

# **Electronic Portfolios in Teacher Education: Issues of Sustainability**

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## **Purpose**

This paper will review related literature to inform policy pertaining to the implementation and sustainability of electronic portfolios (EPs) in teacher education. Clarifying the theoretical framework for and building on prior studies of initiation and continuation of EPs, our focus will be on issues of program-wide sustainability. We look to the voices of students, faculty and administrators who point to the benefits and costs of EP use from their own perspectives. After reviewing existing literature, including earlier large-scale studies by the authors, we conclude with an analysis of policy implications for teacher education programs and provide recommendations that support adoption and implementation decisions.

## **Theoretical Perspectives**

Portfolios rest on a continuum from more objectivist to more subjectivist philosophical approaches. The objectivist approach is based on the belief that outcomes can be precisely described and that observable behaviors can be measured by an independent evaluator. The subjectivist perspective is based on the belief that learning is complex, situated, and individual and must be judged by experts directly involved in teaching and learning (Gray, 2002) The objectivist or instructivist approach lends itself to a skills-based assessment and the subjectivist approach is more constructivist in nature and lends itself to a reflective practitioner model. The former emphasizes the assessment *of* learning and the latter, the assessment *for* learning (Stiggins, 2002).

Aligned with the subjectivist philosophy, the developmental portfolio writer is describing content that is not quite known (Buckridge, 2008). Here the teacher's writing is based on ideal philosophy, reflection, action in teaching, and refinement that allows teachers to further construct their knowledge base for teaching. Aligned with the objectivist philosophy, the assessment portfolio writer describes successful practices that meet agreed upon criteria. The developmental portfolio focuses on the teachers thinking; the assessment portfolio focuses on evaluative evidence and success.

Shulman (1998) an early proponent of educational portfolios, defines the teacher's working portfolio as a "structured documentary history of a set of coached or mentored acts of teaching, substantiated by samples of student portfolios, and fully realized only through reflective writing, deliberation, and conversation" (p. 37). Preservice student portfolios document their journey in becoming a teacher as they select, share, and reflect on artifacts such as educational philosophies, classroom management plans, unit and lesson plans, plans to meet the needs of diverse and special needs pupils, and video clips

of practice teaching. Portfolios make learning visible, and thus faculty members and students focus on learning in new ways (Yancey, 2001). Darling-Hammond and Baratz-Snowden (2007) point out that “the use of authentic classroom materials enables student teachers and teacher educators jointly to examine and analyze a ‘common text’ to which all have access” (p. 126).

In general, such learning portfolios are based on a constructivist philosophy. Students may be expected to take responsibility for selecting artifacts, making connections to standards, and interpreting their own learning. In a study of 144 preservice teachers and 15 supervisors using portfolios in Germany, Imhof and Picard (2009) found that the learning portfolio process resulted in a "more elaborate style of reflecting on the professional development ...and more productive and independent group processes among pre-service teachers." (p. 153).

Other approaches to portfolios, based on an instructivist philosophy, are primarily designed to meet the needs of the programs or institutions (Barrett, 2004; Fagin, Hand, & Boyd, 2004). Here students are expected to provide artifacts that demonstrate that they meet state and national performance standards. Rubrics are often used to evaluate the prescribed items. Individual artifacts in the portfolio or the portfolio as a whole may be required to address not just the top-level standards, but also sub-parts consisting of an array of performance objectives. Willis (2009) refers to this as an atomistic approach.

In such assessment portfolios, standards and evaluation rubrics provide direction for artifact selection and organization of the EP. Students thus create these portfolios to satisfy outside readers. The evaluation data are aggregated and disaggregated to demonstrate that a program is meeting the necessary standards. Colleges of education (COEs) also use the data to inform where improvements may be required.

In a self-study of their university adapting EPs for wide-scale assessment to meet state teacher education requirements, Reis & Villaume (2002) found that student-centered practices such as choice of artifacts to include in the EP were in tension with increased standardization of components needed to improve scoring consistency among raters. Ma and Rada (2006) studied the use of EPs designed to balance the learning focus and accountability. Their EP system allowed candidates to collect artifacts in multiple formats, modify them, critically reflect on their practices, and align evidence to standards. Survey results of a stratified sample of 31 students from four teacher education programs revealed that students expressed positive attitudes toward the use of the EP to facilitate learning, but less positive attitudes toward the assessment parts. Others have highlighted this tension as well (Wilkerson & Lang, 2003; Mitchell et. al., 2006). There are those who believe that COEs cannot use electronic portfolios for both accreditation (assessment purposes) and student learning with reflection (Carney, 2002; Buckridge, 2008). If used for multiple purposes, they maintain, none will be done well.

In either case, COE's need to have a clear vision or purpose for their portfolio programs. Imhof and Picard (2009) found that clarity of purpose was a key to effective use of EPs. Students said they wanted to have "a clear idea of the formalities, content, and a well

communicated rationale for the portfolios" (p. 152). The authors concluded that: "... a lack of clear understanding of the purpose and ownership of a portfolio constitutes a serious flaw in the process" (p. 153).

Other factors influencing student and faculty satisfaction with electronic portfolios are the clarity of guidelines, student perceptions of faculty feedback on their portfolios, and the amount of time and effort involved. The innovation implementation literature is consistent in reporting that the initial response of educators faced with implementing a change is to ask questions about how it will impact them personally, followed by questions about how to manage the particular tasks (Hall and Hord, 2001). Both of these levels of concern are clearly present as faculty members reflect on the time required to manage the electronic portfolio process.

In a pilot project to encourage reflective practice in preservice teacher education, Cunningham (2002) noted that the process requires a great deal of effort in which faculty need to work in concert over time. Lind (2007) also noted that EP implementation required an immense amount of faculty and student interaction and that using portfolios in larger programs would be challenging.

***Implementation of EPs in Teacher Education: Multi-Institutional Cross-Case Studies.***

Our prior research (Strudler & Wetzel, 2005, 2008; Wetzel & Strudler, 2005, 2006) employed case methodology (Yin, 1989) to investigate the use of electronic portfolios within six teacher education programs. Across all sites, various factors influenced the implementation of EPs including whether the colleges had previously used paper portfolios, the degree of pressure for standards-based assessment, and leadership and governance issues. Variations in program implementation included areas such as the EP tool employed, artifact selection, evaluation of student work, and the role of reflection. Findings suggest that amidst the common themes across programs, there are numerous variations in approaches to e-portfolio use.

Benefits cited by teacher candidates included opportunities to reflect, better access to and organization of professional documents, increased technology skills, and better understanding of teaching standards. The costs or disadvantages included issues pertaining to program implementation, access to and reliability of the technology, and issues of time and effort expended.

Faculty and administrators identified benefits including increased opportunities for students to reflect and learn, better student understanding of teaching standards, better faculty access for assessing student work, increased faculty communication with students, and improved tracking of student performance for purposes of accreditation and program improvement. Disadvantages cited include issues pertaining to the amount of time and effort expended and to the lack of compatibility with faculty members' beliefs, values, and needs. Overall, the authors concluded that faculty satisfaction with EPs appears strongly associated with their values for student-centered teacher education and in some cases, their willingness to sacrifice individual preferences to be "team players" to accomplish program goals.

In our initial studies faculty leaders and administrators identified streamlining requirements and planning for data aggregation and program evaluation as next steps for their respective programs. To see how programs have begun to use EPs for these purposes we examined the spring 2007 National Council for the Accreditation of Teacher Education (NCATE) Board of Examiners reports (Wetzel, Strudler, Addis & Luz, 2009). We found that in comparison to 2004 baseline data (Mitchell, Allen & Ehrenberg, 2006) in spring 2007 there was far greater use of EPs for accreditation purposes via commercially available, portfolio and data analysis systems. Implementation issues identified by Mitchell and colleagues, however, continue to be cited in the BOE reports, including the need to ensure consistency and fairness in evaluation, and the need to aggregate and use data for meaningful program improvement.

## **Methods**

This paper will serve as a culminating analysis based on our prior research (Strudler & Wetzel, 2005, 2008; Wetzel & Strudler, 2005, 2006; Wetzel et al., 2009) and an extensive review of related literature. Articles and reports were located through systematic search using Academic Search Premier (EBSCOhost) and Google Scholar based on a range of Boolean searches using the following key words or phrases: electronic portfolios, portfolio assessment, teacher education, and teacher preparation. We also reviewed the references cited in the articles obtained in search of additional sources. Key issues that appeared repeatedly in our review were analyzed and summarized regarding philosophy, purpose, types of portfolios, benefits, and costs.

Our own research was initially based on six case studies and multi-institutional cross-case analyses (Strudler & Wetzel, 2005, 2008; Wetzel & Strudler, 2005, 2006). Our subsequent analysis of EP use for NCATE accreditation (Wetzel et al., 2009) was also included. This culminating paper draws from findings across these sources to address policy issues pertaining to large-scale EP use.

## **Discussion: Policy Analysis**

The overarching policy question, “Is the use of electronic portfolios in teacher education a good idea that is sustainable?” will be addressed through the framework of the literature review including the authors’ studies. The review will focus on analyzing the key purposes of portfolios—student learning/reflection and accountability/accreditation, along with an analysis of costs and benefits as perceived by the various stakeholders.

***Student Engagement and Learning.*** As previously discussed, the use of EPs in teacher education emanate from the constructivist tradition of using portfolios to foster deep student reflection and learning. As one might expect, deep learning is not easily achieved and the highest goals of employing EPs require much time and effort by both teacher candidates and faculty. Table 1 delineates some of the choices programs have in how they implement EPs along with what research suggests are potential the low and high impacts on student engagement and learning.

Table 1. Factors Impacting Student Engagement and Learning

<b>Factors</b>	<b>Low</b>	<b>High</b>
Selection of Artifacts	Prescribed	Students choose
Nature of Student Reflections	Cursory	Substantive
Rigor of Evaluation	Surface level	Rigorous evaluation
Faculty Feedback	Minimal	Detailed

Findings summarized in this table will be fleshed out with illustrative narrative in our final paper.

While teacher candidates can certainly learn via submitting prescribed artifacts and organizing them into an EP, studies reviewed (Ma & Rada 2006; Reis & Villaume 2002; Strudler & Wetzel, 2008; Wetzel & Strudler, 2006) suggest that students are more engaged when choosing their best evidence of what they’ve learned and accomplished. And as one might expect, both faculty and students agree that substantive reflections, when thoughtfully implemented, lead to greater learning. Students found portfolio reflections to be more meaningful if faculty provided more in-depth and timely feedback on their work. Furthermore, faculty reported that student learning increased if students used a theory of reflection and reflected at a deeper level (Imhof & Picard, 2009; Strudler & Wetzel, 2008; Wetzel & Strudler, 2006).

Consistent across many studies (Cunningham, 2002; Imhof & Picard, 2009; Lind, 2007; Strudler & Wetzel, 2008; Wetzel & Strudler, 2006) both students and faculty expressed concerns about the amount of time required to construct reflective portfolios and the amount of time needed to guide the student process and provide substantive feedback on student work. Similarly rigorous evaluation and detailed faculty feedback contributes both to greater student learning as well as a greater degree of satisfaction derived by both students and faculty (Imhof & Picard, 2009; Strudler & Wetzel, 2008; Wetzel & Strudler, 2006).

The costs of achieving the higher end of these goals are obvious. They require a great deal in terms of time and effort by both students and faculty. Findings suggest, however, that when implemented well, many students and faculty believe that the benefits derived do justify the costs, particularly when there is a clarity of purpose and a commitment to constructivist, student-centered learning (Imhof & Picard, 2009). Nevertheless, the reviewed studies indicate that the most labor intensive implementation of EPs has led many to call for streamlining demands placed on both students and faculty and that this may be required to sustain this innovation for a large majority of programs.

***Accountability and Accreditation.*** EPs are increasingly being adopted and implemented as a strategy to support programs’ need to gather data on candidate performance and use that data as evidence to inform program improvement and accreditation. Unfortunately,

the factors that may work best for implementing portfolios for accountability and accreditation may conflict with those best suited for student-centered learning. Table 2 delineates factors that the studies reviewed suggest tend to be most supportive of efforts toward accountability, program improvement, and ultimately, accreditation.

Table 2. Factors Impacting Quality of Data for Program Accountability and Accreditation

<b>Factors</b>	<b>Low</b>	<b>High</b>
Selection of Artifacts	Students choose	Prescribed
Rigor of Evaluation	Surface level, checklists	Rigorous, detailed rubrics
Inter-rater Reliability	Not Established	Established

While the constructivist tradition promotes student choice of artifacts, prescribed artifacts allow for more focused and specific rubrics and potentially more consistency and rigor in the evaluations. The “gold standard” for fair and consistent evaluation, inter-rater reliability, is most readily achieved through the evaluation of common artifacts. Student choice in artifacts, while supporting student reflection and growth, presents challenges for establishing fair and consistent evaluation of candidates’ knowledge and skills (Wilkerson & Lang, 2003; Mitchell et. al., 2006).

There were also important differences in student and faculty member perspectives. Both students and faculty discussed the importance of standards, but some faculty were concerned about the implications of standards-based portfolios, driven by accreditation needs (Strudler & Wetzel, 2008). For example, program accountability and accreditation efforts typically encourage the creation of assignments and rubrics that are implemented consistently across a program, including multiple sections of the same course. This involves a possible infringement on faculty’s academic freedom, particularly pertaining to what some saw as the prescriptive nature of the EP program. One faculty member, who was supportive of accountability for outcomes in teacher education, took issue with how that translated into practice. He explained, “I personally think we're violating academic freedom, where they're telling us now that we have to use a rubric to evaluate the assignment. Who's to say that the rubric was the best approach... You know, it's a one size fits all.”

### **Significance of the Study**

The trajectory of EP use in teacher education appears to be increasing most notably in the use of commercial systems for accreditation purposes. An analysis of policies would benefit those who anticipate adopting an EP system for accreditation purposes, for enhancement of student learning, or with the hope of accomplishing both. There is a body of literature that can be helpful in making policy decisions based on a clear understanding of philosophy of learning and assessment, purposes of EP use, and the costs and benefits that must be weighed.

Further analysis of costs and benefits, and ultimately issues of sustainability of electronic portfolio implementation will be discussed in our presentation. Analyses will address the relative importance of a variety of factors that should help faculty and administrators make decisions about whether to implement EPs at their institutions. Such decisions begin with clarifying the goals for implementation and analyzing the costs and benefits involved in pursuing them. As such, an analysis of our findings, within the context of the literature reviewed, has the promise of helping colleges and universities make sound decisions concerning the adoption and implementation of electronic portfolios to support program goals and objectives.

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