

PORTFOLIO ASSESSMENT OF PRESERVICE TECHNOLOGY SKILLS
SANDRA LESLIE, ED.D. BELMONT ABBEY COLLEGE

Teachers' use of technology in planning and instruction is critical to the integration of technology into teaching and learning. In 72% of North Carolina's schools, at least half of teachers use a computer daily for planning and/or teaching. North Carolina currently ranks 22nd in teachers' daily use of computers. (Thompson and Cunningham, 2000).

North Carolina was among the first states in 1999 to require teaching candidates to demonstrate proficiency in technology in order to obtain initial licensure. In addition, veteran teachers and administrators are required to earn professional development credits in technology in order to qualify for re-licensure. The state mandates that 20-25% of each district's total technology budget be spent on teacher development (Education Week, 1999).

In order for teachers to use technology regularly and effectively in their classrooms, several conditions must exist. First, teachers need sufficient access to technology with adequate technical support. Second, teachers must understand the potential of technology to provide strategies for basic and advanced thinking skills. Most importantly, teachers must be trained to integrate the technology into the content they teach. Systemic change in the way teachers teach will be accomplished when this generation of preservice teachers arrives in the classroom secure in their mastery of technology.

In 1998, the North Carolina State Board of Education made a specific requirement mandating mastery of both the advanced and basic competencies. The assessment of that product would be the joint responsibility of higher education faculty and public school personnel. This mastery would be demonstrated by the preservice teacher in the form of a performance portfolio.

A portfolio is a powerful tool. Portfolio assessment requires students to collect and reflect on examples of their work, providing both an instructional component to the curriculum and offering the opportunity for authentic assessments. Portfolios, if assembled carefully, become an intersection of instruction and assessment. It is both a process and a product for helping students develop knowledge as well as a positive self-image. With guidance, the portfolio can also be used to help students plan and set effective goals and objectives.

A portfolio has been defined generally as "...a systematic and organized collection of evidence used by the teacher and student to monitor growth of the student's knowledge, skills, and attitudes in a specific subject area" (San Diego County Office of Education, 1997, p.4). The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of student self-reflection.

Viewed from the perspective of classroom collaboration, teachers who embrace a "portfolio culture" in their classrooms shift their emphasis from the assessment of outcomes through comparative rankings of achievement (grades, percentile rankings, test scores) toward the enhancement of student performance through evaluative feedback and reflection. A portfolio culture supports an

interactive community of learners who take responsibility for demonstrating what they know and can do (Wolf, 1995). Students revisit and revise their work. Students take pride in their work, polishing it for performance, publication and exhibition. This represents a profound shift in attitudes toward the role of evaluation in learning. The habit of testing is so ingrained in teachers that they find it difficult to understand portfolios as simultaneous teaching and assessing. Together, instruction and assessment give more than either gives separately.

Using performance assessment is like using a magnifying glass on students' learning. You see the learning clearly, but you don't disturb it (Cushman, 1999, p. 745). Portfolios capture growth over time so that students can become informed and thoughtful assessors of their own histories as learners. Portfolios yield an improved portrait of the students as learners, using a process that encourages students to become metacognitive regarding their learning. Their entire collection of artifacts and other work samples becomes a text from which they learn about themselves as learners. Cushman (1999) states that "teacher-developed portfolios might also turn an impossible array of externally imposed standards into more powerful, personal measures that they would generate from their own work and carry in their heads every day" (p. 745).

Storage and retrieval of information in portfolios, however, can be troublesome because of the volume of material assembled. Bulky items such as audio/videotapes need to be stored and retrieved. The electronic portfolio provides the simplest solution. Electronic portfolios allow the teacher to efficiently manage textual, sound, image and video information produced, refined, and collected by each student. Using an optical scanner, samples of student work can be stored and accessed by students for further refinement or presentation. Writable CD-ROMS are useful for holding large amounts of documents and images.

Several issues must be addressed before making a portfolio assignment for preservice teachers. First, determine the standards and performance indicators that the portfolio will demonstrate and the primary audience. For the North Carolina Technology Portfolio, the standards are clearly mandated by the state. Basic Competencies include: (a) Computer operation skills, (b) Setup, maintenance and troubleshooting, (c) Word Processing/Introductory desktop publishing, (d) Spreadsheet/Graphing, (e) Database, (f) Networking, (g) Telecommunications, (h) Media communications, and (i) Multimedia integration. Advanced Competencies include: (a) Curriculum, (b) Subject-specific knowledge, (c) Design and management of learning environments/resources, (d) Child development, learning and diversity, and (e) Social, legal, and ethical issues.

Equally important is the reflection piece that should accompany each artifact. This written indicator explains how the student thinks they have met the standard. For example, a classroom newsletter would meet Standard 12.3 (produce materials such as desktop publishing products to communicate information on student learning to parents). The reflection piece would elaborate on how the newsletter satisfies this requirement and the reason it was chosen over other projects. Currie (2000) surveyed a pilot group of teachers and found that the participants strongly agreed that the reflections piece was the strongest component

of the process. "Reflecting will help me because I can review my portfolio and look at areas I need to improve upon" (p.34).

The artifacts themselves are the meat of the portfolio. These demonstrations should be clearly labeled, numbered and cross-referenced if the artifact meets more than one standard. The number and nature of entries need to provide a complete picture of the specific learning outcomes. The technology artifacts are geared toward demonstrating the preservice teacher's understanding of technology with a focus on implementing the technology as both a teaching and learning tool.

The portfolios should be shared with one another as well as the Technology Committee (comprised of college and school district personnel). This sharing tends to cement the commitment to learning goals. Since the preservice teacher will be required to continue their contributions to this portfolio throughout their undergraduate years (including student teaching), this commitment is critical. North Carolina is also requiring veteran teachers to continue their technology education through renewal credits. This compels the student to maintain a long-term commitment to the development of their technology skills. In this sense, the portfolio becomes a "best working portfolio".

Since the portfolio is being used as a working portfolio, the grading criteria must be carefully considered. The evidence must match the competency. There must be completeness and quality of evidence including proper citations and documentation for external sources. All artifacts must be at or above standard. A rubric is used to specify quality of performance. If a section or sections do not meet standard, the student is given three weeks before graduating to resubmit. Since this is a licensure requirement and not a graduation requirement, students may still graduate if their portfolio does not meet the criteria. However, the student would not be recommended for a North Carolina teaching license.

Currie, S. (2000). Portfolio-based teacher assessment. Thrust for Educational Leadership, Jan/Feb 2000, Vol. 29(3).

Cushman, K. (June 1999). "Educators Making Portfolios." Phi Delta Kappan, 744.

Education Week, Technology Counts '99: Building the Digital Curriculum. Bethesda, MD. Education Week, 1999).

First in America 2000 Progress Report. North Carolina Education Research Council. Charles L. Thompson and Elizabeth Kolb Cunningham, Eds. December 2000.

Wolf, K. (1995). "Teaching Portfolios and Portfolio Conversations for Teacher Educators and Teachers." Action in Teacher Education, 17(1): 30-39.