

**\*PROCEEDINGS:  
The North Carolina Technology Competencies for Educators:  
A Focus on Assessment  
Second Working Conference, May 22-23, 2000**

**INTRODUCTION**

Four years have passed since the State Board of Education (SBE) adopted both basic and advanced technology competency requirements for initial licensure; these same competencies were also identified for use in staff development of experienced teachers and served as a foundation for the Board's decision that 3-5 renewal credits for each licensure renewal cycle should be related to technology. A more specific requirement was mandated for teacher preparation programs in late 1998: a preservice portfolio/product demonstrating mastery of both the advanced and basic competencies and the assessment of that product jointly by higher education and public schools.

Since 1996, teacher preparation programs at institutions of higher education--both private and public--in North Carolina have been working diligently to incorporate the technology competencies into their teacher education programs. In May 1999, a working conference of 125 educators was held in Boone, North Carolina, to open a dialogue among institutions about how they were implementing the SBE's mandate. The Proceedings from that conference, which included recommendations, became a part of the North Carolina School Technology Users Task Force II Report that was made public in October 1999 with its own set of recommendations concerning the technology competencies.

In May 2000, Appalachian State University hosted a second working conference in Boone, North Carolina. This conference was sponsored by SUNRAY, a project of UNC-Greensboro and SERVE, which is funded by the US Department of Education's Preparing Tomorrow's Teachers to Use Technology grant program. Approximately 125 educators from both public and private institutions and a number of public schools attended the conference. (See Appendix B for list of institution participants).

Higher education institutions and LEA central offices were invited to send up to five team members to participate in the conference. Each team member was assigned to a different session; trained facilitators led the groups in identifying key issues, strategies, and recommendations related to the assessment of technology competencies. The anticipated outcome of this arrangement was that the teams would then return to their various institutions with a working knowledge of all five major issues. These issues, all related to the preservice technology assessment, were identified by a planning committee prior to the conference and formed the basis for the groupings: Assessment Instruments, Training Issues, Content Area Integration Issues, Management Issues, and Field Experience Issues.

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### **General Recommendations**

- 1. If there is to be any lasting effect from technology training, the State Board of Education and the legislature must seek solutions to the inequities of technology resources that exist both in school districts and in teacher preparation institutions.**
- 2. More opportunities for collaboration among IHEs (institutions of higher education) and the public schools need to be created to further the seamless integration of technology throughout the entire spectrum of teaching and learning.**
- 3. Progress toward implementing the recommendations of the School Technology Users Task Force II report must become a priority of the various constituencies named in the report.**
- 4. Periodic review and revision as indicated of the North Carolina Technology Competencies for Educators are necessary in light of the rapidly changing technology available. (See the Task Force II report and the International Society for Technology in Education [ISTE], *National Education Technology Standards for Teachers*.)**
- 5. A statewide task force should be formed to assist IHEs and public schools in procuring adequate technology funds to insure that technology applications can be implemented in IHE and public school classrooms on a regular basis.**
- 6. The North Carolina Department of Public Instruction should establish an online clearinghouse that could be used by IHEs to display exemplary portfolios, assessment plans, rubrics, and teaching applications. IHEs would be expected to contribute sample products to the clearing house.**
- 7. The technology competencies should be integrated into the program standards used as a basis for state approval of teacher education programs.**

In addition to these general recommendations, each group also focused on examining issues particular to its topic and from this examination emerged specific recommendations.

### **Assessment Instruments**

The issue of how to assess the North Carolina technology competencies continues to raise a number of questions:

#### **Guiding Questions**

- What are the most effective assessment instruments?
- What resources or skills need to be present to demonstrate that a preservice teacher really has the capability of using technology as a teaching/learning tool?
- Should individual products each have a scoring rubric or should there be an overall scoring rubric for all products?
- What are the essential elements for an effective rubric?
- How should the performance levels be determined?
- What are the evaluation issues posed by the use of telefolios, paper and pencil folios, cd-roms, etc.?

Many other questions emerged as the group debated the assessment instruments issue. The group believed that much more testing of a variety of assessment instruments and strategies needed to be carried out and evaluated before there could be confidence in the validity and reliability of many of the tools.

#### **Recommendations**

1. No state-wide rubric for preservice portfolio evaluation should be created because the context in which the technologies are implemented and assessed differ greatly from one institution to another.
2. Programs must establish what constitutes acceptable/non-acceptable levels of performance and communicate those levels to students and faculty.
3. The Teacher Education division of the Department of Public Instruction should create and facilitate an interactive website that could host sample rubrics, best practices and other resources related to effective portfolio assessment (See Appendix A).

### **Training Issues**

Although many of the questions raised around the issue of assessment instruments also appeared in this group, its focus was on the training of assessors and what the considerations should be in establishing an appropriate training plan. Some of the key questions raised in this group's discussions included the following:

### **Guiding Questions**

- What incentives are available to encourage participation of public school personnel?
- How do we coordinate the training of cooperating teachers at the public school level and the training of teacher education faculty to assure consistency and reliability?
- What are the most effective training methods to be used?
- How can training incorporate the fact that products from different disciplines may not all look alike?
- What is the optimum number and type of assessors for each student's portfolio?

### **Recommendations**

1. Because different levels of skills and competencies are apparent in IHE faculty and public school personnel, portfolio assessors need to have the requisite technology skills themselves in order to evaluate products fairly and consistently.
2. Compensation should be available to public school teachers who serve on evaluation teams to assess preservice portfolios.
3. Assessors should be prepared to evaluate products from different disciplines.
4. Cooperating teachers and teacher education faculty should go through assessment training together.
5. Periodic updates in regard to training, level of expectations, etc., should be required.

### **Content Area Integration Issues**

Participants were interested in how different academic disciplines were integrating the technology competencies into their areas. Not surprisingly, areas such as music, art, and physical education had very different technology applications to show from those found in social studies, English, elementary education, and middle grades. Participants agreed that finding appropriate examples of technology integration in their content areas was not always easy; as a result, one of their main requests was that there be a clearinghouse established where good practices could be housed and made easily accessible both to teacher education faculty and public school personnel.

### **Guiding Questions**

- What are the best practices in various content areas for integrating technology into the teaching/learning process?

- What are the elements of technology integration that are common to most areas?
- What is the role of content areas in developing candidates' proficiency with technology?
- What level of technology competency should content areas expect when students enter methods courses?

### **Recommendations**

1. Since basic technology skills can reasonably be considered “life skills,” candidates should have these skills prior to admission into teacher education.
2. Remedial protocols and resources should be identified by each IHE to cover the basic competencies and disseminated to candidates where appropriate.
3. Content area technology integration should be stressed throughout the teacher education program; i.e., technology needs to be applied to what will be taught.
4. Content areas should look to professional organizations and national standards in their fields to determine the role of technology in their content area.
5. The assessment process, including the setting of benchmarks, should involve public school and teacher education faculty from the content areas.

### **Field Experience Issues**

Participants were unanimously in favor of making certain that candidates actually showed their abilities to apply technology appropriately and effectively during field experiences, culminating in student teaching. They also suggested that as candidates move through their preparation programs, there needs to be a growing complexity in the uses of technology and a corresponding increase in the expectations for candidates' performance. Participants also believed strongly that candidates needed to see, during their field experiences, consistent and effective modeling of technology in support of teaching and learning. Prior to entering the professional semester or year, candidates need to exhibit a certain level of competency; what that level should be was not uniformly agreed upon, but the consensus was that benchmarks should be established by programs for that purpose.

### **Guiding Questions**

- What should be the level of technology competence prior to student teaching?
- How should field sites be evaluated in terms of the kinds and quality of technology available to candidates?
- Should raising the level of technology competency among teachers in field settings be solely the responsibility of IHEs?

- Which competencies might best be assigned specifically to field experiences?
- What should be the role of student teaching in the overall assessment of candidates' technology competency?

### **Recommendations**

1. IHEs should work collaboratively with school districts to establish a minimum set of requirements for field sites in terms of technology that must be available to candidates.
2. IHEs should work collaboratively with school districts to acquire technology.
3. Cooperating teachers as well as teacher education faculty need staff development to strengthen skills with technology.
4. The assessment process should require candidates to demonstrate their abilities to integrate technology in actual teaching situations in classrooms.
5. Teachers working with candidates in field settings need a clear understanding of the technology assessment process, including levels of expected performance and their responsibilities as cooperating teachers.
6. Programs should set a minimum level of technology competency required of all candidates prior to placement in student teaching.
7. Cooperating teachers should be considered mentors and paid accordingly.

### **Management Issues**

Although the size of teacher preparation programs varies widely from institution to institution, conference participants agreed that managing the assessment process is a complex task. Trying to track the progress of candidates, determining what products need to be assessed and by whom, solving storage problems for candidate portfolios, and setting up appropriate training and monitoring processes all require time and resources.

### **Guiding Questions**

- What are the most effective ways of tracking students' technology competence?
- How often and in what form should training of assessors take place?
- What are the most effective ways to communicate to candidates the expectations surrounding technology competence?
- What are the advantages/disadvantages of electronic portfolios, paper and pencil products, etc.?
- Who controls the products and how are they best stored?
- What are the key elements of an effective technology assessment plan?

## **Recommendations**

1. All teacher education programs must develop a systematic tracking plan to determine where candidates are in the development of their technology competence.
2. Each teacher education program should develop a matrix of objectives that identifies where candidates can be expected to demonstrate various technology competencies in the program.
3. Each teacher preparation program should move toward adopting a comprehensive teaching portfolio that integrates the technology competencies.
4. Candidates should be involved in the formal assessment of their technology portfolios/products.
5. Each teacher preparation program should develop a technology performance-based assessment management plan that addresses each of the following elements:
  - Process for identifying and training assessors
  - Maintenance of reliability and validity for the assessments
  - Field-tested criteria/rubrics for the assessment of candidate performance and products.
  - System for communicating expectations and process to candidates as well as the criteria for assessment.
  - Provision for continuous feedback to students on their progress toward meeting program expectations
  - Benchmarks for performance at different points in the program
  - Roles/responsibilities of faculty and public school personnel in working with candidates on their technology competencies
  - Standards and guidelines for storage and access to candidates' products.
6. Each program should conduct a needs assessment to develop a cost estimate for resources needed to implement its management plan.

## SUMMARY

The International Society for Technology in Education has emphasized:

The teacher is responsible for establishing the classroom environment and preparing the learning opportunities that facilitate students' use of technology to learn, communicate, and develop knowledge products. Consequently it is critical that all classroom teachers are prepared to provide their students with these opportunities. Both professional development programs for teachers currently in the classroom and preparation programs for future teachers must provide technology-rich experiences throughout all aspects of the training programs.

--National Educational Technology Standards for Teachers, 2000

The Boone Second Working Conference on Technology Assessment, as it has come to be known, meets a very distinct need of North Carolina's institutions of higher education and their partners, the public schools. Participants have commended the focused working sessions, the opportunities for sharing of ideas and resources, and the idea of working toward a common goal--improvement in the technology competence of teacher candidates. At the same time, participants noted that little direct action has been taken on its recommendations from the first conference nor has there been any apparent action taken related to the North Carolina School Technology Users Task Force II Report.

Nevertheless, the IHEs and public schools of North Carolina are committed to preparing teachers who are well equipped with technology knowledge and expertise in integrating technology into the teaching learning process. The results of this second annual Boone Working Conference provide ample evidence of this commitment.

## APPENDIX A

### SUGGESTIONS FOR DPI WEBSITE

Institutional Info:

Contact Person:

Program Areas:

--Description of Portfolio

--Portfolio Process

How and when are candidates informed?

Where and when evidence is created?

Types of evidence

--Evaluation Process

Who is involved?

How are they trained?

What instruments are used? When? Provide samples.

When does evaluation occur?

What incentives are provided to evaluators?

How are candidates made aware of the process?

How are licensure representatives informed?

What remediation processes/opportunities are available for candidates?

--Reflections

Best practices/lessons learned (Links to standards, e.g., ISTE, INTASC, NCATE)

#### FAQ

Public institutions

Private institutions

NOTE: Link to other institutions if information about portfolios is already on-line.

## APPENDIX B

### List of Participating Institutions

#### Public Universities

|                              |                                |
|------------------------------|--------------------------------|
| Appalachian State University | East Carolina University       |
| NC A&T State University      | NC State University            |
| UNC-Asheville                | UNC-Chapel Hill                |
| UNC-Charlotte                | UNC-Greensboro                 |
| UNC- Pembroke                | UNC-Wilmington                 |
| Western Carolina University  | Winston-Salem State University |

#### Independent Colleges and Universities

|                                  |                             |
|----------------------------------|-----------------------------|
| Belmont Abbey College            | Bennett College             |
| Campbell University              | Catawba College             |
| Chowan College                   | Elon College                |
| Gardner-Webb University          | Greensboro College          |
| High Point University            | Johnson C. Smith University |
| Livingstone College              | Mars Hill College           |
| Meredith College                 | Methodist College           |
| NC Wesleyan College              | Pfeiffer University         |
| St. Andrews Presbyterian College | Wake Forest University      |
| Warren Wilson College            |                             |

#### Public Schools

|                             |                          |
|-----------------------------|--------------------------|
| Avery County Schools        | Chatham County Schools   |
| Franklin County Schools     | McDowell County Schools  |
| Pender County Schools       | Richmond County Schools  |
| Robeson County Schools      | Thomasville City Schools |
| Transylvania County Schools | Wake County Schools      |

#### Other Organizations

LEARN NC  
NC Department of Public Instruction  
    Instructional Technologies  
    Media Evaluation Services  
    Teacher Education Section  
SEIR\*TEC at SERVE  
SERVE/SUNRAY  
The University of North Carolina