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Final Project

“Portfolio Assessment in the Graduate School of Education:
Process, Validity, and Reliability”

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Portfolio Assessment

Educators everywhere must, at various times, assess students. At every grade, in every subject, teachers take measure of the learning of their students in order to make decisions about their teaching and the future direction for learning of their classes. With all forms of assessment, educators are searching for indicators of their students' learning, the efficacy of the curriculum with respect to standards, and ways in which they can improve the overall learning and development of their students. With increases both in class sizes and the amount of curriculum to cover and the need to make wise use of limited time and resources, the choice of assessment tools is critical. New research on learning and assessment has provided teachers with a variety of ways to view assessment and the role of the student in evaluation.

The assessment of students can take place in a number of ways. Paper and pencil tests, long the standard for classroom testing, can take on a number of forms. More often than not, multiple choice, true-false, and short answer tests often represent the most economical and expedient choice for assessing the attainment of learning targets. The strength of these tools lies in their structure and generalizability to other areas. Properly constructed tests can provide valid and reliable measures to be used by decision makers.

Other forms of assessment rely on the students' performance on tasks that are given by the teacher. Teachers assign tasks and then, using criteria outlined in a rubric, assess the students' performance on the task. This type of assessment has the advantage of giving the student situations in which to demonstrate both skills and cognition in a particular domain.

Increasingly, teachers are using authentic and alternate forms of assessment in which the learner has a more active role in the assessment process. Nitko (2001) suggests that the benefit of these types of authentic or performance assessments is that they provide students with the chance to apply their learning to specific realistic situations.

Portfolio assessment is gaining acceptance in a wide range of educational settings. Where once the term portfolio evoked images of artists and large leather cases holding drawings and works of art, portfolios today have come to mean a collection of products, generally produced by the student, which, together, represent an integrated view of the student's learning. The works contained in a portfolio are selected to illustrate examples of the student's work or progress in a domain. The use of the portfolio as an assessment tool represents a shift from, and perhaps a reaction to, standardized testing. These types of assessment are more concerned with providing teachers with ranking of students against national or state norms or criteria. Portfolios are not as much concerned with grading students as with assessing learning (Barton & Collins, 1997).

This paper seeks to analyze an implementation of the portfolio assessment process at George Mason University. The portfolio assessments will be described in the context of both traditional paper and binder portfolios as well as electronically published portfolios.

Nitko (2001) defines portfolios as "a limited collection of a student's work". Rather than a collection of everything that a student has produced, it is a representative sample of the types of work which illustrate a student's attainment of learning targets or growth over time. The uses of portfolios as an assessment tool are varied, depending on the learning goal, but there are two main types of portfolios in assessment - best work portfolios and learning and growth portfolios. Best work portfolios are those which showcase (literally, at times) a student's best work. Learning and growth portfolios are designed to be works in progress over the duration of a student's studies. Portfolios often serve a dual purpose. Barton and Collins (1997) illustrate how educational portfolios borrow attributes from art and finance portfolios. Where the artist's portfolio will contain his or her best works, and the financier's contain an ongoing record of

transactions, an educational portfolio takes elements from both. Educational portfolios, then, can demonstrate a student's best work while showing progress and integrative thinking over time.

The process involved in developing a portfolio for assessment varies according to the learning goals to be addressed and the purposes of the assessment. Common to most, however, is the following:

1. The learning goals to be assessed are articulated.
2. The student collects all products.
3. The student selects those artifacts which provide evidence of accomplishing the major learning targets.
4. The student adds a review or reflection on each item or on the portfolio as a whole.
5. The portfolio is assembled.
6. The student and teacher(s) meet to review the portfolio and provide the assessment.

Unlike many traditional forms of assessment, the act of creating the portfolio is a part of the learning process. In selecting items to be included in the portfolio, the student critically examines all possible products which could be included. On the basis of an items' relevance to the learning goals to be assessed, or following direction from the teacher, artifacts are selected. Nitko (2001) suggests that as students get older they can assume more responsibility for selecting items which will comprise the portfolio. The process of selection affords the student the opportunity to review and reflect on the work of a semester or course of study, a metacognitive exercise which reinforces their learning.

A critical component of the portfolio as an assessment tool is the reflective nature of the process. A normal practice when using portfolios is to have the student provide an explanation and rationale for the inclusion of the various items. This part of the reflective process reinforces the learning and understanding. The very act of gathering and choosing artifacts for inclusion

gives the student the opportunity to reflect on the learning targets set by the teacher.

After the student has selected all of the material to be included in the portfolio, he must compile it in such a way as to illustrate his growth and learning. The organization of a number of artifacts to represent learning growth over time allows both the teacher and the student to make connections among the various subjects/courses the student has taken. From these connections, the student is positioned to integrate and, perhaps more importantly, articulate a perception of his or her learning into a whole.

Once the portfolio is complete, it is submitted for review and evaluation. In some cases, the portfolio is presented to the instructor and the process includes a dialogue between the instructor and the student. The student presents the portfolio and gives explanations for its parts. The instructor (or committee in some cases) may then question the student to elicit verbal evidence of the student's learning. Feedback and guidance are given to the student if deficiencies are noted. Portfolios help teachers negotiate the conflict between the role of supportive, welcoming helper and the role of critical, skeptical, evaluator (Elbow and Belanoff, 1997). Teachers can also take this opportunity to obtain feedback on their own teaching. A review of the portfolio provides the teacher and student the opportunity to discuss the connections.

In recent years, the portfolio creation and presentation process has been adapted to electronic media. With the advent of web publishing and advances and accessibility of digital media tools, many portfolios are now being created electronically and published on the web. Rather than simply replicate the paper and binder version of the traditional portfolio, the electronically published portfolio has a number of advantages. Among other things, publishing electronically makes the portfolio available to potential evaluators or employers at any time. The electronic portfolio is well suited to modifications and additions as the student moves through a program. Additionally, portfolios published on the web can provide links to sites containing

background and supporting information to better illustrate the student's work.

The web-based or electronic portfolio also allows the student to include other types of media such as graphics, animations, sound, and video. These further enhance the functionality of the tool and provide the student with greater flexibility in deciding the products to include. Using a multimedia format also allows for interactive evidence to be included (Thomas, Lamson, & King, 2001)

One other critical benefit of an electronic portfolio is that the creator of the work can create links between and among the various artifacts. These links can serve to illustrate the integrative nature of the learning that has occurred. One of the most alluring aspects of hypertext is the ability to imitate the associative connections natural to the workings of the human brain (Fischer, 1997). Simulating the way in which we organize and retrieve information in our minds, the electronic portfolio links related 'chunks' of information together. This allows the student to produce a portfolio unfettered by the linearity of print media. The portfolio can be organized to support and promote connections to its various parts and presented in such a way as to allow, even encourage, the reader to follow connections. The student's organization of the portfolio, then, becomes a metacognitive exercise for the student. Nitko (2001) warns, though, that self-reflection is a mental activity and the assessment of that activity must be indirect.

The results of portfolio assessments can be valid and meaningful for teachers who wish to assess the attainment of concepts and skills. For graduate school students, the goals of assessment take on a different aspect. While there are skills and concepts to be mastered, the emphasis is on reflection and analysis of the learning process. Many graduate schools - whether by their own design or through mandates for accreditation - have adopted the portfolio as a form of assessment for their licensure candidates.

In the late 1990's, George Mason University began to offer students the option of creating a learning and growth portfolio in lieu of the traditional comprehensive examination. This comprehensive examination was administered at the conclusion of a student's coursework and used to assess the candidate's body of knowledge in a field. The results of this examination were used to advanced the student to candidacy in the Ph.D. program. There were those, however, who felt that a multi-hour comprehensive written examination was an artificial determinator of learning experiences because the conditions of the exam were unlike how people usually work in the field (Heiges, 1997).

It is now a requirement for all Ph.D. students at George Mason's Graduate School of Education to create and maintain a portfolio to illustrate and present their learning and growth. The guidelines provided to students are as follows (Graduate School of Education, 1997):

The Ph.D. in Education Portfolio is an organized, yet selective collection of documents designed to facilitate a student's academic and professional development and to provide a basis for evaluating degree progress. The portfolio represents the scope and depth of a student's goals, plans, and accomplishments in coursework, independent study, research, internships, and other advanced learning activities. The portfolio thus provides both a vehicle for self-reflection and a comprehensive record of a doctoral student's experiences and ongoing progress toward his or her academic and professional goals.

Drawing on the benefits of portfolio assessments described earlier, the Ph.D. portfolio represents the the student's growth and development throughout their coursework. The individual artifacts are not assessed in and of themselves. These items have been assessed and graded within the individual courses for which they have been produced. Rather, the assessment of the portfolio for the doctoral student focuses on the cumulative nature of the products. The

whole of the portfolio is taken as a representation of the student's integrated learning over their program. The portfolio is developed to show how the student sees the integration of his or her coursework and its relation to Ph.D. candidacy.

The Ph. D. student at George Mason University is involved in three portfolio reviews prior to advancement to candidacy. The first two reviews are scheduled after 15 and 30 credit hours have been taken. (or, at the 4th and 7th semesters of study, whichever comes first). The first and second portfolio reviews are designed to be face-to-face meetings with the student's doctoral advising committee. This committee is usually made up of faculty members who share a background in the content or research area in which the student plans to study.

The periodic portfolio reviews are an opportunity for the student to share his portfolio and thus his view of his place in the Ph. D. program. The committee reviews the student's goals, plans, and accomplishments, and discusses possible modifications and additional work needed to proceed in the doctoral program.

During the final portfolio review, the focus shifts from academic and professional development to formal evaluation. The purpose of the final review is to assess the student's readiness to proceed to the dissertation phase of the program. At the conclusion of the review, the student is asked to leave and the committee discusses the student's progress and consensus is reached on one of three possible outcomes (Graduate School of Education, 1997):

1. Student has demonstrated readiness to proceed to the dissertation phase of the program (non-binding recommendations for modifications or additional work may be specified)
2. Student may proceed to the dissertation phase of the program when required actions are completed; a second meeting is not required
3. A second comprehensive assessment meeting will be scheduled when required actions are completed.

The Graduate School of Education, on its web site, provides a sample table of contents listing the required elements of the portfolio.

Inasmuch as the portfolio for Ph.D. students is ultimately used to advance students to candidacy for their degree, the validity and reliability of the results of the portfolio review must be taken into consideration. The portfolio assessment takes the place of the traditional comprehensive exams and, to the degree possible, the outcome should be shown to have some correlation both to the assessment that it replaces and to the candidate's success once they have advanced to that stage. While a sound validity argument is relevant to any assessment purpose, it is crucial when decisions or actions based on the assessment have significant consequences for candidates (Moss 1998). Given the high stakes nature of the comprehensive review of the Ph.D. portfolio, it is appropriate that we consider the use of portfolio assessments in light of their validity and reliability. Nitko (2001) lists eight types of validity evidence for educational assessments. Each of the eight types of validity evidence and their influence on the portfolio are discussed here:

1. Content Evidence

Content validity refers to the degree to which the assessment tool represents the domain of important content. In this area, the results of a portfolio assessment fare well due to the fact that, by its very nature, the tool must represent the content. The portfolio that is created by the student is based upon his or her unique goals in the Ph.D. program. These goals are the result of working with the advisor in the program. Thus, the students' selection of artifacts is based wholly on their own accomplishments and goals. Since this is unique to each individual student, there can be no question as to the validity of the content which is represented. It would be unrealistic to compare the portfolio contents, in terms of representativeness, with other students' collections because of the unique nature of the program of study. Therefore, we must compare

the student's portfolio with the committee's notion of the content which represents the whole of the student's experience.

What remains to be judged, then, is the reflective portion of the portfolio. This area, showing the candidate's thinking and reflection on his or her coursework and how it integrates together, is critical to the assessment process. The reflections included in the portfolio show the review committee the depth of the student's understanding of how the coursework is integrated together to form a whole. The products included in the portfolio have been assessed by the individual professors in classes. What remains to be assessed is how the student integrates all of the learning together to show their understanding of their unique program.

2. Substantive Evidence

The portfolio process at George Mason is heavily dependent upon thinking processes and skills. From the moment the Ph.D. student begins work on a portfolio, these thinking skills come into play. The student must, from a collection of all of their work, evaluate those products which should and should not be included in the portfolio. This critical analysis of artifacts forces the student to judge the appropriateness of the artifact in terms of his or her own learning goals as well as the goals of the program. Once items are selected for inclusion in the student's portfolio, the student creates a reflection on those artifacts. The purpose of the reflection is twofold. First, the student reflects on the meaning of the individual product itself - what the product or artifact taught the student in the class, the processes involved in creating the artifact, and the degree to which the artifact represents the attainment of a learning goal for that class. Second, the student must 'place' the artifact in relation to their entire program - How does this product 'fit' with the larger goals of the Ph.D. program? How does this piece interact with products from other classes to create knowledge of a larger scope? Thinking skills are further evidenced during the portfolio review process in that the student must develop an argument for

the inclusion of the particular products they have chosen.

The portfolio evaluation in place at George Mason University not only necessitates the use of the types of thinking skills that demonstrate the use of the types of thinking skills required for advancement to candidacy, they also give evidence to the types of thinking skills the candidate will use in further study and professional life. The results of a portfolio review are thus validated by this characteristic.

3. Internal Structure Evidence

As described earlier in this paper, the complete portfolio creation and review process involves a number of steps. While the product is reviewed and assessed holistically, the individual tasks leading to the whole are critical to the assessment process.

The portfolio review and assessment process can be broken down into three distinct parts: (a) the process of selecting artifacts for inclusion, (b) organizing the entries and, (c) reflection on the items specifically and the portfolio and process as a whole. Individually, these processes influence the validity of using the results of the portfolio review. The raters of the portfolio, typically the members of the student's program committee, must be aware of the processes involved in portfolio development and their final evaluation must be based upon their assessment of those parts.

4. External Structure Evidence

The validity of any assessment relies on how well the results of the assessment correlate with other variables or criteria (Nitko, 2001). The types of evidence of correlation depend on the interpretation and use of the assessment. In the case of the portfolio assessment as a condition of advancement to candidacy, we would expect there to be a positive correlation between the results of the portfolio review process and successful completion of the Ph.D. program. Nitko allows for hypothesizing about the relationships of portfolio results to external criteria on the

basis of experience and logical analysis.

The results of the portfolio review process are related to predictive validity evidence (Nitko, 2001). The future performance of the Ph.D. student should be evident in the results of the review. In many ways, the results of the view point to concurrent validity evidence, or the current position of the student in terms of his preparation for advancement.

5. Reliability Evidence

Reliability, or the consistency of assessment results over time or between raters, is necessary to insure validity of an evaluative instrument. Most significant in the portfolio review process is inter-rater reliability. When scorers have only one sample of something, created under certain conditions, they have a much easier time agreeing with each other than when they score the mixture of pieces in a portfolio (Elbow and Belanoff, 1997).

Elbow and Belanoff (1997) suggest that one way to alleviate the conflicting views between raters of a portfolio is not to attempt to critically score all of the portfolios. Since most raters will agree on those portfolios that do not meet advancement criteria and, similarly, most will agree on those that are superior, they suggest that the best and the worst portfolios should be scored and not the remainder. In fact, they argue, if the assessment is to be used as an exit or placement test, only the poor portfolios need to be identified. They call this process minimal or limited holistic scoring. While this seems heretical at first read, it makes sense. There is no gradation in the scores or placement of the Ph.D. students when they advance to candidacy at George Mason. They either advance, or not. The time and effort required to give scores or ratings to all student's portfolios can be regained by providing interaction opportunities to students. This is not to suggest that those students whose portfolios fall somewhere between excellent and unsatisfactory are not to benefit from feedback or interaction with their committee. On the contrary, once the portfolio is accepted as meeting the requirements, the student and the

committee are able to concentrate on a deeper analysis of the portfolio's contents and the student's understanding. Raters using minimal holistic scoring are less concerned with scores than with differences found within the portfolio and can concentrate comments and feedback on them (Elbow & Belanoff, 1997). Inasmuch as the GMU portfolio review process does not provide students with a score, this minimal holistic scoring system appears to be supported.

6. Generalization Evidence

Using portfolios as an assessment tool necessitates that the rater as well as the student be aware of a number of factors which may alter a rater's scoring of the portfolio. Among these, Nitko (2001) lists the sophistication of the students. While this generally refers to the degree that the students are "test-wise" or have good test-taking strategies, in the case of the electronic portfolio it could suggest a difference in the technical abilities of the student to produce web-based portfolios that are technically sophisticated yet no more relevant (in terms of content, reflections, and integrated thinking) than a student who creates a simple web site. Indeed, students who put more effort into making the portfolio attractive at the expense of its representativeness, might stand to influence the rater's decisions. This is referred to as a "Halo effect". Halo effect, according to Nitko (2001) refers to the influence one characteristic of a person (such as general impressions of a student) on another characteristic. The validity issue here, obviously, is that the raters must guard against rating one portfolio higher than another simply because of its appearance or construction.

7. Consequential Evidence

The use of the portfolio review process implemented in the Graduate School of Education has a number of consequences. Clearly, the major consequence is that a prospective Ph. D. student is either advance to candidacy or denied that rank. The benefits, though, of this use of the portfolio results is that all students - those who advance and those who do not - are given the

opportunity to interact with the members of the advisory committee and receive constructive feedback about any deficiencies that are noted.

8. Practicality Evidence

Certainly, a paper and binder portfolio assessment tool does not impact greatly on the budget of George Mason University. The factors involved here would include the time of the members of the committee spent on the review process and the cost to the university of hosting the electronic portfolios on servers. The latter cost is not one to be ignored. With new software and techniques available to facilitate the creation of web-based portfolios and the increasing numbers of students taking advantage of the resources offered (albeit grudgingly) by the university, there are economic concerns with electronic portfolios. However, the benefits of the assessment tool outweigh the potential expense of providing storage space.

The software needed to create an electronic portfolio is easily obtained and, more often than not, very inexpensive or free. The tools available also do not require a great deal of investment in time or money for training. With very little technical knowledge a person can produce a very acceptable web page with Netscape Composer (Aschermann, 1999). Netscape Composer is free and is generally installed on most university computers.

A number of teachers and students are reluctant to use portfolios for assessing learning. Many teachers may employ a portfolio assessment process but, because of its complexity may use it incorrectly (Nitko, 2001). This is a practicality issue that may or may not influence validity. Obviously, teachers and students who wish to employ portfolios as part of the assessment process should obtain training and experiences in doing so.

Teachers concerned more with a 'bottom-line' score with which to place students on a linear scale with respect to peers may not see the benefits of assessment by portfolio. The tool

simply does not lend itself well to the kind of rankings afforded by standardized testing.

However, teachers interested in gauging the integrated learning of their students would find that the portfolio assessment fits their needs.

The Graduate School of Education at George Mason University recognizes the value of the portfolio as a tool to assess the learning, growth, and direction of doctoral students. The process by which the portfolio is reviewed gives the student and the student's committee the opportunity to interact with each other and the portfolio. This negotiated learning is a critical component of the process. Without it, the portfolio reverts to being simply a collection of artifacts. It becomes inert knowledge. However, when judgments emerge from a thoughtful process grounded in a multifaceted body of evidence and multiple points of view, they are more likely to be valid and lead to continuing improvement rather than just a stamp of approval or disapproval (Kimball & Haley, 1998). This, then, is the basis for the portfolio process at George Mason.

I have had the opportunity on a number of occasions to participate in the portfolio assessment process. First, as a student, I found that I was in the unfamiliar position of being asked to personally assess the work that I had completed and to discuss my view of how my work served to inform my practice as an educator as an administrator. I confess that my first foray into the world of creating a portfolio was less than illuminating - either for myself or my instructors! I soon became aware, however, of the goals of self-reflection and assessment and approached the task each semester with greater motivation and interest. Now that I find myself in the doctoral program at George Mason University, I am again involved in the development of my required portfolio. I view it now, however, with anticipation rather than trepidation. As a student, I now look forward to being able to collect my thoughts and products and organize them in such a way as to represent me and my way of viewing my learning and my practice.

As a faculty member at George Mason University, I have been able to participate in the review of students' portfolios. Here, too, despite my experiences as a student, I found it somewhat disconcerting to assess a semester of work on the basis of the binders handed to me. In reading my students' reflections and discussing their meaning (with the students themselves and another faculty member with whom I taught), I came to see from the instructors point of view, the benefit of this type of tool. It not only informed me of the student's learning, but also served to inform me of my own teaching as well.

As an alternative to a traditional paper and pencil examination, a portfolio gives the student the means to be more of a participant in their learning and assessment. The task of creating and presenting a portfolio of learning involves the student in a rich process of self-reflection and analysis of not only what they have learned, but how the learning goals are related and how they promote success in future studies.

There are those who reject the notion that this form of assessment on the basis of it's seemingly informal and unique form. However, when care is taken to address the issues involved with portfolio assessment, the tool can be used validly and reliably in many areas of instructional assessment.

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