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ABSTRACT

Scores on professional licensure exams and transcript grades, used to evaluate the competencies of entry level teachers, fail to reflect the wide range of complex knowledge, skills, and dispositions that quality professional educators possess. As the demand for authentic, standards-based assessment of teacher performance continues to grow, teacher educators need to develop new tools to record and organize evidence of successful teaching. Electronic portfolios documenting professional growth, reflective practice, and demonstrated competencies to set standards or principles can be just such a tool. Electronic portfolio assessment is intended to help candidates become integral and conscious participants in their learning processes. Electronic portfolios are constructive instruments for authentic assessment, promoting connections between teaching, learning, reflection, and evaluation. They are open-ended and capable of growing as candidates progress in their knowledge, skills, and disposition. They encourage self-assessment as the developer invokes a multitude of strategies and maximizes different learning styles to creatively communicate using various media formats. They also enable candidates to address specific needs (reflection and growth, positive and relevant assessment, and career advancement). (Contains 24 references.) (SM)

Electronic Portfolios:

Teacher Candidate Development and Assessment

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Abstract

Scores on professional licensure exams and transcript grades, used to evaluate the competencies of entry level teachers, fail to reflect the wide range of complex knowledge, skills and dispositions that quality professional educators possess. As the demand for authentic, standards-based assessment of teacher performance continues to grow, teacher educators need to develop new tools to record and organize evidence of successful teaching. Electronic portfolios documenting professional growth, reflective practice, and demonstrated competencies to set standards or principles can be just such a tool. Electronic portfolios are constructive instruments for authentic assessmen;, promoting connections between teaching, learning, reflection and evaluation.

Introduction

> We cannot have a learning society without a learning profession of teachers. (Fullan, 1993)

Professional teacher organizations and their members are justifiably concerned that assessments and accountability requirements for entry into the profession are rarely authentic, broad-based, and impartial (Campbell, Cignetti, Melenyzer, Nettles, & Wyman, 2000a). Traditionally, decontextualized assessments including scores on professional licensure exams and transcript grades have been used to evaluate the competencies of entry level teachers. No longer are transcripts, national exams scores and diplomas adequate discriminatory tools for determining proficiencies, mastery of skills and ability to provide the leadership necessary to guide today's youth into the future. Teachers today must possess unique professional knowledge, personal qualities, attitudes, and effective instructional strategies. They must weave their professional education with the skills of self-renewal, reflective practice, and habits of mind that assure they continue to grow and learn as their career progresses (Johnson, 1999).

Electronic Portfolios: What and Why

One of the most exciting developments of the school reform movement is the use of alternative forms of assessment to evaluate student learning. An example is the portfolio, a systematic and selective collection of work accumulated to demonstrate academic growth, motivation and level of achievement. Portfolios are among the most popular forms of authentic assessment, developed at all phases of the learner's educational experience, from early childhood through higher education (Barrett, 2000). Portfolios provide a broad based and holistic means for demonstrating professional competence. Wolf (1995) reported that portfolios not only document teaching

effectiveness but also provide opportunities for reflection, collegiality, and professional development. The process of developing a portfolio encourages teacher candidates to think about the kind of teacher they want to be. This occurs because the content of the portfolio is defined as what an effective teacher should be and fosters the candidate's awareness of the qualities and hard work necessary to become effective teachers (Dutt-Doner & Gilman, 1998). Portfolios are becoming an effective method for assessing the professional development of teacher candidates (Barton & Collins, 1993; Carroll, Pothoff & Huber, 1996; Fisher, 1994; Nettles & Petrick, 1995). Additionally, portfolios offer many advantages over traditional methods of assessing prospective teachers because they can document learning and growth over longer periods of time than what is reflected by a standardized test (Grady, 1992). Portfolios represent "real-world" products reflecting the actual work of teachers (Doolittle, 1994; Guillaume & Yopp, 1995).

Creating portfolios throughout teacher education courses documents the learning and application of information acquired and may ease the transition from university training to clinical practice. Portfolios present what candidates learn, validate the credibility of the teacher education program, and increase the candidate's self-confidence (McLaughlin & Vogt, 1996). Portfolios can have the practical value of serving as a useful marketing tool when the prospective teacher is seeking employment (Nettles & Petrick, 1995). At the graduate level and beyond, portfolios are used to demonstrate competencies for National Board Certification for accomplished teachers as well as competencies for aspiring and practicing administrators.

Computers can become powerful partners to portfolios. Their capacity for efficient, expedient storage and retrieval of data provides a viable solution to the volume of work samples; electronically stored portfolios make the learner's work accessible, portable, and easily distributed (Shiengold, 1992). More importantly, electronic portfolios serve as an integral part of a process for monitoring ongoing professional growth. Once teacher candidates realize how portfolios provide greater self-understanding, they begin to use them as highly effective tools for professional goal setting and self-directed learning. Electronic portfolios offer teacher candidates the opportunity to participate in the assessment of their learning. Unlike a standard hard-copy portfolio, an electronic portfolio enables the developer to capture the evidence in stimulating, creative and varied media techniques, thereby enabling teacher candidates to see themselves holistically (Wiedmer, 1998).

As schools and colleges of teacher education expand their access to technology an increasing number of options become available for developing electronic teaching portfolios. Hypermedia programs, Web page editors, relational databases, PDF distillers, and commercial proprietary software like E-Portfolio [developed by Chalk and Wire] have made producing, using and storing portfolios for the purpose of assessing their own professional growth easier. The benefits of electronic portfolios include an integration of technology into lessons, a means to display unique talents and abilities, reflection, critical thinking to evaluate materials, involvement with alternative assessment and an expanded picture of achievement (Goldsby & Fazal, 2000)

The process of developing electronic teaching portfolios draws heavily from the research of both multimedia and portfolio development. Multimedia processes include: 1) deciding and assessing, 2) designing and planning, 3) developing and gathering, 4)

implementing, and 5) evaluating. Tierney, Carter and Desai (1991) present a similar process for portfolio production. Steps involved in portfolio development include: 1) collection, 2) selection, 3) reflection, 4) projection, and 5) presentation. Recognizing connections between these two processes and understanding the role of professional teaching standards in developing electronic portfolios, can provide teacher candidates a powerful tool for promoting reflective practice and assessing professional growth. Unfortunately, some teacher candidates view portfolios as merely collections of course projects, assignments, videotapes, pictures, and other memorabilia designed to impress. Their primary value, from the point of view of the initiate, is to convince a potential employer to offer a contract. Such a narrow perspective is regrettable, since teacher candidates who view portfolios only as products to be displayed will probably become teachers who use them in their classroom in this limited way.

To realize the full potential of teaching portfolios, teacher candidates must come to view them as tools for reflection on practice and assessing professional growth over time. Reflective thinking is the "active, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends" (Dewey, 1933, p. 9). To be useful for this purpose, portfolios must include organized, goal driven, standards-based performance evidence that documents the attainment of the knowledge, skills, and dispositions needed to be a successful teacher.

If, as Barton and Collins (1993) suggest, "the first and most significant act of portfolio preparation is the decision of the purposes of the portfolio", it is critical to assist teacher candidates in viewing portfolios not as products to be manufactured, but as an essential part of a career-long learning process (p. 205). This position not only maximizes the values and benefits of portfolio development, but establishes an organizational structure to guide the process. Electronic portfolio provides tangible evidence of the breadth and depth of knowledge, dispositions and skills that practicing or aspiring professional possess.

Electronic Portfolio: How

The following recommendations outline strategies that enhance the candidate's successful development of an electronic portfolio:

- Early communication is essential about the purpose of the portfolio, its intended audience(s), and specific assessment criteria.
- Limit the number of components to items that serve an appropriate and useful purpose for all involved in the process.
- Establish criteria for portfolio assessment.
- Teach and facilitate self-reflection and self-assessment throughout the program.
- Provide adequate time to develop the portfolio – prior to clinical practice.
- Provide training for portfolio development integrated throughout the program, beginning with orientation course.

Students need introduction to program and state licensure portfolio requirements during their education orientation course. Orientation toward a career in education often begins with the foundation courses. Scoring rubric and "content" standards should to be presented to candidates as well as providing time to ensure a measure of familiarity with the process.

The Interstate New Teacher Assessment and Support Consortium (INTASC) established a set of standards from many professional associations and the National Board for Professional Teaching (NBPT). These ten standards are written in terms of knowledge, disposition, and performance and serve as a core of expectations for all teaching situations. It makes sense to organize the content of the portfolio around these standards if the teacher education program is to document the efforts of both faculty and teacher candidates in achieving standards of professional performance. An easy way to accomplish this to divide the portfolio into identified sections corresponding to each of the standards or principles. In this way, standards and principles such as those promoted by INTASC, NBPT, NCATE, and other professional organizations can be directly incorporated into the portfolio by way of word processing or web page editing software. Many teacher educators choose to include additional requirements such as autobiographies or letters of introduction. Optional entries may include personal philosophies of education, demographic descriptions of the communities and schools in which the teacher candidate has taught, and samples of action or classroom based research.

Once the standards are in place, teacher candidates select evidence from their working portfolios and include reflections on both the standards and the evidence. This process encourages reflection on the important growth that has occurred, clarifies areas needing further professional development, and enables the candidates to more effectively share their work with others. Inclusion of these reflections insures that all artifacts and documents selected by the candidate are explained and contextualized. Artifacts, standing alone in a portfolio without contextual explanation or reflection on their value, may be confusing or even misleading. Moreover, the failure to require explanations and reflections may rob candidates of valuable learning opportunities.

Campbell et. al. (2000b) recommend that confirming evidence inclusion rationales answer at least three important questions:

1. What is the artifact?
2. How does it relate to this particular standard/principle?
3. What does it say about one's growing competence?

Limiting artifacts, the confirming evidence, to no more than two or three for each standard emphasizes quality over quantity. Three "whats" suggested by Van Wagenen and Hibbard (1998) are also valuable questions to include in the reflective component of a teaching portfolio:

1. What? (The candidate summarizes and provides context for the artifact).
2. So what? (The candidate reflects on what was learned and how the learning leads to meeting the standards/principles).

3. Now what? (The candidate assesses implications for further learning and sets goals for future professional development).

To encourage teacher candidates to engage in introspection, an expanded reflection page for each major artifact should be required. Standardized formats for cover sheets, with prompts for contextual descriptions, analysis, and reflections, are very helpful to candidates creating the portfolio and to those reviewing and assessing them.

Teacher candidates, education faculty, and university supervisors should receive detailed information about the portfolio process and required components well before internships begin. With the introduction of the portfolio in orientation courses, many candidates have two years to complete their portfolios. However, candidates gain most of their teaching experience during internships, which provide them with the experiences necessary to complete many of the portfolio requirements.

Training and preparation for portfolio development should be integrated throughout the teacher education program. Developing of specific portfolio artifacts should be addressed within the context of appropriate methods courses as well. Education faculty evaluate their course-required "entries/artifacts", to guide the candidate toward developing a quality portfolio. This, in turn, provides the teacher education program with assessment information to facilitate course changes and development.

Assessment: So what? and Now what?

The electronic portfolio can be used for accountability reporting, program evaluations, and decisions affecting the future of individual candidates. Because of the personal and individualized nature of portfolios, any move to adopt structural and content requirements could negatively impact the attractiveness and utility of portfolios as professional tools. Some components that may detract from portfolio utility and assessment include:

- inequity of the technological abilities of portfolio developers;
- variability of the scope and breadth of individual work experiences and projects incorporated into portfolios;
- different criteria used in rating/reviewing the overall impact of a portfolio, depending on the reviewer or circumstances; and,
- inequitable guidance and feedback provided to portfolio developers by portfolio reviewers.

The glitter and glitz of web pages should not detract from the content of the portfolio. Software packages that provide the framework (e.g. roll over buttons, layers, and multimedia components) are available. These "pre-designed" web pages allow teacher candidates to focus on substance rather than on show, leaving reviewers to concentrate on content rather than style.

A conceptual framework is the "rationale and organizing principles that guide the development of the curriculum for professional education..." (NCATE, 2000). The conceptual framework should be a statement of the learning outcomes expected from the program. The curricular content, the methodologies employed, nature and extent of field

experiences, and assessment result from the conceptual framework. Having established the conceptual framework as a statement of exit learning outcomes, it becomes necessary to align the course work of all programs to reach these outcomes. The alignment process can include determining specific, confirming evidences of competencies to be included in the portfolio. Each course adds at least one evidence to the portfolio, as well as additional selections by the candidate. This creates a baseline for assessment of portfolio entries. Faculty evaluate their required entries, providing students with feedback on quality and reinforcing the dynamics of the learning process.

Doolittle (1994) purports that making the assessment of portfolios reliable and valid is problematic since subjectivity is involved. He and others suggest the use of rubrics to set criteria (Carr, 1998; Fischer & King, 1995). A teacher candidate's portfolio is effective when it is evaluated using a scoring rubric, and assessed, not only by university personnel, but also by mentor teachers in the public school setting (Mayo & Rakow, 1996; Rakow, 1999). Marzano, Pickering, and McTighe (1993) define a scoring rubric for a performance task as "an authoritative or established rule [that] consists of a fixed scale and a list of characteristics describing performance for each of the points on the scale" (p. 29).

Electronic portfolio reviewers, using a pre-determined rubric throughout the teacher education program, can provide equitable guidance and feedback. Assessment is continuous throughout the entire program. Faculties evaluate selected portfolio evidence within their course requirements. Assessment plans may incorporate incremental review steps. Summative reviews can be completed by practicing teachers and administrators, as well as "sister" college faculty. This insures portfolio quality and provides valuable feedback to candidates, as well as to the department and program.

An exemplary assessment task evaluates students' learning at the same time that it promotes it (Huba & Freed, 2000). Aspects of candidates' declarative, procedural, and metacognitive knowledge are assessed using portfolios. In the completion of the portfolio, students exercise more sophisticated thinking and problem-solving abilities. "They develop a clearer notion of the uncertain nature of knowledge" (Huba & Freed, 2000, p. 224). Huba and Freed (2000) identify eight characteristics of an exemplary assessment task. These eight characteristics are:

1. Valid - yields useful information to guide learning.
2. Coherent – structured so that activities lead to desired performance
3. Authentic – addresses issues that are enduring
4. Rigorous – requires use of declarative, procedural, and metacognitive knowledge.
5. Engaging – provokes student interest and persistence
6. Challenging – provokes, as well as, evaluates, student learning
7. Respectful – allows students to reveal their uniqueness
8. Responsive – provides feedback to students leading to improvement

Using an electronic portfolio as part of an assessment plan to evaluate teacher candidates' competencies can include all eight of Huba and Freed's exemplary

assessment characteristics. The purpose of electronic portfolio assessment should be to help the candidates become integral and conscious participants in their learning processes. The portfolio assists them to recognize their individual responsibilities, and ownership within that process (Courts & McInerney, 1993). The information gleaned from the feedback of reviewers and developers strengthens the educational program in higher education, as well as in the P-12 classroom.

Conclusion

While the notion of using portfolios as assessment tools in professional education programs is not new, teacher educators are just beginning to explore the advantages of electronic portfolios. As the demand for authentic, standards-based assessment of teacher performance increases, teacher educators need to employ new tools to record and organize evidence of successful teaching. For the portfolio to be useful it must be kept current. Electronic portfolios are open-ended and capable of "growing" as candidates progress in their knowledge, skills and disposition. Benefits of electronic portfolios are numerous. They encourage self-assessment as the developer invokes a multitude of strategies, and maximizes different learning styles to creatively communicate using various media formats. Electronic portfolios enable candidates to address specific needs: reflection and growth, an assessment tool that is positive and relevant, and a presentation for career advancement. The use of multimedia provides a value effect, "publishing" work for a "real" audience rather than for one person. Through the use of electronic portfolios, teacher candidates become more invested in their own learning. The process of selecting and judging their own work empowers them to take ownership of their future as life-long learners.

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