materials.
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- 1.1.5 Evaluating: process of determining the adequacy of the instruction.

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“Message design involves planning for the manipulation of the physical form of the message” (Seels & Richey, 1994, p. 31). Message design is embedded within learning theories (cognitive, psychomotor, behavioral, perceptual, affective, constructivist) in the application of known principles of attention, perception, and retention which are intended to communicate with the learner. This sub-domain is specific to both the medium selected and the learning task.

1.3 Instructional Strategies

“Instructional strategies are specifications for selecting and sequencing events and activities within a lesson” (Seels & Richey, 1994, p. 31). In practice, instructional strategies interact with learning situations. The results of these interactions are often described by instructional models. The appropriate selection of instructional strategies and instructional models depends upon the learning situation (including learner characteristics), the nature of the content, and the type of learner objective.

1.4 Learner Characteristics

“Learner characteristics are those facets of the learner’s experiential background that impact the effectiveness of a learning process” (Seels & Richey, 1994, p. 32). Learner characteristics impact specific components of instruction during the selection and implementation of instructional strategies. For example, motivation research influences the selection and implementation of instructional strategies based upon identified learner characteristics. Learner characteristics interact with instructional strategies, the learning situation, and the nature of the content.

Performances Indicative of the Design Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the design standard. You may wish to identify additional performance indicators related to your program.

1.1 Instructional Systems Design

1.1.a Apply a variety of instructional systems design models.

1.1.b Identify theories from which a variety of ID models are derived and the consequent implications.

1.1.c Demonstrate proficiency in the prescription, implementation, and evaluation of treatments to maximize learning/performance outcomes in a variety of contexts.

1.1.1 Analyzing

1.1.1.a Utilize research methodologies appropriate to the investigation of instructional tasks and content.

1.1.1.b Identify the theories and historical background of analysis as a component of instructional design and instructional systems development.

1.1.2 Designing

1.1.2.a Demonstrate in-depth synthesis and evaluation of the theoretical constructs and research methodologies related to instructional design as applied in multiple contexts.

1.1.2.b Utilize principles and procedures of instructional design in a variety of contexts and systems.

1.1.2.c Recognize and articulate current trends in the development of theory and emerging practice related to instructional design.

1.1.3 Developing

1.1.3.a Demonstrate personal skill development with two or more: computer authoring application, video tool, or electronic communication application (not telephone).

1.1.3.b Utilize the research, theoretical, and practitioner foundations of the field in the development of instructional materials.

1.1.3.c Utilize the research, theoretical, and practitioner foundations of the field in the selection of media for instructional settings.

1.1.4 Implementing

1.1.4.a Conduct basic and applied research related to technology integration and implementation.

1.1.4.b Utilize the research, theoretical, and practitioner foundations of the field in the implementation of instructional plans.

1.1.5 Evaluating

1.1.5.a Demonstrate congruency among goals/objectives, instructional strategies, and assessment measures.

1.1.5.b Conduct basic and applied research in the evaluation of emergent learner assessments.

1.1.5.c Articulate the relationships within the discipline between theory, research, and practice as well as the inter-relationships between people, processes, and devices.

1.2 Message Design

1.2.a Conduct basic and applied research related to message design, which includes multiple media.

1.3 Instructional Strategies

1.3.a Identify multiple instructional strategy models and demonstrate appropriate contextualized application within practice and field experiences.

1.3.b Demonstrate appropriate uses of multiple instructional strategies for complex, interactive environments.

1.4 Learner Characteristics

1.4.a Analyze the effectiveness of macro- and micro-level design efforts by considering the interactions of learner characteristics, instructional strategies, nature of the content, and the learning situation.

1.4.b Demonstrate in-depth synthesis and evaluation of the theoretical constructs and contemporary research related to the identification and importance of learner characteristics.

Standard 2: DEVELOPMENT

Candidates demonstrate the knowledge, skills, and dispositions to develop instructional materials and experiences by applying principles, theories, and research related to print, audiovisual, computer-based, and integrated technologies.

Supporting Explanation:

“Development is the process of translating the design specifications into physical form” (Seels & Richey, 1994, p. 35). The domain of development includes four sub-domains: Print Technologies, Audiovisual Technologies, Computer-Based Technologies, and Integrated Technologies. Development is tied to other areas of theory, research, design, evaluation, utilization, and management.

2.1 Print Technologies

“Print technologies are ways to produce or deliver materials, such as books and static visual materials, primarily through mechanical or photographic printing processes” (Seels & Richey, 1994, p. 37). Print technologies include verbal text materials and visual materials; namely, text, graphic and photographic representation and reproduction. Print and visual materials provide a foundation for the development and utilization of the majority of other instructional materials.

2.2 Audiovisual Technologies

“Audiovisual technologies are ways to produce or deliver materials by using mechanical devices or electronic machines to present auditory and visual messages” (Seels & Richey, 1994, p. 38). Audiovisual technologies are generally linear in nature, represent real and abstract ideas, and allow for learner interactivity dependent on teacher application.

2.3 Computer-Based Technologies

“Computer-based technologies are ways to produce or deliver materials using microprocessor-based resources” (Seels & Richey, 1994, p. 39). Computer-based technologies represent electronically stored information in the form of digital data. Examples include computer-based instruction (CBI), computer-assisted instruction (CAI), computer-managed instruction (CMI), telecommunications, electronic communications, and global resource/reference access.

2.4 Integrated Technologies

“Integrated technologies are ways to produce and deliver materials which encompass several forms of media under the control of a computer” (Seels & Richey, 1994, p. 40). Integrated technologies are typically hypermedia environments which allow for: (a) various levels of learner control, (b) high levels of interactivity, and (c) the creation of integrated audio, video, and graphic environments. Examples include hypermedia authoring and telecommunications tools such as electronic mail and the World Wide Web.

Performances Indicative of the Development Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the development standard. You may wish to identify additional performance indicators related to your program.

2.0.1 Collaborate with a development team to apply principles of design specifications to produce technological products.

2.0.2 Use theory, research, and evaluation to select appropriate technological tools for developing effective instructional products and processes.

2.0.3 Compare, analyze, critique, and evaluate commercially produced products to determine how learning theories, instructional design specifications, production principles, and teaching strategies are embedded within the product.

2.0.4 Solve problems of design specifications for embedding learning theories and effective teaching strategies in the development of instructional or professional products.

2.0.5 Evaluate the effective use of design specifications in products used in a variety of learning or training environments.

2.0.6 Create instructional or professional products using technology resources such as CD-ROMs, laser discs, Web pages, digital technologies, and other emerging technology resources.

2.0.7 Apply principles of learning theories and research to create effective learning environments.

Standard 3: UTILIZATION

Candidates demonstrate the knowledge, skills, and dispositions to use processes and resources for learning by applying principles, theories, and research related to media utilization, diffusion, implementations, and policy-making.

Supporting Explanations

“Utilization is the act of using processes and resources for learning” (Seels & Richey, 1994, p. 46). This domain involves matching learners with specific materials and activities, preparing learners for interacting with those materials, providing guidance during engagement, providing assessment of the results, and incorporating this usage into the continuing procedures of the organization.

3.1 Media Utilization

“Media utilization is the systematic use of resources for learning” (Seels & Richey, 1994, p. 46). Utilization is the decision-making process of implementation based on instructional design specifications.

3.2 Diffusion of Innovations

“Diffusion of innovations is the process of communicating through planned strategies for the purpose of gaining adoption” (Seels & Richey, 1994, p. 46). With an ultimate goal of bringing about change, the process includes stages such as awareness, interest, trial, and adoption.

3.3 Implementation and Institutionalization

“Implementation is using instructional materials or strategies in real (not simulated) settings. Institutionalization is the continuing, routine use of the instructional innovation in the structure and culture of an organization” (Seels & Richey, 1994, p. 47). The purpose of implementation is to facilitate appropriate use of the innovation by individuals in the organization. The goal of institutionalization is to integrate the innovation within the structure and behavior of the organization.

3.4 Policies and Regulations

“Policies and regulations are the rules and actions of society (or its surrogates) that affect the diffusion and use of Instructional Technology” (Seels & Richey, 1994, p. 47). This includes such areas as web-based instruction, instructional and community television, copyright law, standards for equipment and programs, use policies, and the creation of a system which supports the effective and ethical utilization of instructional technology products and processes.

Performances Indicative of the Utilization Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the utilization standard. You may wish to identify additional performance indicators related to your program.

3.1 Media Utilization

3.1.1 Apply research and theory in the selection and utilization of technologies for learning.

3.2 Diffusion of Innovations

3.2.1 Apply research and theory in the implementation of strategies for the diffusion, adoption, and dissemination of innovations in learning communities.

3.3 Implementation and Institutionalization

3.3.3 Identify and implement strategies to engage stakeholders in the process of diffusion, adoption, and dissemination.

3.3.5 Evaluate the effects of diffusion, adoption, and dissemination.

3.4 Policies and Regulations

3.4.4 Implement effective policies related to the utilization, application, and integration of instructional technologies in a variety of contexts.

Standard 4: MANAGEMENT

Candidates demonstrate knowledge, skills, and dispositions to plan, organize, coordinate, and supervise instructional technology by applying principles, theories and research related to project, resource, delivery system, and information management.

Supporting Explanations:

“Management involves controlling Instructional Technology through planning, organizing, coordinating, and supervising” (Seels & Richey, 1994, p. 49). The domain of management includes four sub-domains of theory and practice: Project Management, Resource Management, Delivery System Management, and Information Management. Within each of these sub-domains there is a common set of tasks to be accomplished: organization must be assured, personnel hired and supervised, funds planned and accounted for, facilities developed and maintained, and short- and long-term goals established. A manager is a leader who motivates, directs, coaches, supports, monitors performance, delegates, and communicates.

4.1 Project Management

“Project management involves planning, monitoring, and controlling instructional design and development projects” (Seels & Richey, 1994, p. 50). Project managers negotiate, budget, install information monitoring systems, and evaluate progress and improvement.

4.2 Resource Management

“Resource management involves planning, monitoring, and controlling resource support systems and services” (Seels & Richey, 1994, p. 51). This includes documentation of cost effectiveness and justification of effectiveness or efficiency for learning as well as the resources of personnel, budget, supplies, time, facilities, and instructional resources.

4.3 Delivery System Management

“Delivery system management involves planning, monitoring and controlling ‘the method by which distribution of instructional materials is organized’ . . . [It is] a combination of medium and method of usage that is employed to present instructional information to a learner” (Seels & Richey, 1994, p. 51). This includes attention to hardware and software requirements, technical support for the users and developers, and process issues such as guidelines for designers, instructors, and SMETS support personnel.

4.4 Information Management

“Information management involves planning, monitoring, and controlling the storage, transfer, or processing of information in order to provide resources for learning” (Seels & Richey, 1994, p. 51). Information is available in many formats and candidates must be able to access and utilize a variety of information sources for their professional benefit and the benefit of their future learners.

Performances Indicative of the Management Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the management standard. You may wish to identify additional performance indicators related to your program.

4.0.1 Implement and evaluate a micro-level technology plan in an appropriate setting.

4.1.1 Implement and evaluate project management techniques using current research.

4.2.1 Implement and evaluate resource management techniques using current research.

4.3.1 Implement and evaluate delivery system management techniques using current research.

4.4.1 Implement and evaluate information management techniques using current research.

Standard 5: EVALUATION

Candidates demonstrate knowledge, skills, and dispositions to evaluate the adequacy of instruction and learning by applying principles, theories, and research related to problem analysis, criterion-referenced measurement, formative and summative evaluation, and long-range planning.

Supporting Explanations:

“Evaluation is the process of determining the adequacy of instruction and learning” (Seels & Richey, 1994, p. 54). SMETS candidates demonstrate their understanding of the domain of evaluation through a variety of activities including problem analysis, criterion-referenced measurement, formative evaluation, and summative evaluation.

5.1 Problem Analysis

“Problem analysis involves determining the nature and parameters of the problem by using information-gathering and decision-making strategies” (Seels & Richey, 1994, p. 56). SMETS candidates exhibit technology competencies defined in the knowledge base. Candidates collect, analyze, and interpret data to modify and improve instruction and SMETS projects.

5.2 Criterion-Referenced Measurement

“Criterion-referenced measurement involves techniques for determining learner mastery of pre-specified content” (Seels & Richey, 1994, p. 56). SMETS candidates utilize criterion-referenced performance indicators in the assessment of instruction and SMETS projects.

5.3 Formative and Summative Evaluation

“Formative evaluation involves gathering information on adequacy and using this information as a basis for further development. Summative evaluation involves gathering information on adequacy and using this information to make decisions about utilization” (Seels & Richey, 1994, p. 57). SMETS candidates integrate formative and summative evaluation strategies and analyses into the development and modification of SMETS projects and programs.

5.4 Long-Range Planning

Long-range planning that focuses on the organization as a whole is strategic planning....Long-range is usually defined as a future period of about three to five years or longer. During strategic planning, managers are trying to decide in the present what must be done to ensure organizational success in the future.” (Certo et al., 1990, p. 168). SMETS candidates demonstrate formal efforts to address the future of this highly dynamic field including the systematic review and implementation of current SMETS developments and innovations.

Performances Indicative of the Evaluation Standard

Select candidate performances which are applicable to your program. The following indicators are examples of performances related to the evaluation standard. You may wish to identify additional performance indicators related to your program.

5.0.1 Exhibit knowledge of and display skill in the analysis of current school media and educational technology (SMET) research on evaluation in order to evaluate SMETS projects and programs.

5.0.2 Demonstrate skill in the conception, design, implementation, and reporting of original SMETS research on evaluation in order to evaluate SMETS projects and programs.

5.0.3 Apply theories underlying the five educational technology domains to instructional projects.

5.0.4 Identify and apply strategies to develop and implement a long-range plan for an SMETS program or project.

CHAPTER IV

INSTITUTIONAL RESPONSIBILITIES

This section describes information that institutions are expected to submit for program review under NCATE accreditation. The focus is on assessment evidence that demonstrates candidate proficiencies, accompanied by appropriate contextual information that will assist AECT/NCATE program reviewers. This "performance-based" approach contrasts with the overview statement and matrix format displaying descriptions of course offerings and experiences that have previously served as the primary evidence for NCATE folio reviews.

It is the responsibility of program faculty to make the case that candidates completing SMETS preparation programs are meeting the standards. Faculty in every institution conduct extensive assessment activities and, through external sources, have access to additional information about the performances of their candidates. As they respond to the material for program review described in this section, each SMETS preparation institution and all faculty involved should make full use of evaluative information that is readily available about candidate—and former candidate—proficiencies. Faculty may find it useful to re-evaluate the relevance and adequacy of all this assessment information. They should build on the institution's own assessments, already in place, and in ways that are suited to the institution's mission and overall program goals. There are many alternatives through which faculty can provide experiences that will enable candidates to learn and practice the content expressed in the standards. Similarly, there are multiple ways to build the monitoring of candidate progress into the SMETS preparation program.

Program quality judgments will be based on evidence that the program's candidates, as a group, demonstrate proficiency in the standards. Both components of courses or experiences offered by the institution, and characteristics of the assessment and evaluation system, can advance the preparation of teacher candidates. They are essential inputs or processes created by institutions so that candidates have opportunities to learn and practice the content and skills of the standards. However, the emphasis in performance-based program review is on evidence demonstrating that candidates display knowledge and skills related to the standards and performance indicators. The review will consider how the program has addressed and assessed SMETS candidate competencies for each domain. How does the program provide the knowledge and skills for the development of competencies in a domain? How does the program assess and monitor the development of candidate competencies in a domain? How does the program determine that candidates have attained acceptable competence in a domain?

The new AECT program standards in Chapters II and III, together with the performance-based evidence submissions, represent a significant change from previous AECT guidelines. For that reason, they are to be used by **all** institutions applying for initial review, and also for all accredited institutions' next continuing review. The details

of the review requirements may differ from state to state, however, depending on the provisions of any applicable NCATE State Partnership agreement.

HOW IS "PERFORMANCE-BASED" PROGRAM REVIEW DIFFERENT FROM THE PREVIOUS NCATE/AECT PROGRAM REVIEW?

The revised AECT standards represent **a new approach to program review** in NCATE's accreditation system. Three statements express the "paradigm shift" found in the new standards and program review:

- First, the **standards describe what SMETS candidates should know and be able to do so that students learn**. This contrasts with the previous course-based approach in which guidelines described what should be covered in courses and experiences in the program.
- Second, the **evidence** used for decisions about "national recognition" of programs is **from assessments and evaluations of candidate proficiencies in relation to those standards**. This contrasts with evidence, under the previous course-based approach, that described where particular material is covered in the syllabi and courses.
- Third, it is the **responsibility of program faculty to make the case that candidates completing SMETS preparation programs are meeting the standards and to demonstrate how well** candidates are meeting them.

NCATE has set a transition timeline for implementation of the new performance-based accreditation for teacher preparation units. That transition plan, for which the full text is available on the NCATE web site at www.ncate.org, sets a schedule for all units to follow in development and implementation of their assessment systems. **Faculty from institutions applying for program review of SMETS preparation should assume the same implementation timelines as those announced for the unit transition plan.** In brief, by the Fall of 2001 and Spring 2002 there should be, at a minimum, a plan for an assessment system with timelines and details about components and management, collaboratively developed by the professional community. By the Fall of 2004 and Spring of 2005, the assessment system should be implemented, evaluated and refined. The NCATE web site provides descriptions and details for the intervening years.

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APPENDIX A

ASSESSMENT OF CANDIDATE PERFORMANCE

Principles for Performance-Based Assessment Systems in Professional Education Programs

Assessing what professional educator candidates know and can do is critical to implementing the performance-based standards of the National Council for Accreditation of Teacher Education (NCATE) and its affiliated national professional specialty organizations. Given the complexities of teaching and other educational professions, the range of knowledge, skills, and dispositions to be assessed, the multiple purposes for which assessment results are used, and the stakes associated with the outcomes, assessment in professional education programs and units needs to include multiple measures implemented on a systematic and ongoing basis as part of a comprehensive system. This document outlines principles set forth by the NCATE Specialty Area Studies Board for performance-based assessment systems at the program level.

Although assessment systems will vary across programs and units, they generally should a) address the knowledge, skills, and dispositions to be acquired by professional educator candidates as set forth in program goals; b) be consistent with the standards of relevant national and state accrediting/approval bodies; c) have multiple means for measuring candidate performance and impact; and d) provide on-going, systematic information useful for decision-making. It is particularly critical that assessment systems provide credible results that are collected and used in a fair, valid manner consistent with their intended purpose(s).

Assessment systems should have the following characteristics:

1. The system is driven by a conceptual framework and program values which espouse assessment as a vehicle for both individual and program self-evaluation and improvement. Assessment is planned and implemented by key stakeholders in a manner consistent with the method of inquiry in the discipline and is considered a means to an end rather than an end in itself.
2. The system includes components which work together in a synergistic manner to address the knowledge, skills, and dispositions of candidates across program goals, objectives and curriculum consistent with the performance-based standards of the respective national professional specialty. Assessment is a goal-oriented process linked to program purposes/goals and national standards.
3. Multiple measures are planned and administered on a systematic, ongoing basis throughout the program beginning with the admissions process. The system includes quantitative and qualitative measures useful for formative and summative assessment. One or more measures designed to yield evidence of positive candidate impact on students is included in the system.

4. The system includes one or more measures which have been created, reviewed, and/or scored by specialty professionals external to the program. Such professionals include those with relevant specialized expertise whose primary responsibility is not to the program/unit, such as field-based master teachers, clinical teachers, intern supervisors, and/or supervisors/employers of program candidates/graduates.
5. The system is clearly delineated. Measures and associated criteria or rubrics (including minimal proficiency levels), as well as policies and practices for obtaining and using results, are described in program documents in a manner which candidates and other stakeholders can understand. Candidates are made aware of program standards and assessment requirements to which they will be held and are provided with models and/or examples of performance and the instruction and support needed to attain such levels.
6. The assessment methods and corresponding criteria included in the system are sufficiently comprehensive and rigorous to make important decisions about the proficiencies of candidates and to safeguard those they may potentially serve. Critical decision-making points are delineated in the system. Decisions that are made reflect the application of relevant criteria and use of results in a manner which discriminates acceptable versus unacceptable performance.
7. The system includes policies and procedures for the gathering, use, storage, and reporting of individual results. Such policies address the rights of individuals (e.g., those afforded candidates by the Family Educational Rights and Privacy Act; confidentiality/anonymity of survey responses). Individual candidate results are reported in a clear manner which acknowledges the source(s) and limitations of the data, individual strengths, and areas of needed or potential improvement.
8. The system includes a structure and procedures for sampling, analyzing, summarizing, and reporting aggregated results. Data are gathered on an ongoing basis and are summarized in a manner which reflects pass rates, the range of performances, and/or the "typical" or "average" performance (e.g., mean, median, or modal performance) as appropriate to the types of measures. Summaries of results are provided to key program stakeholders in a clear manner which acknowledges the source(s) and limitations of the data, data collection and reporting time frame, program strengths, and areas of needed or potential improvement.
9. The program and its assessment system foster the use of results for individual candidate and program improvement. Assessment results are regularly reviewed in relation to program goals and objectives as well as to relevant state and national standards and stimulate changes designed to optimize success.
10. The system has a mechanism and procedures for evaluating and improving itself and its component assessment methods. Evidence of the reliability and validity of the system and its component measures is gathered and used to make decisions about their ongoing

use and/or revision. Evidence should address the ability of the system to comprehensively assess performance in a credible manner which is valid, fair, and unbiased.

Characteristics of Sound Evidence

Sound evidence usually exhibits several qualitative characteristics:

- **Results from planned, purposeful, and continuing evaluation of candidate proficiencies, drawing on diverse sources;**

Monitoring of candidate performance is embedded in the SMETS preparation program and conducted on a continuing basis. This monitoring is planned in response to faculty decisions about the points in the program best suited to gathering candidate performance information, consistent with the institution's own context and mission. Typically such information is gathered at candidate entry, in coursework, in connection with field experiences, prior to the start of practica, and at completion of the program.

All information about candidates' proficiencies, from all sources, is drawn on by the unit for continuous evaluation of candidate progress and program success. Excerpts, summaries, and samples from this array of information are provided for use by NCATE in its program quality reviews. Institutions will usually begin to plan their assessment system around activities that are the direct responsibility of the SMETS preparation unit. Examples of assessments that might be used or created *within the program* include end-of-course evaluations but also tasks used for instructional purposes such as projects, journals, observations by faculty, comments by supervisors, samples of candidate work, and other information that would commonly be available for faculty use in determining the adequacy of the candidate's accomplishments in a course.

The monitoring information from the SMETS preparation program can be complemented by evaluations originating from *external sources* that supply information on candidate proficiencies. Examples from outside the unit are candidate performance evaluations during induction years and follow-up studies; performance on state licensure exams that assess candidates' knowledge and skills; and academic subject knowledge end-of-course examinations, essays, or other demonstrations of achievement.

- **Represents the scope of the standards for SMETS preparation;**

Candidate performance evidence is congruent with the knowledge and skills in the AECT standards. Institutions determine the best way to demonstrate that all aspects of the standards are covered, but avoid treating each individual statement in the standards and supporting explanations in an individual, serial, and fractionated way. Instead, faculty think through how all their existing assessment information can be marshaled, and what additional information is needed, to demonstrate candidate proficiency across the standards. The usefulness and value of information derived from tests are the key determinants in decisions to use or exclude them from an institution's performance measurement system.

• Measures the different "attributes" of standards in appropriate and multiple ways;

One conclusion about the current state-of-the art in assessment is that no single test or measurement of teacher candidates is sufficient by itself to represent these different attributes and the full scope of the standards. Multiple measures provide wide opportunities for candidates to demonstrate their accomplishments in relation to the standards. It is anticipated that institutions will draw on the extensive range of available assessment forms, including objective tests (which may be useful to gauge proficiencies in standards calling for candidate knowledge) and also portfolios, observations, reflections, teaching demonstrations, analytic work, candidate work samples, and other forms of evaluative information demonstrating proficiency in technology use. Consider as well external evidence of graduate success (surveys, licensure tests, employer induction year assessments), artifacts produced by the candidates (products, plans, assessments, case studies), reflective essays, attestations of accomplishments by supervisors, awards and recognitions, professional service, and scholarly activities.

• Results from rigorous and systematic efforts by the institution to set performance levels and judge accomplishments of its candidates;

Faculty establish written and shared explanations of what is valued in a candidate's response to an assessment—the qualities by which levels of performance can be differentiated—that serve as anchors for judgments about the degree of candidate success. The terms "rubrics" and "criteria" are frequently used in assessment to designate these explanations for levels of performance. These may be stated in generic terms or may be specific to particular assessment tasks. They may define acceptable levels of performance for the institution and one or more levels below (such as borderline, or unacceptable) and above (such as exemplary), or they may be in the form of criteria defining the institution's expectations for success. The rubrics or criteria are "public," that is shared with candidates and across the faculty. Faculty teach, advise, and prepare candidates for success in meeting critical external performance expectations, as expressed, for example, in state licensure test pass scores.

The institution judges individual candidate proficiencies, and also summarizes and analyzes the proportions of candidates who reach levels expressed in the rubrics or criteria. These results are used both for advisement of individual candidates, and also for strengthening of the courses and experiences offered by the institution to prepare elementary teacher candidates. The summary of results from the faculty judgments in applying the rubrics or criteria are used for the NCATE submission. Examples of candidate work are attached to the institutional submission where that is a useful way to assist reviewers' understanding of the levels of proficiency reached by candidates.

- **Provides information that is credible—accurate, consistent, fair and avoids bias;**

The institution gathers information on the accuracy (or validity) and consistency (or reliability) of its assessments. Accuracy is an expectation that the assessment information measures what is important for the decision to be made and that it represents the performances, competencies, and dispositions that are intended (that is, included in the AECT standards). Consistency is an expectation that successive samples of performances from the same candidate are reasonably related. Assessment systems must also be fair, avoiding bias and providing equitable treatment. These are matters that require professional judgment and are often determined through peer review, evaluations by external experts, or formal validation studies.

- **Makes use of appropriate sampling and summarizing procedures.**

In preparing the program submission, the institution samples and summarizes information about candidate proficiencies. Sampling refers both to representing the domain of the standards and representing the full range of the program's candidates. The candidate sample might be taken from the cohort of candidates completing the program in a specific academic year and previous completers so that information about performance of candidates from their entire preparation experience and into employment can be available for demonstration of candidate proficiency. Of course, anonymity of individual candidates and the students of those candidates must be protected.

Candidate proficiency results are summarized through averages, spread of scores, and distributions of rubric scores. Summary results are requested because NCATE's interest is in making decisions about program quality, rather than decisions about individual candidates. These summaries are made meaningful through illustrations such as samples of examination questions, examples of written responses, and analytic materials intended to inform reviewers of the proficiencies that candidates achieve in relation to the standards.

Of course, institutions that have sound evidence systems **use the data** to advise individual candidates and to strengthen teaching, courses, experiences, and programs.

These qualities of assessment evidence are not, themselves, the requirement for submission. **The submission is developed to describe the results of the assessment evidence.**

Instructions for Reviewers⁵

As program reviewers analyze institutional program reports it is important to always keep in mind the purposes of the program review process:

1. To improve the quality and integrity of professionals in SMET fields through the improvement of SMETS programs and,
2. To hold institutions accountable for meeting the NCATE/AECT performance-based standards which provide a level of voluntary quality control for the preparation of SMET professionals.

In their totality, the 2000 NCATE/AECT performance-based Standards along with the candidate performance indicators can be seen as describing an ideal situation which few, if any, programs will be able to meet at the present time. The Standards should be viewed as an attainable goal and one which programs should **strive** to attain. It is the process and plans for change that we will analyze as well as documentation of candidate performance. Program reviewers should be looking for plans and strategies for program improvement, not necessarily evidence that the change has already occurred. Some of this kind of change and the data necessary to document such change may take years to evidence. Program reviewers should look for progress toward achievement of the Standards. Program reviewers are expected to provide **guidance** and **feedback** to programs as you complete a program review. Program Reviewers must write reports that **clearly** explain areas of non-compliance and provide sufficient explanation so that the program will know how to achieve compliance with the Standards.

DOs	DON'Ts
Begin by reading the Program Report in its entirety	Conduct the review as a "gotcha" activity
Consider each Standard individually in making a judgment about whether that Standard is Met or Not Met	Use the indicators as a checklist to determine if a Standard is Met or Not Met
Use a holistic view of the program in making a judgment about whether to recommend for National Recognition	Use the rubrics and evaluation forms as a checklist to recommend or not recommend National Recognition
Expect that most programs will have some Standards in which they document greater strengths than in other Standards	Assume that if a program fails to meet a Standard that the automatic recommendation is not for National Recognition
Use the rubrics and evaluation forms to guide you through the review process	Discuss the Program Report or your review of the program with others
Provide critical and constructive feedback through comments and summative evaluations to provide guidance for program improvement	Indulge in excessive and/or convoluted language making the report difficult to read, interpret, or rejoin
Refer to the complete documentation for each Standard as necessary to supplement the rubrics and evaluation forms	Make excuses for a Standard not being met. The program can submit a rejoinder if there is additional documentation that was not included.
Complete the rubric and evaluation form in its entirety	Focus on trivial weaknesses (e.g., the report exceeded the number of pages recommended)
Use appropriate professional language	Apply "back home" standards

⁵This section draws heavily upon the Reviewer's Preparation Guide developed by the Educational Leadership Constituent Council (ELCC).

