School Administrators' Perceptions of the Use of Electronic Portfolios In K–8 Teacher Hiring

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Abstract

This study analyzed the responses of K–8 human resource directors and principals to teacher education students' electronic portfolios used for hiring. From the focus groups several themes emerged. First, because the principals do not have much time to examine portfolios of any kind, the ideal electronic portfolio would include only a few clearly organized, relevant, and concise elements. Two artifacts may make the hiring portfolio more compelling: evidence of K–8 student achievement as a result of the applicant's teaching and a video clip of the applicant engaging children in learning. Principals found the video clips helpful in distinguishing among the candidates, but noted that a poor video could eliminate the applicant. The extent to which teacher education faculty should assist students in construction of artifacts was discussed.

The use of electronic portfolios in undergraduate teacher preparation programs appears to be gathering steam. A search of the program at the 2005 Society for Information Technology and Teacher Education (SITE) International Conference revealed 29 sessions on the topic. The American Association of Higher Education maintains a Web site and a community of practice devoted to electronic portfolios, and Colleges of Education are looking to electronic portfolios as a means of documenting student achievement for accreditation purposes. Beyond using the portfolios to assess students' progress toward meeting program standards, some teacher education faculty members appear to view the portfolio as an aid to students' employment applications. There appears to be little research, however, that demonstrates that employing school districts are using the electronic portfolios to gain information about applicants for teaching positions. The purpose of this study is to discover what school district administrators responsible for selecting teachers to fill vacancies think about the content, quality, and use of the electronic portfolio in the hiring process.

Background

In education, the portfolio appears to have originated as a means of assessing professional competence and was given impetus by the work of the Teacher Assessment Project (TAP) and later the National Board for Professional Teaching Standards (Shulman, 1998). Shulman, an early proponent of 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" (Shulman, 1998, p. 37). He explains that the portfolio evolved from efforts to represent the complexity and context-dependent judgments that characterize teaching, and asserts that the best kind of teacher portfolio contains documentation of teacher performance and student learning.

As teaching portfolios have evolved, they have been used for different purposes. Wolf and Dietz (1997) propose three categories of portfolio based on purpose: (a) the learning portfolio, the purpose of which is to promote reflection and "ownership of the learning process," (b) the assessment portfolio that "presents educational organizations with information about a teacher's effectiveness," and (c) the employment portfolio that "provides prospective employers with information about a teacher's suitability for a position" (p. 15). These different purposes drive the structure, contents, and format of the portfolio. Although the first purpose is personal to the learner (self-improvement), the second and third purposes may involve judgments (possibly high-stakes judgments) by others. The assessment portfolio is generally based on a set of standards developed by a credentialing agency or employer and is used to determine whether an individual meets a standard for licensure or professional advancement. The third type of portfolio, the employment portfolio, showcases the author's work to best advantage to obtain a particular position.

Any portfolio can be electronic or paper-based. An electronic portfolio can be Web based or can use another digital media such as a CD. Although electronic portfolios may look similar to print-based portfolios in content and organization, they may also include audio and video elements as well as text and graphics. Further, electronic portfolios often have a different feel than print-based portfolios because the user navigates with hyperlinks: for example, an artifact may contain a link to the student's reflection on it and both may link to state and national teaching standards.

A review of teacher education literature on use of portfolios or electronic portfolios for hiring yields very little. Teacher educators have suggested that electronic learning portfolios can be re-constructed for employment purposes (Barrett & Kelly, 2004). Further, preservice students tend to think that an exhaustive portfolio is a good employment portfolio (Theel & Tallerico, 2004). Our review of the literature revealed that the imagined use of electronic portfolios for this purpose is not realistic. In an Australian study of 34 fourth-year physical education students who created learning electronic portfolios, Temple, Allan, & Temple (2003) found that the students believed their electronic portfolios would enhance their employment prospects. Students also thought the electronic portfolio assignment were useful and good preparation for job interviews. However, after viewing a sample electronic portfolio, school administrators in the Australian study said they did not want paper or electronic portfolios, although the addition of a video clip showing real teaching experiences would enhance the potential use of electronic portfolios. These principals thought video clips had potential if they conveyed information not found in the paper file and if they were "real" and not "stage managed." They wanted evidence-based applications that directly addressed the specific selection criteria. Principals said that the electronic portfolio they viewed as the basis for the study had too much information. Further, the fact that the organizing framework was based on professional standards was not helpful.

Similarly, Reilly (2003) surveyed students who graduated from his institution's teacher credentialing program with electronic portfolios and found that they reported local school district interviewers were not prepared to view electronic portfolios, and had little interest in them. He attributes this to the fact that demand for teachers in the areas is high and most graduates are employed before they complete the portfolio. Also, he found that the districts do not have a hiring process compatible with using the electronic portfolio. Additionally, few principals believe they have the time to view lengthy and complex portfolios, paper or electronic. Further, not all principals have the comfort level with technology to navigate an electronic portfolio (Reilly, 2003; Temple, Allan, & Temple, 2003).

Our experiences are similar. Two years ago, our College of Education also piloted the electronic portfolio with elementary education students who were completing their student teaching. Students in two sections of the student teaching seminar completed surveys that asked them about the value of the electronic portfolio. The students were generally positive in their responses to questions about the value of the learning portfolio. However, they were generally negative about the value of this electronic portfolio for hiring purposes. Mostly, the students noted that they did not find an opportunity to use it in the hiring process. One student commented, "No one asked us for them."

As we considered making the electronic portfolio mandatory, we were cognizant of the motivational value of urging students to view their required working/developmental portfolio as salient to their future employment, in that it would be the basis of a hiring portfolio. We were less confident that our partner school districts would welcome the electronic portfolio during the hiring process. We needed to understand if and how electronic portfolios would be used in the hiring process, and the most effective content, format, and use of electronic hiring portfolios, should our students develop them. Thus, the research questions for this study were developed:

1. Would local school district administrators be interested in viewing our graduates' electronic portfolios as part of the employment process?
2. What content mattered most in the hiring portfolio?
3. What suggestions did they have to make the portfolio more useful and more likely to be used during the hiring process?

Methods

This is an exploratory study in which the authors invited area K–8 human resource directors and principals to discuss with them their hiring practices and to provide feedback on hiring electronic portfolios.

Participant Selection

Arizona State University at West campus is located in the northwest metropolitan Phoenix area. The school personnel participating in the study represented the school districts who accept our practicum students for internships and student teaching, and who also hire many of our graduates. Human resource directors from eight of our partner school districts (providing field placements for 800 students each semester) were contacted by e-mail and invited to participate in a focus group to discuss the use of electronic portfolios. Four human resource directors and two assistant directors representing four of these eight school districts participated in the study.

In addition, one author who teaches in the educational administration certification program invited 16 elementary school principals to participate by e-mail. Eight responded to the e-mail, and five were able to arrange their schedules to participate in the focus groups. Four were graduates of our institution's administrative certification program; two had participated in partnership activities with one or both of the authors. This group was contacted because they represented a variety of school districts (eight public districts and one private religious school), had

demonstrated competence with technology, and were articulate about educational issues. In addition, we invited two retired principals who were lecturers in the preservice teacher education program. They had the unique advantage of knowing the electronic portfolio from the developmental perspective, and applied their experience in hiring to look at the portfolio through another lens. Thus, we opted for a nonrandom purposeful sample of informants.

Although the study is based on the advice of human resource directors and principals from large school districts, the results are limited to one city and should be replicated in other regions of the country.

Data Sources

The data sources for the study were a series of small focus groups led by the authors of the study. The focus groups were based on methods described by Krueger (1998). Data were gathered during the spring and summer of 2004. Two focus groups were scheduled for human resource directors and four were scheduled for principals. The primary data sources for the study consisted of audiotapes of the focus group discussions. As recommended by Krueger, the researchers posed an initial question ("How would you describe the hiring process in your school district?") to allow each participant to become acquainted with the topic, recollect their thoughts, and listen to their colleagues. A set of key questions for the human resource directors followed. As part of the discussions, the authors demonstrated an example of a learning portfolio and a fictitious hiring portfolio. The human resource directors were asked about video clips and their place in the hiring process. The same questions and procedures were used with principals, but in addition, the authors demonstrated 2–3 digital video clips (QuickTime movies) of student teachers implementing a lesson in their field placements, and the participants responded to questions regarding the video clips. Examples of questions posed for all of the participants included: (a) What is your impression of the electronic portfolio? (b) What should the electronic portfolio contain? Additional questions posed for principals include: (a) Were the video clips useful? (b) Why or why not? (c) Should the clip include the candidates' reflections on their teaching? The complete set of focus group questions can be viewed at http://www.west.asu.edu/kwetzel. Additional follow-up questions occurred naturally to clarify answers and build on the responses.

Data Analysis

All audiotapes were transcribed. We began by reading and re-reading the transcriptions of the focus groups. Guided by the purpose of the study, we coded the data. After each author coded the transcripts independently, the authors compared their codes and came to agreement on a common coding scheme. Then we re-coded each thought unit using the common codes. Responses of participants were analyzed within each focus group and across focus groups. Examples of categories that were coded included stages of the hiring process, contents of the electronic portfolio, format of the electronic portfolio, principal use/nonuse, and ethical issues. Trends and patterns that reappear across participants and focus groups were identified. Member checking was also employed as a draft of this paper was sent to focus group participants to check for accuracy of the data and feedback on the analysis of the results. None of the findings were questioned or disputed.

Results and Discussion

Although the administrators repeatedly stressed their lack of time during the hiring process to make use of portfolios (paper or electronic), there were two aspects to the electronic portfolio that emerged as important enough to increase their interest. First, the content should include some evidence that the applicant had made a difference in student learning. Second, the inclusion of a short video of the candidate in an actual teaching situation would be uniquely helpful in discriminating between candidates. In every group, the desire to see evidence of student learning was related

to the "science" of teaching—understanding the role of assessment, using it to guide instruction, assessing the results of instruction, and making further educational decisions. The video clip was valued for its ability to give information about the applicant's relationships with students and ability to reflect on teaching. Below, we discuss participants' comments in these two areas and then describe other artifacts, commonly found in teaching portfolios, that were of less important to them. We then turn to their advice on formatting the electronic portfolio, details about the video clip, how video might pose a problem for teacher educators, and finally the use of the portfolio during the hiring process.

Constraints

One of the most consistent themes throughout the interviews had to do with the principals' lack of time to review the electronic portfolios and what that implied for them. They wanted the electronic portfolio to be easily accessible and easy to navigate. They did not want individual elements that were lengthy or verbose. Elements such as lesson plans or statements of philosophy should be bulleted. Anything lengthy should be omitted, reduced to one page, or provided as a link that could be explored. Their comments included:

> I need something I can look through in 5–10 minutes that is bulleted, has pictures, quick. . . This is like a commercial about yourself. So you want it to have more graphics and pictures, less words… You want it succinct, you want it clear, you want it to the point, because you're selling yourself (Principal C).

> What you have to remember is, you can overwhelm a principal with information so you've got to nail it down to those things, and keep it concise and keep it to those things that they're going to look at, otherwise what's going to happen is they're going to blip it off the screen and not pay attention to it (Human resource director K).

The portfolio the administrators viewed was organized according to the state's "professional teaching standards." However, this organization was not helpful to them. The only standards of interest to administrators were the state's K–12 student achievement standards. The organizational framework of the professional teaching standards did not seem to fit the categories of characteristics they sought when considering a hire.

Content—Student Achievement

Administrators are acutely sensitive to the demands for student achievement that are placed on their teachers. They saw the electronic portfolio as providing an opportunity for candidates to demonstrate that their teaching resulted in changes in student performance on some type of assessment. This could be presented either in written format or in a video clip.

> . . . [Teachers are] expected to move the kid from point A to point B in a short period of time. . . I would want to see maybe some student work . . . When I came in here this is the way a student was writing; this is Johnny's [writing] sample. When I left after working with Johnnie for nine weeks . . . this is [his] writing skill. To me that's impressive. . . (Human resource director K).

> Wouldn't it be nice if in [student teaching] they could be responsible [for doing] a pre-assessment of these students and then at the end of the student teaching, they do a post [assessment]. That would be very specific, important information. Can a teacher take this group of students and improve their performance? (Human resource director G).

> That would be huge. You could have a little commercial about yourself, you have your video clip and you have the data about what your teaching impacted. That would be very powerful (Principal C).

Additionally, there was some discussion of the need to differentiate instruction based on assessment of student achievement:

> [The applicants should] talk about assessment and using that data to drive the next lesson (Principal B).

> . . . It's not just that they know how to use the data, but what is the purpose of using the data? If they're still going to go to the next page of the book, big deal. But if they understand that it's about differentiation and to really meet individual student's needs, that has to come out somewhere (Principal R).

Content—Video Clips

Before watching video clips, administrators were asked their opinion about the value of including them in the electronic portfolio. They responded positively:

> That's the one thing I always hear from our principals, "Gee, she really interviewed great but I really need to see her in a classroom doing it…" If there's some way we can capture them teaching it would really be helpful (Human resource director J).

> There's very little that can differentiate brand new people from each other. They have no experience, so this is something that could set someone apart. You actually get to see the person interacting with kids (Principal A).

> I'll make a comparison for you. When we bought our last house, I got online because I wanted to see what was available and this realtor had the virtual tour of this property and I took the virtual tour. Another realtor didn't have any virtual tours . . . I never even looked twice at the listings that had no virtual tours—I had no snapshot, no picture, no visual. So that's the comparison that comes to my mind. If it's a new piece of technology and it's out there and I'm at home in my fuzzy pink slippers with my cup of coffee, I'm going to flip through those pictures and get that visual and I'm going to be more likely to call those people if I'm interested than if I'm just looking through a bunch of words in black and white. That's the potential [of the electronic portfolio] that I see (Principal E).

Principals saw the video as an opportunity to learn about the applicants' relationships with students and their ability to reflect. However, they did not hold high regard for written documents that addressed these subjects. Classroom management plans were not regarded as vital. Two principals felt the subject should be discussed in the philosophy of education. Others cautioned that candidates would be expected to fit into the school's approved system. Two principals placed more value on this piece, saying:

> I want to know how you're going to manage classrooms so that students are engaged (Principal G).

> I would like it to be available, but I would like to see a fairly concise summary that says "these are my philosophical views about my classroom environment and what drives all of those other decisions that I make" (Principal P).

While dismissing the written plan, principals valued the video because it provided a "window" into a candidate's relationship with students. Thus, it is not that classroom management is unimportant, but rather that the administrators doubt the value of written plans in assessing a candidate's abilities in that area. Similarly, administrators did not want to read written reflection on lessons, but after viewing the video, principals talked about how much they valued reflection in a candidate and liked hearing the person reflect on the video.

Two other written documents were of minimal interest. They had mixed reactions to lesson plans (although nearly all principals mentioned the importance of new teachers understanding how to assess students on lesson objectives). A written philosophy of education was not seen as particularly helpful in the portfolio. Generally, they were considered "canned," "theoretical," and filled with the "right buzzwords." One principal suggested:

> Bulleted. This is what I believe about teaching and learning. [Less than one page] with short philosophical statements. I'm not going to read the whole thing. I don't have enough time to do that (Principal C).

Finally, the principals also remarked about a quality they are looking for that was not evident in the portfolios: the ability to collaborate with others.

> You have to be able to work with people. There's too much to do on your own (Principal A).

> How can you show me that you're going to get along with your team, that you can interact with parents? That could be part of your philosophy (Principal G).

Video content, quality, and use

Participants were shown two to three 5–7 minute videos (depending on how much time was left in the focus group session) and encouraged to share their observations at the conclusion of each video. They expressed approval of the video segments in general as being useful in the decision-making process. The principals often focused on something they could not ascertain from the paper portfolio: the relationship of the student teacher to students. They made comments about how engaged the students were (or were not) and the quality of personal relationships between the teacher and students:

> She seems to understand it; she has a relationship with the kids, she knows all their names. [She] has some spark (Principal G).

> Video allows us to see how they can engage kids—we always look for this in good instruction (Human resource director N).

> [In her reflection] she said the kids were engaged and I was watching it—they didn't look particularly engaged (Principal A).

Principals also viewed the video as a chance to judge the applicant's ability to teach to standards and assess students:

> If you can include at the beginning of this that your objective of this lesson is tied to such and such standards and [you are] planning on assessing them in such a way… Now when I sit down and watch this I know that she knew what her objective was, what standard it is tied to, and what she's going to be looking for to see if those kids are getting it or not… Throughout the process when they're reflecting or addressing [the viewer] "I can tell that Johnny was getting this lesson because he did these things that I was looking for. This kid over here wasn't quite getting

it because I didn't see these things and so what I did to address that was I pulled her aside or I buddied her up or more specific things" (Principal E).

But when the objective and alignment were not self-evident, principals noticed:

> She said at the beginning that the purpose of that lesson was to practice note-taking and monitor comprehension. I didn't see that (Principal P).

Reflection

Although principals had been lukewarm to the idea of reading written reflections in the portfolio, they were positive about the reflection that student teachers did during the video clip, although there were some cautions.

> The reflection piece is huge to me. What did you learn from this? If they learn something from it, then that's huge to me. If they didn't learn something from what went on, so if the lesson didn't go well, if you can tell me why it didn't, if you can be self-reflective and analytical, that's a huge selling point to me as a teacher. If you show me this and you don't have any idea of what went wrong and why, that's a very telling thing, because you're going to have things that go wrong. That's going to happen to a first-year teacher. That's going to happen every day. But, can they think about it and think here's what I need to do? That's what I would expect (Principal C).

One student reacted to her lesson by describing what the mentor teacher had said about it. Two principals said that they felt she should have explained what she thought, not simply repeated what she was told by her mentor teacher. On the other hand, another principal felt this showed that she could attend to feedback.

> …to reflect back about the input from her cooperating teacher says that she was listening and taking that as important to her own growth (Principal S).

> I'm having trouble with the idea of them finding fault with their lesson. She's saying that the pacing was a problem and would do that differently next time. I don't know if I want to hear that… [She should discuss] what she liked about that lesson, why it went well, what was effective (Principal P).

Principals also had suggestions for expanding the use of the video to include more than a teaching episode:

> I think that student teaching snapshot might be the largest content of that short video clip. It could also be a way to summarize the other block of experiences, because you do increase in the other block experiences from grade levels to different studies. It might be an opportunity for them to highlight that I've been in a Title I school, but I've also been in an upper middle class school. They could highlight their block experiences, even if it's just a voiceover… Even if it was just one picture that had voice background to summarize. It's a nice way of introducing themselves (Principal B).

This principal continued:

> Data-based decision making could be a written document but it wouldn't have to be; it could also be a video. Another minute video snapshot that shows them maybe doing a running record. They could be

with the kids and their voiceovers talking about the beginning, middle, and end product over a six-week intervention, with before-school tutoring two times a week. Something in reading, writing, or math that they could show short-term intervention with success and highlight that (Principal B).

Format of video

The two 5–7 minute videos differed in the format of the teacher presentations. One video clip was edited with a voiceover that commented on the scene, and then had the student teacher addressing the camera at the end of the lesson to provide some reflection. The other was an unedited segment of a lesson with the student teacher providing a brief introduction and reflection at the end. The administrators had clear preferences for the edited video with voiceover. This was partly due to time, but also because it allowed more focus.

One principal described what he liked in the second video:

> She talked a little bit and her voice faded away and then you got part of the lesson. Then you transitioned to… [a scene where] she gives background information, fades in, get a piece of the lesson, takes you through that lesson plan, even if it's a summary of the lesson plan. Talking about, "I really wanted to try to capture their attention." or "my planning stages are tied into the standards." Then she transitions back into that video and you hear her making that statement to the class about why it's important (Principal B).

Effect of video

As principals viewed the videos, they noticed that there was room for improvement in the teaching depicted. (Recall that these videos were produced for a preservice class, not for a hiring portfolio.) This led to a discussion of how good the video should be before it is included in a hiring portfolio. On the one hand, some felt "it needs to above average." On the other hand, a principal said, it's acceptable "as long as it's real and there's some reflection and debriefing afterwards. These are new teachers. I'm expecting them to make mistakes" (Principal S).

The videos can involve high stakes. When principals perceived the introduction was slow, the teaching episode too long or uninteresting, they sometimes concluded on that basis that they would not hire the person. Here is a brief exchange between two principals:

> Principal P: I was curious if you just saw that, would you be inclined to hire her? And I think she's probably pretty good. I'm nervous about those videos.
>
> Principal G: You'd say no? I'd say no.
>
> Principal P: And that's what is making me nervous about these videos. If she's good, it isn't showcasing her. I had the opportunity to also see a couple others and I told you, they led me to think I wouldn't want to hire any of them. It was behavior management, it was ability to articulate things; there were a lot of things there even in that 8–10 min. video that I'm nervous about using it… It's so scary to think about capturing those few moments in time just like standardized testing and then saying, "this is me." Even though you can edit it and do things to improve upon it, there's so much more to you. I would hate to see it eliminate somebody.

Another telling remark:

> If we know up front that they're giving us their best and he's up there mumbling and there's no student engagement, then it's great for us because we know we don't have to go forward with this person. Too bad for the candidate (Principal R).

It became clear that they recognized a dilemma for teacher training institutions in deciding how much assistance to give to students making teaching videos. Should they be coached?

> If [the candidate] understands that it's about differentiation and to really meet individual student's needs, that has to come out somewhere. So, do you tell them that or do you see what they do with that? (Principal R).
>
> [A poor video] reflects on the university. They don't want to be in that position. They don't want a candidate leaving student teaching who's not going to be a good candidate (Principal B).

Using the electronic portfolio

There was consensus among the groups about how candidates with electronic portfolios might go about presenting them during the application process. During the first step of the process, when paperwork is submitted to the district's human resources office, the applicant should include the URL on the district application form and on the resume that is submitted. Applicants should not expect to bring the electronic portfolio forward during the next step, the screening interview. Most districts had a standardized screening interview (some using commercial available screening instruments with cut scores). Because the function of this interview is to screen out unqualified or undesirable candidates, so as to provide a high quality pool of applicants from which principals could select, this is a high-volume and somewhat standardized operation. The portfolio is not appropriate at this stage.

Principals review the files of candidates who passed the screening and select some for interviewing. A candidate could e-mail the principal, stating interest in a specific position and including the URL for the electronic portfolio. Several principals expressed interest in viewing electronic portfolios before an interview either to help decide whether to bring a candidate for an interview or to get a feel for the candidate before the interview.

Candidates may also bring the electronic portfolio to the attention of the administrator and interview team at the building-level interview. Usually, the interview lasts 30 to 45 minutes and consists of a predetermined series of questions culminating with an opportunity for the applicant to ask questions of the interview team. At this point the applicant may use the opportunity to show the highlights of the electronic portfolio using a laptop computer and then leave copies of a CD with the electronic portfolio for interview team members.

> So what would be impressive for me is if that person would say I have a couple of questions, but I also would like to show you a couple of things that I've done, and they'd take out their laptop, boot it up (Human resource director K).
>
> I think [principals] will care about it and it will be impressive if it's done short, sweet—this is me—I'll leave it with you if you want to take a look at it later (Human resource director D).

Preferred format for the portfolio

Some principals noted that candidates would sometimes bring paper portfolios in a binder to the interview; the interview team does not always review them. Two principals welcomed the paper portfolios, saying they enjoyed looking at them, but noted that this was not always the case; other principals do not examine the portfolios that candidates bring. Although they saw the value in the electronic portfolio, participants cautioned that principals have little time to view them and that some principals would be hampered by their own lack of technology skills:

> Principals differ. People who are skilled in going in and looking at this stuff are going to be mightily impressed with a candidate who has this compared to these other three people that we really liked who do not (Principal G).

> I think we have a couple of challenges there too, because I think we have some principals who would go right to this. This would be the way they would go because it's quick and efficient, they're good on the computer and there are others who have a hard time turning the computer on. I don't know if I should say that but it's true (Human resource director G).

Demonstration of candidate's technology skills

Several principals did note that the electronic portfolio demonstrated the candidates had the technology skills needed to edit the video and construct their electronic portfolios. These skills were seen as positive, but not a sufficient reason in itself to view the electronic portfolio.

Recommendations and Implications

"If the only tool you have is a hammer, you tend to see every problem as a nail." This study raised significant questions about claims that electronic portfolios are a tool that beginning teachers will find useful as they try to nail their first job. The responses of administrators portrayed clear differences between the content and format of portfolios aimed at employment and those used for teacher preparation, learning, and assessment, confirming and extending the brief characteristics described by Wolf and Dietz (1997). Can the electronic portfolios that are serving learning and assessment purposes in teacher preparation programs be adapted to the employment purpose, given current school district practices? What factors should be considered in the transitioning of portfolios for this different purpose?

Administrators told us repeatedly that the most significant artifact in the hiring portfolio was evidence that the candidate had affected student achievement, Related to this was an understanding of instruction focused on clear, standards-based objectives. In addition, they appreciated video evidence that the candidate's teaching demonstrated effective relationships with students, high quality teaching and salient reflection. If these two artifacts—evidence of student achievement and a video of teaching performance—were included, principals would have more compelling reasons to examine the electronic portfolio to help make hiring decisions. This is so because these items would provide evidence of a student's potential for high-quality teaching that cannot be gleaned from an application, a resume, or an interview. From this type of electronic portfolio, administrators would have a basis for the judging the applicant's grasp of the science of teaching as exhibited in the student achievement piece and, in the video, the art of teaching—the candidate's interactions with students.

The video clip may be a two-edged sword, however. Video clips that are judged to show unfocused teaching, failure to properly assess student management problems, or unfeeling interactions with students could work against a candidate. From the administrators' viewpoint, this was a good thing, as they could eliminate a candidate without wasting time in an interview.

Students constructing hiring portfolios should construct portfolios to respond to the selection criteria sought by principals. At a minimum these criteria include that it requires no more than 10 minutes to view, and focuses on an artifact documenting the effect of a preservice student's teaching on pupil learning and a video clip showing the student teacher's ability to engage students. This brings up a disconnect between teacher education and K–8 schools. As we suspect may be true of other preparation portfolios, our college's learning electronic portfolios are organized around the state teacher professional standards, with one or two keywords from each standard providing the hyperlink to a new page (instruction, assessment, etc.). Focus group members unanimously found that too much, too busy, too cluttered. As stated above, they wanted the hiring portfolio to be concise and organized around a few major artifacts. They did want to see that candidates created lessons and learning opportunities that meet K–12 subject area standards, but for hiring purposes they were not interested in the teacher education standards such as those developed by NCATE or INTASC. As graduates design their own electronic portfolios for job application purposes, they should leave the paradigm of preparation and organize the portfolio according to the information needs of the interview team. This parallels the findings reported by Temple, Allan, and Temple (2003) that principals were far more interested in their job selection criteria than professional competencies.

The potential for the electronic portfolio to provide information not obtainable elsewhere is balanced by the additional time needed to view the portfolio. It may be difficult for faculty members to appreciate the time pressures operating on K–12 principals. Administrators' first reactions in every group involved how long it took to look at the portfolio and to watch the video. They indicated they would spend less than 10 minutes on the portfolio, and they wanted the video at no more than five minutes. The video must maintain the principals' interest; this is helped if it moves quickly from scene to scene with voiceover to explain the intent of the activity shown, and should include some substantive reflection. Text in the electronic portfolio should be minimal. Although teacher educators may think that a thoughtful, well-referenced 10-page philosophy of education statement or an equally lengthy classroom management plan is the Holy Grail, administrators will not read them. If they are included, despite administrators' disinterest in them, these artifacts should be no more than one page and consist of bulleted summary points. Although the student achievement piece, perhaps in the form of action research, may be more than one page, they recommended that it begin with a one-page executive summary, allowing them to dig deeper if desired.

If a candidate's electronic portfolio will not be viewed due to the principal's time constraints or lack of technological capability, is the process of designing a hiring portfolio for naught? Should teacher education programs suggest or require their production, given the limited time available to train and supervise preservice teachers? Time spent constructing a hiring portfolio must be weighed against the opportunity to use that time to improve teaching skills. Nonetheless, we think there are several benefits to preparing the hiring portfolio. Student teachers should begin to think of themselves as fitting into a system that has certain expectations. If they can view the process of designing the electronic hiring portfolio as an opportunity to think through and prepare evidence to answer the questions anticipated in hiring interviews, they should have an advantage.

If students do produce hiring portfolios, faculty members must consider the amount of scaffolding and support that is appropriate for the student teacher's artifacts. The more that artifacts are coached, shaped, and polished by faculty members, the less discriminating power they provide to employers. At the same time, faculty members do not want students with good skills to bring forward a hiring portfolio that under-represents their abilities. Finding an acceptable balance so that the

portfolio helps the student compete but still provides an honest portrait may not be easy. Schulman (1998) noted a danger with respect to paper portfolios that is relevant:

> With such a heavy emphasis on portfolios as samples of a teacher's best work, at what point do we confront the danger that these isolated samples of best work may be so remote from the teacher's typical work that they no longer serve the purpose—any of the purposes—that we have in mind (p. 35).

Program-wide portfolio planning for teacher educators

Teacher educators need to develop a clear rationale for the use of electronic portfolios in their teacher education programs. This clarity would include the fact that many principals are not inclined to look at their electronic portfolios for hiring. However, if students are able to explain to principals the slim and focused nature of their electronic portfolios with the unique and vital information included, they will make their portfolios more attractive. The rationale should help students clearly distinguish between the extensive learning portfolio and the slim hiring portfolio. Indeed, due to the principal comments regarding lack of time to examine them, teacher educators may consider making the hiring portfolio optional for students.

On another front, teacher educators should also help to educate K–12 administrators about the electronic portfolios and their usefulness for hiring. Our informants had not previously heard of them. Teacher educators may introduce the future by presenting samples of hiring portfolios at state and national administrative conferences and discussing their advantages as well as the obstacles to use.

Implications for K–8 schools

School districts seek to use the most efficient processes to hire qualified teachers. When administrators are reluctant to take time to view electronic portfolios, including video clips, it may be that they are making wise choices, given the competing demands on their time and the value added to the standard sources of information about candidates. On the other hand, few administrative tasks have more effect on a school achievement than insuring a high-quality teaching staff. Future studies might examine administrators' thinking and make recommendations about the technology changes and staff development required to update hiring processes to take advantage of new media.

Conclusions

Our finding that, at present, school district hiring procedures are not constructed to accommodate electronic portfolios confirms the previous observations of Temple, Allan, and Temple (2003) and Reilly (2003). It may be that as human resource departments become more technology oriented (with online applications and online screening, for example), a greater awareness of the benefits of electronic portfolios may grow. New teachers can be coached to help draw attention to these benefits if they list their URLs in resumes and applications, or e-mail them to employers. They may also consider having the electronic portfolio open and ready to display as they walk into the interview room, and using a few screens to illustrate their responses to such common interview topics as classroom management and parent involvement. Technology offers increasing opportunities for school districts to make hiring processes more efficient and effective; dialogue about this could benefit school districts, especially those recruiting teachers from out of state.

Much remains to be done in the study of hiring portfolios. The opportunity to partner with school districts to discuss the format and content of the electronic portfolio offers the possibility of opening a dialogue about the characteristics of quality teaching as viewed from multiple perspectives.

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