ATTITUDES OF PRE-SERVICE MUSIC EDUCATION MAJORS TOWARD ELECTRONIC PORTFOLIOS

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ABSTRACT

This exploratory study sought to determine student's attitude toward electronic portfolios and attitudes toward the Macromedia program *Director 8.5*. *Director 8*.5 allows the user to create powerful interactive and multimedia environments. Participants were students enrolled in elementary methods at a New England University. Students completed three *Director 8.5* tutorials to learn basic functions and capabilities of the software. Students created a working template of their professional portfolio using this program. The researcher created a 20-item Likert survey to determine student's attitudes toward electronic portfolios. The survey contained statements targeting student's feelings, beliefs, and sense of value toward electronic portfolios. Overall, results show that student attitudes toward electronic portfolios are positive and that electronic portfolios are a valuable use of technology for pre-service teachers. Most majors indicated that they thought that having more advanced computer skills might benefit them when applying for teaching jobs. Although, feelings toward electronic portfolios were generally positive, attitudes toward *Director 8.5* were not as favorable. Possible reasons explaining these results are discussed and future research directions.

1. BACKGROUND

Various types of portfolios are used to gather data and facilitate learning. Research tends to agree that pre-service teacher's attitude toward portfolios are positively affected when they are explicitly taught the details of portfolio management and when they are required to create personal portfolios. Paulson, Paulson, & Meyer (1991) define portfolio as a purposeful collection of a student's work that exhibits the student's efforts, progress, and achievements in one or more areas. Further, they believe student participation is essential in the process of selecting content to be included in the portfolio, the criteria for selection, determining the criteria for assessment, and providing evidence of student self-reflection.

While exploring teachers' initial experiences with and questions about portfolio assessment, Kieffer and Faust (1993) found collection, selection, and reflection, the three most frequently mentioned topics that teachers identified in their attempts to understand the purpose of portfolios. The researchers argue that beyond the collection process, which tends to stagnate, the idea of a portfolio begins to crystallize when students compose reflections explaining their selection process in light of the particular audience and assigned purpose.

Students can become empowered learners by creating portfolios. By doing so, they can assume ownership and responsibility for learning in ways that few other instructional approaches allow.

Danielson and Abrutyn (1997) identify three portfolio types: display, working (process), and assessment. Display portfolios are used to document the varied activities students do within the classroom. This type usually only contains the student's best work. Working portfolios illustrate the process of learning new concepts and applying this gained understanding to new tasks. Included artifacts will show snapshots of the learner's typical, everyday performance (Meisels, Dichtelmiller, Dorman, and Marsden, 1997). The working portfolio is a better pedagogical tool than the display portfolio because it more informatively documents the learner's abilities.

Danielson and Abrutyn (1997) assert that the primary function of assessment portfolios is to document what a student has learned. Teacher comments are an essential component when evaluating the student's portfolio. Along with teacher comments, a carefully planned collection procedure is necessary so that teachers are not overwhelmed with meaningless or uninformative samples.

For the pre-service teacher, the working (process) portfolio best facilitates the individual's metacognitive sense of learning both in the moment and over time (Courts & McInerney, 1993). This process allows the learner to assemble and reassemble a multidimensional or multi-perspective representation of learning examples, (Spiro, Vispoel, Schmitz, Samarapungavan, & Boerger, 1987) and affording numerous opportunities for the learner to think flexibly and nonlinearly about how and to what degree learning and change occurred over time (Krause, 1996).

Many teacher-training programs are requiring pre-service teachers to create portfolios for their K-12 students in addition to creating personal and professional portfolios as degree requirements. As a corpus of student's work over time, many educators espouse it to be a more accurate indicator of student progress (Christie, Enz, & Vukelich, 1997; Valencia, 1990; Verkler, 2000). Copenhaver, Waggoner, Young, and James (1997, p. 103) believe that portfolios offer promising advantages for the pre-service teacher as well. They write, "...assembling a portfolio helps teacher education students wed theory and practice as they apply what they have learned about teaching to school-specific areas."

1.1. Technology

Two primary reasons for using technology are to make our daily activities easier and life more enriching. With ongoing advances in technology, teachers and teacher trainers are exploring ways to capitalize on the dynamic multimedia capabilities available from desktop computers. With current multimedia options available, the options for portfolio construction and assessment increase dynamically.

Multimedia programs have the potential to fully engage the learner through still images, text, audio, and video. In addition to the greater flexibility, they seem to have wide appeal. Barrett (1998) argues that "the use of multimedia can address different learning strategies at one time, stimulating all of the senses to form a complete learning experience; this can only be fully represented by an electronic portfolio."

A review of published articles revealed a paucity of research examining electronic portfolios. One study explored using electronic portfolios as an assessment tool to document student's learning in physical education using the MacHealth Related Fitness Tutorial (Mohnsen & Mendon, 1997). Another project by Lahm (2001) examined using technology to construct alternate portfolios of students with moderate and sever disabilities. In both studies, the researchers believed that electronic portfolios were effective instructional tools. A review of research across the last decade revealed no studies investigating the relationship between electronic portfolios and attitudes of pre-service music education majors.

1.2. Attitudes

Cutietta (1992) defines attitude as a psychological and perceptual construct underlying thought and behavior and must be measured indirectly by what one says or does. Research on attitudes often involves self-reports such as surveys, questionnaires, or opinionnaires (surveys for eliciting honest attitudinal opinions that can be stated without hard evidence), or methods of observing overt behaviors as a means of measurement.

Researchers have investigated several dimensions of attitude among pre-service teachers (Mumford, 1984; Ralph, 1999; Sim, 1998; Teicher, 1997), attitudes of in-service music teachers (Moore, 1993; Sparks, 1988; Volk, 1991), attitudes of classroom teachers toward incorporating music into their curricula (Goodman, 1986; Kelly, 1998; Saunders and Baker, 1991; Tarnowski, 1996), and attitudes of music students (Kuhn, 1980; Yarbrough, Price, & Bowers, 1991). General findings of these and other investigations agree that attitudes can be positively influenced by instruction.

2. AIM

The purpose of this exploratory effort is to determine how pre-service music education students feel about creating electronic portfolios. It seems clear that portfolios can be dynamic learning tools for teachers and students. Further, pre-service teachers must begin using portfolios early in the training process in order to provide them with the experimental and skills necessary to effectively use them in their own teaching. With personal computers available in most schools, many researchers and teachers are exploring how this technology can facilitate learning and instruction. The absence of empirical inquiry in the area of electronic portfolios and music instruction suggests a need for exploration.

3. METHOD

3.1. Participants

The participants in this pilot study were seven music education majors enrolled in an elementary methods course at a New England university.

3.2. Director 8.5

The Macromedia software program *Director 8.5 Shockwave Studio* was selected as the software to use for creating electronic portfolios. *Director 8.5* comes with a powerful authoring environment that enables the creator to produce compelling interactive experiences for the end user. Completed *Director* movies (files) can be saved onto CDs, DVDs, corporate intranets, and the Internet through the built-in program *Shockwave*. *Director 8.5* can support various image, text, audio, and video file formats.

3.4. Procedure

The semester before running this study, faculty chose the working portfolio type so that they and the students could see the evolution of the student's across time. The student outcomes were to create a working template of their professional portfolio. Template items are predetermined by the institution. Some required items include the National and State music standards a theme for the portfolio. Students would write accompanying reflections explaining why they chose the artifacts included and how these exemplify the portfolio's theme. Faculty would also write accompanying comments to the included items.

At the end of the semester, students presented their completed movies to the class and discussed future directions. On the final day of class, the students completed a researcher-created Likert-type survey. This 20-item survey measured student's attitudes. Students indicated their feelings about each statement on a 5-point continuum anchored by "strongly disagree" and "strongly agree." Students were told, "their responses are anonymous and will not affect their course grade.

4. RESULTS

The researcher used frequency counts to analyze the surveys. Table 1 shows the percentages of student's responses toward each statement. Overall, results of responses indicate students have positive feelings toward electronic portfolios. These results also indicate that student's believe electronic portfolios are valuable. Although global attitudes toward electronic portfolios seem positive, identifying students' attitudes to other statements are unclear.

Table 2 shows the percentages of students' attitude responses toward *Director 8.5*. Overall, data analysis indicates that attitudes toward this program are generally negative. Very few comments were given to support these responses. The comments that were available relayed student frustrations using the tutorials and the lack of clear applicability of the tutorials to music instruction and the development of a portfolio.

5. DISCUSSION

Findings suggest that pre-service majors believe that electronic portfolios are important and valuable. It seems clear that most students did not like using *Director 8.5*. Reasons cited include problems using the tutorials and lack of a hard copy of the tutorial available. The main challenge encountered related to following the tutorials.

The faculty expected these results due to the limited time of which students used this program and due to its complex nature. It is hoped that with more teaching experience and more time thinking about teaching, students will be better able to construct a portfolio that accurately represents who they are as music educators.

The faculty identified three possible solutions to the challenges encountered. The first is to provide a hard copy of the tutorial in the computer lab, so that students do not have to toggle between screens. The second is to design tutorials for the music educator. The third is to create a portfolio template for students to use as a guide. This would allow the students to focus on the content of the portfolio rather than struggle with the program.

Two future goals for improving the use of *Director 8.5* include scheduling periodic workshops on *Director* to improve student's facility and understanding of the program's capabilities. Second, to devote more class time to discuss the various types of portfolios and their application

Both faculty and students are excited by the educative possibilities available with electronic portfolios. The uses and application of electronic portfolios is extremely varied. The best use for a particular institution depends on several factors. Faculty considering using *Director 8.*5 might consider the following: the assessment process, the possible stakeholders, the institution's and state's licensure requirements, and the time needed to learn and teach this program.

Clearly, much more research is needed using electronic portfolios to train music teachers. Along with replication, future investigations might investigate principal's interest in reviewing prospective teacher portfolios during the interview process. If there is an interest, what are the attitudes of principals and other teaching hiring personnel toward applicants who present electronic over traditional portfolios?

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Table 1: Percentage of Attitude Responses Toward electronic Portfolios

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I believe portfolios are effective tools to require of pre-service teachers.	-	-	14.30%	71.40%	14.30%
2. I can create a portfolio that accurately represents who I am as a teacher.	-	-	42.90%	28.60%	28.60%
3. The idea of creating an electronic portfolio (EP) excites me.	-	14.30%	28.60%	42.90%	14.30%
4. I would prefer to create a conventional portfolio.	14.30%	57.10%	-	-	28.60%
5. I believe EP will be a national requirement of all future education students.	14.30%	-	42.90%	14.30%	28.60%
6. I am proud of my portfolio.	-	14.30%	57.10%	14.30%	14.30%
7. I was excited about creating the EP the moment I learn if this assignment.	14.30%	14.30%	28.60%	28.60%	14.30%
8. I have not thought about my EP since last semester.	-	42.90%	14.30%	14.30%	28.60%
9. EPs are better than conventional portfolios to take to job interviews.	-	28.60%	28.60%	42.90%	-
10. Having an EP will be valuable in the future.	-	-	28.60%	57.10%	14.30%
11. I do not believe I have spent sufficient time throughout the semester working on my EP.	-	14.30%	-	85.70%	-
12. I would work beyond course requirements on my EP to make a final product that I would be proud of.	-	-	-	71.40%	28.60%
13. Some other required classes could be restructured to allow more time for me to work on my EP.	-	14.30%	57.10%	14.30%	14.30%
14. I have not discussed my EP with anyone since last semester.	-	42.90%	-	28.60%	28.60%
15. During last semester, I often would use free time to work on my EP.	-	28.60%	57.10%	14.30%	-

Note. A dash (-) indicates no responses.

Table 2: Percentages of Attitude Responses Toward Director 8.5

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
16. Learning *Director* might be valuable in the future.	14.30%	-	42.90%	28.60%	14.30%
17. I believe demonstrating that I am comfortable with computers will help me secure a job.	-	14.30%	-	42.90%	42.90%
18. I have enjoyed using *Director* to create my EP.	28.60%	14.30%	14.30%	42.90%	-
19. I believe *Director* holds great potential for music educators.	14.30%	14.30%	57.10%	-	14.30%
20. I would not use *Director* if I knew another program that had the same capabilities.	-	-	42.90%	28.60%	28.60%

Note. A dash (-) indicates no responses.