

# Electronic Portfolios

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## AN OVERVIEW OF ELECTRONIC PORTFOLIOS

A view in teacher preparation increasingly reported in the literature is that electronic portfolios can present an educator's achievement, competence, and/or professional growth, and serve as a tool promoting teacher reflection (Amber & Czech, 2002; Barrett, 2003; Geier, 2002; Milman, 1999; Mullen, 2002; Walker, 2000; Wright, Stallworth & Ray, 2002). As a result, more frequently are they being used as an assessment or evaluation tool to document and measure teacher quality in areas such as technological literacy, competence according to teaching standards, and/or eligibility for initial teacher licensure or credential (Bartlett, 2002; Borko, Michalec, Timmons, & Siddle, 1997; Lehman, O'Brien, & Seybold, 2002; Perry, Smith, Woods, McConney, 1998; Ring & Foti, 2003; Wieseman & Wenzlaff, 2004). Reasons cited in the literature for its increasing popularity in the field of teacher preparation (e.g., Bartlett, 2002; Geier, 2002; Mullen, 2002) include: a belief that learning to teach is a dynamic and learner-centered process; a belief that knowledge is socially constructed, situated, and dynamic; growing interest in performance-based assessment to show teacher quality; a need for concrete demonstrations of teaching qualifications to compete for teaching positions; accountability for teacher quality; and teacher education initiatives, including competition for U.S. Department of Education Preparing Tomorrow's Teachers for Technology (PT3) grants.

The electronic portfolio has its origins in print media portfolios and performance-based work samples in K-16 schooling (Aschermann, 1999; Bartlett, 2002, 2003; Wright et al., 2002). In general, print and electronic portfolios are thought to: (1) provide a richer picture of performance than can be ascertained from traditional, objective forms of assessment; (2) help shift ownership and responsibility of learning to the learner; (3) foster an inquiry approach; and (4) permit assessment of the process, not just the product of learning (Barrett, 1999a; Graves & Sunstein, 1992; Wright et al.,

2002). In the field of teacher education, a portfolio has been defined as a well-constructed, purposeful, and individualized collection of artifacts that captures the complexities of learning and teaching, and demonstrates the creator's abilities, progress, achievement, and effort of what he/she can *do* (Barrett, 1999a; McKinney, 1998; Reis & Villaume, 2002; Walker, 2000). Wolf (1999) delineated three types of portfolios based on their purpose: learning portfolios aimed to emphasize self-assessment and ownership; assessment portfolios oriented toward evaluation of teacher performance for certification, licensure, or professional advancement; and employment portfolios designed to present qualifications and suitability for a professional position. Using purpose is also a way to classify electronic portfolios, which are stored and published in electronic formats. However, in the case of electronic portfolios, one is likely to find multiple storage formats used for learning and employment portfolios. Online databases and Web-based formats are used for assessment portfolios, which often are more standardized in their structure and organization.

Advances in electronic and digital technology have resulted in the availability of a wide variety of multimedia tools to create artifacts for and greater flexibility in formatting and layout of an electronic portfolio. For example, classroom action can be captured using digital video editing and become a digital video clip artifact in an electronic portfolio. The current use of electronic portfolios in teacher preparation extends from a course-based setting to settings ranging program and institutional levels (Walker, 2000; Wright et al., 2002). Both intrinsic and extrinsic forces are motivating the use of these portfolios in teacher preparation. Processes intrinsically motivated may be oriented to understanding, growth, and improvement (Amber & Czech, 2002; Bartlett, 2002; Mullen, 2002), and involve ongoing revision based on reflection and feedback prior to completion of the final portfolio (Wright et al., 2002). Processes extrinsically motivated may take form as one "exit portfolio" in response to state legislative mandates (Ring & Foti, 2003; Wieseman & Wenzlaff,

2004), or a need for evidence for NCATE accreditation or of ISTE National Educational Technology Standards (Geier, 2002; Walker, 2000).

The purpose of this article is to describe a framework for designing and enacting a vision of electronic portfolio assessment. This framework has been deduced based on analysis and synthesis of findings reported in research studies: descriptions of electronic portfolio assessment at different institutions, aspects of implementation, emergent dilemmas, tensions experienced, and implications of the findings of the studies for the broader teacher preparation community. Context for the content of the framework is provided first. Subsequently, the framework is presented holistically in a pictorial format of “critical questions.” Finally, the framework is summarized in a more linear, text-based format.

## CRITICAL QUESTIONS FRAMEWORK FOR DESIGNING AND ENACTING A VISION OF ELECTRONIC PORTFOLIO ASSESSMENT

Preparation of an electronic portfolio requires the creator (for the purpose of this article, an individual preparing for a teaching career) to act as a change agent who converts actions and performance into an electronic format that represents the professional, psychological, and social aspects of the creator (McKinney, 1998). Barrett (1999b) outlined a “Decision Matrix” useful for school teachers and administrators contemplating the development of a portfolio program in the K-12 educational setting. Successful generation and evaluation of an electronic portfolio by individuals in teacher preparation programs is affected by numerous factors: technology issues, self-efficacy, “buy-in” or “value factor,” and evaluation issues. These factors are described in Table 1.

To be useful and productive, a framework for designing a vision and enacting electronic portfolio assessment must address the above factors. Barrett’s (1999b) “Resource Questions” in the Decision Matrix for electronic portfolio program development in K-12 education emphasized the question of portfolio purpose. Other questions, for which teachers and administrators were to assign a rating, focused on teachers’ and students’ technological competence, accessibility and availability issues, financial resources for hardware

and software, as well as staff development and support. The “Critical Questions Framework” for teacher preparation proposed in this article is similar, but not identical to Barrett’s Decision Matrix for K-12 education. A key difference between Barrett’s Decision Matrix and the proposed Critical Questions Framework is that the former focuses on the generation of an electronic portfolio, whereas the latter includes questions related to freedom of design and evaluation of the electronic portfolio. The Critical Questions Framework depicts interrelationships between these factors, with the key organizing questions always being: What is the purpose? and Whose purpose is it? (see Figure 1).

Critical starting points in decision making regarding electronic portfolios are two fold, each of which can be detailed in more specific questions:

1. What is the purpose? Whose purpose is it?
  - Is it evaluation within an individual course, across an integrated block of courses, or of the quality of a program, such as discussed in Geier (2002), Mullen (2002), and Walker (2000)?
  - Is it reflection on and demonstration of professional growth with respect to technology and/or pedagogy with little or no connection to or mention of external evaluation or accountability factors, such as highlighted in Amber and Czech (2002), Bartlett (2002), and Wright et al. (2002)?
  - Is the portfolio to show growth over time, in this case requiring scaffolding and longitudinal feedback, or to serve as an exit portfolio requiring only one submission?
  - To what extent is it motivated by external accountability factors? For example, in response to accreditation of program/institution (Aschermann, 1999), a state mandate (Wieseman & Wenzlaff, 2004), documentation of teaching, and/or National Educational Technology Standards (Walker, 2000; Wright et al., 2002).
2. How much freedom in product design should the creator have?
  - Are the structural and organizational requirements unstructured or flexible so as to allow personalization, such as in Wright et al. (2002)?

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