

Assessment for Learning: Reconsidering Portfolios and Research Evidence

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Only if we expand and reformulate our view of what counts as human intellect will we be able to devise more appropriate ways of assessing it and more effective ways of educating it.

Howard Gardner

Introduction

Since the late 1980's, public education in North America has been shifting to a standards or outcomes based and performance oriented systems. Within such systems, the most basic purpose of all education is student learning, and the primary purpose of all assessment is to support that learning in some fashion. The assessment reform that began in the 1980's in North America has had numerous impacts. Most significantly, it has changed the way educators think about students' capabilities, the nature of learning, the nature of quality in learning, as well as what can serve as evidence of learning in terms of classroom assessment, teacher assessment and large-scale assessment. In this context, the use of portfolios as a mode of assessment has gained a lot of interest. This chapter will explore the role of assessment in learning and the role portfolios might play. Research evidence of the qualities of portfolios for enhancing student learning is presented and discussed.

The Role of Assessment in Learning

Learning occurs when students are, "thinking, problem-solving, constructing, transforming, investigating, creating, analyzing, making choices, organizing, deciding, explaining, talking and communicating, sharing, representing, predicting, interpreting, assessing, reflecting, taking responsibility, exploring, asking, answering, recording, gaining new knowledge, and applying that knowledge to new situations." (Cameron et al. 1998, p 6) The primary purpose of student assessment is to support this learning. Learning is not possible without thoughtful use of quality assessment information by learners. This is reflected in Dewey's (1933) "learning loop," Lewin's (1952) "reflective spiral," Schön's (1983) "reflective practitioner," Senge's (1990) "reflective

feedback,” and Wiggin’s (1993) “feedback loop.” Education (K-12 and higher education) tends to hold both students and teachers responsible for learning. Yet, if students are to learn and develop into life long, independent, self-directed learners they need to be included in the assessment process so the ‘learning loop’ is complete. Reflection and assessment are essential for learning. In this respect, the concept of assessment for learning as opposed to assessment of learning, has emerged.

For optimum learning to occur students need to be involved in the classroom assessment process. When students are involved in the assessment process they are motivated to learn. This appears to be connected to choice and the resulting ownership. When students are involved in the assessment process they learn how to think about their learning and how to self-assess – key aspects of meta-cognition. Learners construct their own understandings therefore, learning how to learn - becoming an independent, self-directed, life long learner - involves learning how to assess and learning to use assessment information and insights to adjust learning behaviors and improve performance.

Students’ sense of quality in performance and expectations of their own performance are increased as a result of their engagement in the assessment process. When students are involved in their learning and assessment they have opportunities to share their learning with others whose opinions they care about. An audience gives purpose and creates a sense of responsibility for the learning which increases the authenticity of the task (Gregory et al, 2001; Sizer, 1996; Davies et al, 1992). Students can create more comprehensive collections of evidence to demonstrate their learning because they know and can represent what they’ve learned in various ways to serve various purposes. This involves gathering evidence of learning from a variety of sources over time and looking for patterns and trends.

The validity and reliability of classroom assessment is increased when students are involved in collecting evidence of learning. The collections are more likely to be more complete and comprehensive than if teachers alone collect evidence of learning. Additionally, this increases the potential for instructionally relevant insights into learning. Teachers employ a range of methods to collect evidence of student learning over time. When evidence is collected from three different sources over time, trends and patterns can become apparent. This process has a history of use in the social sciences and is called *triangulation* (Lincoln and Guba 1984). As students learn, evidence of learning is created. One source of evidence are products such as tests, assignments, students’ writings, projects, notebooks, constructions, images, demonstrations, as well as photographs, video, and audiotapes. They offer evidence of students’ performances of various kinds across various

subject areas. Observing the process of learning includes observation notes regarding hands-on, minds-on learning activities as well as learning journals. Talking with students about their learning includes conferences, written self assessments, and interviews. Collecting products, observing the process of learning, and talking with students provides a considerable range of evidence over time

Taking these critical success factors of learning into account, portfolio as a mode of assessment poses unique challenges.

Portfolio and its characteristics

Gillespie et al (1996) offers the following definition: “Portfolio assessment is a purposeful, multidimensional process of collecting evidence that illustrates a student’s accomplishments, efforts, and progress (utilizing a variety of authentic evidence) over time.” (p. 487) In fact, portfolios are so purposive that everything that defines a portfolio system: What is collected; Who collects it; How it is collected; Who looks at it; How they look at it; and What they do with what they see are all determined first by the purpose for the portfolio.

Consider, for example, a portfolio with which one will seek employment. While there must be no duplicity in the evidence presented, it would seem perfectly acceptable, even expected, that the candidates will present themselves in the best possible light. What is most likely to find its way into such a portfolio is a finished product – and often the best product at that. On the other hand, consider a portfolio with which a student reveals to a trusted teacher a completely balanced appraisal of his or her learning: strengths, certainly, but also weaknesses as well as the kinds of processes the learner uses to produce his or her work. This portfolio is likely to have a number of incomplete efforts, some missteps, and some product that reveals current learning needs. This is not the sort of portfolio with which one would be comfortable seeking employment. The point is a simple one: while they appear similar in many respects, portfolios are above all else purposive and everything about them derives from their desired purpose. This is why some frank discussion about purpose at the outset of developing a portfolio system is essential. Often, when teachers feel blocked about some decision about their portfolio process, the answer is apparent upon remembering their purpose.

There is no one or best specific purpose for portfolios. Portfolios can be used to show growth over time (e.g. Politano, 1997; Tierney et al, 1991; Elbow, 1986), to provide assessment information that

guides instructional decision-making (e.g., Arter & Spandel, 1992; LeMahieu & Eresh, 1996a; Gillespie et al, 1996), to show progress towards curriculum standards (e.g. Sadler, 1989a; Gipps 1994; Biggs, 1995; Frederiksen & Collins, 1989), to show the journey of learning including process and products over time (e.g. Costa & Kallick, 2000; Gillespie et al, 1996) as well as used to gather quantitative information for the purposes of assessment outside the classroom (e.g. Anson & Brown, 1991; Fritz, 2001; Millman, 1997; Willis, 2000). The strengths of portfolios is that of range and comprehensiveness of evidence, variety and flexibility in addressing purpose (Julius, 2000).

Portfolios are used successfully in different ways in different classrooms. Portfolios are generally defined in the literature in terms of their contents and purpose - an overview of effort, progress or performance in one or several subjects (e.g. Arter & Spandel, 1992; Herman et al., 1992; Gillespie et al, 1996). There are numerous examples of student portfolios developed to show learning to specific audiences in different areas. They are being used in early childhood classes (e.g. Smith, 2000; Potter, 1999), with students who have special needs (e.g. Law & Eckes, 1995; Richter, 1997), and in elementary classrooms for Science (e.g. Valdez, 2001) for writing (Manning, 2000; Howard & LeMahieu, 1995), and mathematics (Kuh, 1994). Portfolios in high schools were used initially in performance-based disciplines such as fine arts, then in writing classes, and have now expanded to be used across many disciplines such as science education (e.g. Reese, 1999), academic and beyond (e.g. Konet, 2001), chemistry classes (e.g. Weaver, 1998), English classes (e.g. Gillespie, 1996), and music education (e.g. Durth, 2000). There is a growing body of research related to electronic portfolios (e.g. Quesadad, 2000, Carney, 2001; Young, 2001; Yancey & Weiser, 1997). Portfolios are also being used in teacher-education programs and in higher education more broadly (e.g. Klenowski, 2000; Kinchin, 2001; McLaughlin & Vogt, 1996; Schonberger, 2000).

There is a range of evidence students can collect. Also, since there are different ways for students to show what they know, the assessment information collected can legitimately differ from student to student (see for example Anthony et al, 1991; Gardner & Boix-Mansilla, 1994). Collecting the same information from all students may not be fair and equitable because students show what they know in different ways (e.g. Gardner, 1984; Lazear, 1994). When this assessment information about learning is used to adjust instruction, further learning is supported. Evidence of learning will also vary depending on how students represent their learning. Portfolios uniquely provide for this range of expression of learning. When they are carefully developed, they do so with evidence that can be of considerable technical quality and rigor.

From an assessment perspective, portfolios provide at least four potential “values-added” to more traditional means of generating evidence of learning: 1) they are extensive over time and therefore reveal growth and development over time (however simply or subtly the growth may be defined); 2) they allow for more sustained engagement and therefore permit the examination of sustained effort and deeper performance; 3) to the extent that choice is involved in the selection of content (both teacher and most especially student choice), then portfolios reveal students’ understandings about and dispositions towards learning (including the unique special purposes that portfolios might address and their consequent selection guidelines); and 4) they offer the opportunity for students to interact with and reflect upon their own work. It is important to note that for portfolios to realize their potential as evidentiary bases for instructional decision-making, then particular attention must be given to some one (or all) of these four “values-added.” Not only should they serve as the focus for generating evidence uniquely beneficial to portfolios, but care must be taken in the construction and application of evaluative frameworks such that rigor and discipline attends the generation of data relevant to some one or all of these points.

Allowing for a range of evidence encourages students to represent what they know in a variety of ways and gives teachers a way to fairly and more completely assess the learning. Collecting information over time provides a more comprehensive picture. For example, Elbow and Belanoff (1991) stated, “We cannot get a trustworthy picture of a student’s writing proficiency unless we look at several samples produced on several days in several modes or genres” (p. 5). Portfolios may contain writing samples, pictures, images, video or audiotapes, work samples – different formats of evidence that helps an identified audience understand the student’s accomplishments as a learner.

There are numerous ways students are involved in communicating evidence of learning as presented in portfolios. Some examples: Portfolios complement emerging reporting systems such as student, parent, teacher conferences (Davies et al, 1992; Davies, 2000; Gregory et al, 2001; Macdonald, 1982; Wong-Kam et al, 2001). Sometimes students and parents meet at school or at home to review evidence of learning often organized into portfolios to show growth or learning over time (Davies et al, 1992; Howard and LeMahieu, 1996). Other times portfolios are used in more formal conference settings or exhibitions where students present evidence of learning and answer questions from a panel of community members, parents, and peers (Stiggins and Davies, 1996; Stiggins, 1996, 2001). Exhibitions are part of the graduation requirements in schools belonging to the Coalition of Essential Schools (Sizer, 1996). Sometimes students meet with teachers to present their learning

and the conversation is between teacher and student in relation to the course goals (Elbow, 1986). This format appears more appropriate for older high school students and for graduate and undergraduate courses. In a few instances, portfolios have been developed (including student choice in their assembly) for evaluation and public accounting of the performance of a program, a school, or a district. (LeMahieu, Eresh & Wallace, 1992b; LeMahieu, Gitomer & Eresh, 1995a) This approach, when defined as an active process of inquiry on the part of a concerned community transforms accountability from a passive enterprise in which the audience is “fed” summary judgments about performance to an active process of coming to inspect evidence and determine personal views about the adequacy of performance and (even more important) recommending how best to improve it (LeMahieu, 1996b; Earl & LeMahieu, 1997a). All of these ways of communicating have one thing in common – the student is either present or actively represented and involved in presenting a range of evidence of learning. The teacher assists by providing information regarding criteria and evidence of quality. Sometimes this is done through using a continuum of development that describes learning over time using samples from large-scale portfolio or work sample assessments. These samples provide a reference point for conversation about student development and achievement. Teachers use samples of work that represent levels of quality to show parents where the student is in relation to the expected standard. This helps respond to the question many parents ask, “How is my child doing compared to the other students?” These kinds of conferences involve parents and community members as participants in understanding the evidence and in ‘reporting’ on the child’s strengths, areas needing improvement and the setting of goals. This kind of “verbal report card” involves students, parents, and the teacher in a face-to-face conversation supported with evidence.

Portfolios and their qualities

The reliability and validity issue

When portfolios are used for large-scale assessment, concerns around their reliability and validity are expressed. For example, Benoit & Yang (1996), after using portfolios for assessment at the district level, recommend clear uniform content selection and judgment guidelines because of the need for greater inter-rater reliability and validity. Berryman & Russell (2001) indicates a similar concern for ensuring reliability and validity when he reports the Kentucky statewide rate for scoring the portfolios is 75% for exact agreement their school scoring has “86% exact agreement.” Resnick & Resnick, (1993) reported that while teachers refined rubrics and received training, it was a challenge to obtain reliability between scorers. Inter-rater reliability of portfolio work samples

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continues to be a concern (e.g. Chan, 2000; Willis, 2000; Fritz, 2001). Fritz (2001; p. 32) “The evaluation and classification of results is not simply a matter of right and wrong answers, but of inter-rater reliability, of levels of skill and ability in a myriad of areas as evidenced by text quality and scored by different people, a difficult task at best.” Clear criteria and anchor papers assist the process. Experience seems to improve inter-rater reliability (White, 1995; 1994b; Broad, 1994; Condon & Hamp-Lyon, 1994).

DeVoge (2000), whose dissertation examined the measurement quality of portfolios, notes that standardization of product and process led to acceptable levels of inter-rater reliability. Concerns regarding portfolios being used for gathering information across classrooms within schools, districts, and provinces/states are expressed particularly in regard to large scale portfolio assessment projects such as Kentucky and Vermont’s statewide portfolio programs and Pittsburgh Public Schools (LeMahieu, Gitomer & Eresch, 1995a). Some researchers express concerns regarding reliability (e.g. Calfee & Freedman, 1997; Callahan, 1995; Gearhart, Herman, Baker & Witaker, 1993; Koretz, Stecher, & Deibert, 1992) while others point out the absence of certain controls as would give confidence even as to whose work is represented in the collected portfolio (Baron, 1983). Novak, Herman, Gearhart (1996) note that the difficulties stem from “variations among the project portfolios models, models that differ in their specifications for contents, for rubrics, and for methods for applying the rubrics.” (p. 6) Novak, Herman, Gearhart (1996) examined techniques for assessing student writing. Raters were asked to score collections of elementary student narratives using holistic scales from two rubrics. Comparisons were based on three methods and results were mixed. One rubric gave good evidence of reliability and developmental validity. They sum up by noting that “if appropriate cut points are set then reasonably consistent decisions can be made regarding the mastery/non-mastery of the narrative writing competency of third grade students using any rubric-assessment combinations with one exception” (p. 30).

Fritz (2001) names eight studies where researchers are seeing continued improvement in the quality of the data from portfolio assessments. (p. 28) Fritz (2001) studied the level of involvement in the Vermont Mathematics Portfolio assessment in Grade 4 classrooms. In particular she was interested in whether involvement in the scoring process led to improved mathematics instruction. She explains that the student portfolio system requires a stratified random sample of mathematics that is centrally scored using rubrics developed in Vermont. The portfolio pieces are submitted on alternate years. In 1996 87% of schools that have Grade 4 students submitted mathematics portfolios. In 1996 teachers at 91 of 350 schools scored mathematics portfolios. She notes that the Vermont

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procedures have been closely examined with a view to improving the scoring (Koretz, Stecher, Klein, McCaffrey, & Deilbert, 1993). Current procedures are similar to those used in the New Standards Project (Resnick & Resnick, 1993). Individual teachers score student work. Up to 15% of the papers are double scored and those papers are compared to each other to check for consistency between scorers.

Researchers reporting good levels of reliability in scoring performance assessments include Arter et al, 1995; Gearhart, Herman & Novak, 1994; LeMahieu, Gitomer & Eresh, 1995). Herman (1996) summarizes the issues relating to validity and reliability. She explains that while challenging, “assuring the reliability of scoring is an area of relative technical strength in performance assessment” (p. 13). Raters can be trained to score open-ended responses consistently. For example, Herman (1996) reports the Iowa Tests of Basic Skills direct writing assessment demonstrates it is possible to achieve high levels of agreement with highly trained professional raters and tightly controlled scoring conditions (Herman cites Hoover & Bray, 1995). She goes on to note that portfolio collections are more complex and this multiplies the difficulty of ensuring reliability. LeMahieu, Gitomer and Eresh report reliabilities ranging from .75 to .87 and inter-rater agreement rates ranging from 87% to 98% for a portfolio system developed in a large urban school district. They go on to document the steps taken to ensure these levels of reliability. (LeMahieu, Gitomer & Eresh, 1995a, 1995b) These included involving teachers in the inductive process that developed and refined the assessment frameworks (including rubrics) and drawing upon such development partners as model scorers; extensive training for all scorers (development partners as well as new scorers) that includes observation of critical reviews of student work by model scorers, training to an acceptable level of criterion performance for all scorers, using benchmark portfolios that are carefully selected as part of the development process to illustrate both the nature of performance at various levels as well as some of the more common issues in the appraisal of student work; and constant accommodation processes during the scoring with adjudication of discrepant score as needed.

Despite the positive research results concerning inter-rater reliability, Darling-Hammond (1997) after reviewing information regarding portfolio and work sampling large-scale assessment systems questioned whether they resulted in improvements in teaching and learning as well as whether or not they were able to measure quality of schooling. In this sense, Darling-Hammond, in line with the expanded view on validity in edometrics, asks for more evidence for the consequential validity of

portfolio assessment. To what extent is there evidence that portfolio assessment leads to the theoretically assumed benefits for learning?

Do portfolios lead to better learning and teaching?

Student portfolios are usually promoted as a powerful instrument for formative assessment or for assessment for learning (e.g. Elbow & Belanoff, 1986; Julius, 2000; Tierney et al, 1991). Portfolios are viewed as having the potential to allow learners (of all ages and kind) to show the breadth and depth of their learning (e.g. Costa & Kallick, 1995; Howard & LeMahieu, 1995; Walters, Seidel, & Gardner, 1994; Flood & Lapp 1989; Hansen, 1992; Berryman & Russell, 2001; Davies, 2000; Wolf, Bixby, Glenn, & Gardner, 1991). Involving students in every part of the portfolio process is critical to its success as a learning and assessment tool. Choice and ownership, opportunities to select evidence and reflect what it illustrates while preparing evidence for an audience whose opinion they care about are key aspects of portfolio use in classrooms. Giving students choices about what to focus on next in their learning, opportunities to consider how to provide evidence of their learning (to show what they know), and to reflect and record the learning the evidence represents makes it more possible to learn successfully. Research examining the impact of the use of portfolio's on students' learning focuses on the impact of portfolios on learning in terms of students' motivation, ownership and responsibility, feedback, and self reflection.

Portfolios: Inviting Choice, Ownership and Responsibility

When learners are engaged, they are more likely to learn. Researchers studying the role of emotions and the brain say that learning experiences such as these prepare learners to take the risks necessary for learning (Jensen, 1998; le Doux 1996; Goleman 1995). Portfolios impact positively on learning in terms of increased student motivation, ownership, and responsibility (e.g. Paulson et al, 1991; Elbow & Belanoff, 1991; Howard and LeMahieu, 1995). For example, Howard and LeMahieu (1995) report that when students in a classroom environment kept a writing portfolio during the school year and shared that portfolio with parents, the students' commitment to writing increased and their writing improved. Researchers studying the role of motivation and confidence on learning and assessment agree that student choice is key to ensuring high levels of motivation (Covington, 1998; Stiggins, 1996). When students make choices about their learning, motivation and achievement increases, when choice is absent, they decrease (Purkey and Novak 1984; DeCharms 1968; 1972; Jensen 1998; Lepper and Green 1975; Maehr 1974; Mahoney 1974; Tanner, 2000;

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Tjosvold 1977; Tjosvold and Santamaria 1977; Deci and Ryan 1985; Mager and McCann 1963). Researchers studying portfolios found that when students choose work samples the result is a deeper understanding of content, a clearer focus, better understanding of quality product, and an ownership towards the work that "... created a caring and an effort not present in other learning processes" (Gearhardt & Wolf, 1995, p. 69). Gearhart and Wolf (1995) visited classroom at each of four school sites just before or just after students made their choices for their portfolios. They talked extensively with teachers and students, and collected copies of portfolios. Their project was designed to clarify questions about issues in the implementation of a portfolios assessment program. They noted that students' choices influenced the focus of personal study, ongoing discussions and the work of the classroom. The increased learning within those classes seemed to be related to students' active engagement through choice. There was also a change in the student/instructor relationship which they report became more focused, less judgmental and more productive. They note that a balance is needed between external criteria used by the teacher and the internal criteria of the students and conclude by encouraging an on-going dialogue concerning assessment and curriculum amongst students, teachers, and assessment experts.

Tanner (2000) examined the experience with writing portfolios in general education courses at Washington State University. Specifically, he examined issues such as history of the portfolio efforts, experience in light of research, impact on students. Since 1986 students have been required to submit a portfolio that includes three previously produced papers as well as a timed written exam. Later in their studies there is a requirement for a senior portfolio to be determined by the individual disciplines and to be evaluated by faculty from those same disciplines. Tanner notes that the literature references learning through portfolio use in terms of, "student attitude, choice, ownership, performance based learning, growth in tacit knowledge, and the idea of a climate of writing" (p. 83) In his conclusions he affirms that these same elements are present as a result of the portfolio work at Washington State University. Tanner (2000) writes, "... such personal investment, and ownership are the first steps in dialectic participation where ideas and knowledge are owned and remembered, a classic definition of learning." (p. 59) "K-12 research shows connections between learning and such elements as choice and personal ownership of work, elements fostered by portfolio requirements. The connections between learning and broad-based portfolio assessment were clearly observed." (Tanner 2000; p. 79)

Portfolios enrich conversations about learning. Portfolios have different looks depending on purpose and audience. The audiences for classroom-based portfolios include the students

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themselves, their teacher(s), parents, and sometimes community members or future employers. This enhances the credibility of the process. Portfolios encourage students to show what they know and provide a supportive framework within which learning can be documented. Using portfolios in classrooms as part of the organizing and collecting of evidence prepares students to present their learning and to engage in conversation (sometimes in writing, sometimes orally or through presentations) about their learning. Julius (2000) asserts that knowing they will be showing portfolios to someone whose opinion they care about engenders “accountability and a sense of responsibility for what was in the portfolios.” (p. 132) Willis (2000) notes, “This formal conferencing process challenges students to be more accountable to an authentic audience outside of their classroom and generally improves the quality...” (p. 47)

When individual student portfolios are scored and graded, the power of student choice, ownership, and responsibility may be diminished. Willis (2000) states that rewards and sanctions are... “antithetical to learner centered goals of true portfolio culture” p. 39 (for a discussion of the impact of rewards see Kohn, 2000). Willis (2000) refers to student, teacher and institutional learning after examining how Kentucky’s Grade 12 writing portfolios have influenced senior’s writing instruction and experiences, affected students’ skills and attitudes about writing, and influenced graduates’ transition to college writing. He collected data using exploratory surveys with 340 seniors, interviewing 10 students who graduated and continued on with their education at the college levels, and conducted a document analysis of writing portfolios produced in senior English classes as well as samples of writing submitted in college composition courses. Willis notes the self assessments demonstrated little awareness of the standards in effect in the learning environment. Willis (2000) reports that a statistical analysis of 340 students showed that students disregarded the worth of the portfolio process to the same extent they had been disappointed with the scores received. As a result, Willis (2000) recommends that students have more experience scoring their own work. Thome (2001) studied the impact of using writing criteria on student learning and found that when students were aware of the criteria for success their writing improved. Similarly, Young (1997) found that the use of rubrics motivate, lend encouragement to learners to improve, and provide a means for giving specific feedback.

Portfolios: Feedback that Supports Learning

When portfolio are accompanied by criteria that are written in language students can understand, describe growth over time, as well as indicate what is required to achieve success they can be used

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by students to guide their learning with on-going feedback as they create their portfolios. There is a vast amount of research concerning the impact of feedback on students' learning. There is evidence that specific feedback is essential for learning (Black and Wiliam 1998; Caine and Caine 1991; 1999; Carr and Kemmis 1986; Crooks, 1988; Dewey 1933; Elbow 1986; Hattie, In press; Sadler, 1989b; Senge 1990; Shepard, 2000; Stiggins 1996; Sylwester 1995. Sutton (1997) and Gipps and Stobart (1993) distinguish between descriptive and evaluative feedback. Descriptive feedback serves three goals: 1) it describes strengths upon which further growth and development can be established; 2) it articulates the manner in which performance falls short of desired criteria with an eye to suggesting how that can be remediated; and 3) it gives information that enables the learner to adjust what he or she is doing in order to get better. Specific descriptive feedback that focuses on what was done successfully and points the way to improvement has a positive effect on learning (Black & Wiliam, 1998; Butler & Nisan 1986; Butler 1987, 1988; Butterworth 1975; Fuchs & Fuchs, 1985; Kohn 1993). Descriptive feedback comes from many sources. It may be specific comments about the work, information such as posted criteria that describe quality, or models and exemplars that show what quality looks like and the many ways in which it can be expressed. Evaluative feedback, particularly summary feedback, is very different. It tells the learner how she or he has performed as compared to others or to some standard. Evaluative feedback is highly reduced, often communicated using letters, numbers, checks, or other symbols. It is encoded, and is decidedly not "rich" or "thick" in the ways suggested of descriptive feedback above. This creates problems with evaluative feedback for students -- particularly for students who are struggling. Beyond the obvious disappointment of the inability of summary feedback to address students' needs or the manner in which further growth and development can be realized, there are also problems that affect students' motivation to engage in learning. Students with poor marks are more likely to see themselves as failures. Students who see themselves as failures may be less motivated and therefore less likely to succeed as learners (Black and Wiliam 1998; Butler 1988; Kamii 1984; Kohn 1993; Seagoe 1970; Shepard and Smith, 1986a, 1987; Schunk 1996). Involving students in assessment increases the amount of descriptive specific feedback available to learners while they are learning. Limiting specific feedback limits learning (e.g. Jensen, 1998; Black & Wiliam, 1998; Hattie, in press; Sadler, 1989b).

Joslin (2002) studied the impact of criteria and rubrics on the learning of students in fifth and sixth grade (approximately 9 – 12 years of age). He found that when students use criteria in the form of a rubric that describes development towards success, students are better able to identify strengths and areas needing improvement. Joslin (2002) found that using criteria and rubrics affect student's

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desire to learn in a positive way and expand their ability to assess and monitor their own learning. He notes that when scores alone were used, students who did not do well also did not know how to improve performance in the future. When students and teachers used the rubrics that described success they were able to talk about what they had done well and what they needed to work on next. Joslin (2002) states, “Students from the treatment group who received the rubric were aware of how well they would do on an assignment before being marked. The reason for their understanding was based on comments indicating they could check out descriptors they had completed. They were also able to identify what was needed to complete the task appropriately, indicating an awareness of self-monitoring and evaluation.... In the comparison group ... students’ comments reveal a lack of understanding of how they were evaluated. Students also indicated they would try harder to improve their grade next time but were unaware of what they needed to do to improve.” (p. 41). He concludes by writing, “This research study has indicated a positive relationship between the use of a rubric and students desire to learn.” (p. 42). When students have clear criteria, feedback can be more descriptive and portfolios can better support learning.

Portfolios and Self-Reflection

Meta-cognitive skills are supported and practiced during portfolio development as students reflect on their learning and select work samples, put work samples in the portfolio, and prepare self-assessments that explain the significance of each piece of work. Portfolio construction involves skills such as awareness of audience, awareness of personal learning needs, understanding of criteria of quality and the manner in which quality is revealed in their work and compilations of it as well as development of skills necessary to complete a task (e.g. Duffy, 1999; Mills-Court & Amiran, 1991; Yancey, 1997).

Students use portfolios to monitor progress and to make judgments about their own learning (Julius, 2000). Julius (2000) examined elementary students’ perceptions of portfolios by collecting data from 22 students and their teachers from two third grade classrooms. Data collection included student and teacher interviews, observation of student-teacher conferences, portfolio artifacts, teacher logs and consultations with teachers. Portfolios were found to contribute to student’s ability to reflect upon their work and to the development of students’ sense of ownership in the classroom. Julius (2000) reports, “Results of this study indicated that students used portfolios to monitor their progress, students made judgments based on physical features, choice was a factor in the portfolio process, and, instructional strategies supported higher order thinking.” (p. vii) As students become

more used to using the language of assessment in their classroom as they set criteria, self assess and give peers descriptive feedback, they become better able to use that feedback to explain the significance of different pieces of evidence and later to explain their learning to parents and others.

One key aspect of classroom portfolios is students' selecting evidence from multiple sources and explaining why each piece of evidence needs to be present – what it shows in terms of student learning and the manner in which it addresses the audience and the purpose of the portfolio. Portfolios communicate more effectively when the viewer knows why particular evidence has been included. Students who are involved in classroom assessment activities such as developing criteria use the language of assessment as they develop criteria and describe the levels of quality on the way. Practice using the language of assessment prepares students to reflect. Their self-assessments become more detailed and better able to explain what evidence different pieces of evidence show. Initially, work is selected for reasons as “It was the longest thing I wrote.” or “It got the best grade.” Over time notions of quality become more sophisticated and citing specific criteria in use in the classroom and the manner in which evidence in the portfolio address those criteria. The capacity to do so is essential to high performance learning. Bintz and Harste (1991) explain, “Personal reflection required in portfolio evaluation increases students' understanding of the processes and products of learning...”

Portfolios: Teachers as Learners

Just as students learn by being involved in the portfolio process, so do teachers. There are five key ways teachers learn through portfolio use:

1. Teachers learn about their students as individuals by looking at their learning represented in the portfolios,
2. Teachers learn about what evidence of learning can look like over time by looking at samples of student work
3. Teachers form interpretive communities that most often have higher standards and more consistently applied standards (both from student to student and from teacher to teacher) for student work than was the case before entering into the development of portfolio systems;
4. Teachers challenge and enrich their practice by addressing the higher expectations of student learning with classroom activities that more effectively address that learning and
5. Teachers learn by keeping portfolios themselves to show evidence of their own learning over time.

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Tanner (2000) says that while there was some direct student learning from portfolio assessment, perhaps the “greater learning came from post-assessment teachers who created a better climate for writing and learning” (p. 63). Teachers, who knew more about learning returned to classrooms prepared to, “impact subsequent student cohorts.” (Tanner, 2000; p. 71) Tanner (2000) describes the learning - for students as well as their instructors – that emerges as students are involved in a school-wide portfolio process. Based on interviews with key informants he describes the changes that have occurred since 1986 that indicate positive changes in student attitude, choice, ownership, engagement as well as changes in teachers’ understanding and knowledge, and changes throughout the college. Herman, Gearhart, & Aschbacher (1996) also report that portfolio use results in learning by improving teaching. The example given is Aschbacher’s (1993) action research which showed two thirds of teachers reporting substantial change in the way they thought about their teaching, two thirds reporting an increase in their expectations for students, and a majority found that alternative assessments such as portfolios reinforced the purpose or learning goals.

There is increasing attention being paid to the process of examining student work samples as part of teachers’ professional learning and development (e.g. Blythe et al, 1999; Richards, 2001; MAPP, 2002). This is a natural outgrowth of:

- conversations amongst teachers (e.g. www.lasw.org; Blythe et al, 1999),
- school improvement planning processes (e.g. B.C. School Accreditation Guide, 1990; Hawaii’s Standards Implementation Design Process, 2001),
- large-scale assessments (e.g. B.C. Ministry of Education, 1993; Fritz, 2001; Willis, 2000), and
- school-level work with parents to help them understand growth over time (Busick, 2001; Cameron, 1991).

There are multiple reasons teachers examine student work samples by themselves or with colleagues as part of their own professional learning:

1. Understanding individual students’ growth and development to inform students, teachers, and parents about learning
2. Increasing expectations of students (as well as the system that serves them) through encounters with student work that reveal capacities greater than previously believed
3. Making expectations for student performance more consistent, both across teachers and across students

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4. Understanding next teaching steps by examining student work with colleagues analyzing strengths, areas needing improvement and next teaching steps
5. Learning how to evaluate work in relation to unfamiliar standards fairly by comparing samples from students within a school
6. Gaining a better understanding of development over time by looking at samples of student work and comparing them to published developmental continuums
7. Developing a common understanding of standards of quality by looking at samples of student work in relation to standards
8. Learning to use rubrics from large-scale or district assessments to analyze work samples
9. Considering student achievement over time within a school or across schools in a district
10. Informing the public of the achievement levels of groups students

Teachers may examine student work from individuals, groups of students, multiple classes of students, or from different grade levels in different subject areas. Blythe et al (1999) describe different ways to involve teachers in examining student work. Parents are also beginning to be invited to join the process (e.g. BC Min of Ed. School Accreditation Process, 1990).

Portfolios: Parents and Other Community Members as Learners

Portfolios can inform different stakeholders of ongoing growth and development (e.g. Klenowski, 2000; Zeichner & Liston, 1996; Danielson, 1996; McLaughlin & Vogt, 1996; Wolf, 1996; Shulman, 1998). Efforts to include parents and others as assessors of student learning have revealed a further power of portfolios. Not only do parents come to a fuller understanding of their children's learning, they better appreciate the goals and instructional approaches of the learner and the teacher(s). This in turn makes them more effective partners in their children's learning and ensures their support for teachers' efforts at innovation and change (Howard and LeMahieu, 1995; Joslin, 2002b). Conversations with parents, teachers, and children with portfolios as an evidentiary basis provide a more complete picture of children's growth and understanding than standardized test scores. They also provide ideas so parents can better support their children's learning in and out of school, so teachers can better support the learner in school, and so the learners can support themselves as they learn. Further, portfolios and the conversations that take place in relation to them, can promote the involvement of all the members of the learning community in educating children (e.g. Gregory et al, 2001; Fu & Lamme Jan 2002).

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Portfolios: Schools and Systems Learn

Schools learn (e.g. Senge, 2000; Costa, & Kallick, 1995; Schmoker, 1996; Sutton, 1997; Schlechty, 1990; Fullan, 1999) and need assessment information in order to continue to learn and improve. Portfolios and other work sample systems can help schools both learn and show their learning. Systems learn (e.g. Senge, 1990) and need reflective feedback to help them continue to improve. They need assessment information. Portfolios can be a part of the evidence collected both to support and to substantiate the learning and are increasingly used for assessment of students, teachers, schools, districts, and educational jurisdictions such as provinces or states (Darling-Hammond, 1997; Fritz, 2001; Gillespie et al, 1996; Millman, 1997; Ryan & Miyasaka, 1995). When it comes to systems learning, numerous researchers have made recommendations based on their experiences with portfolios for district and cross-district assessments. Reckase (1995), for example, recommends a collection that represents all the tasks students are learning including both final and rough drafts. Fritz (2001) reviewed the Vermont large-scale portfolio assessment program and notes that since it began in 1989 there have been numerous studies and recommendations leading towards ongoing improvements in the design and scoring as well as the way data is used to improve the performance of schools. Portfolios are collected from all students, scored at the school level and then a sampling of portfolios is also scored at the state level. Kentucky has had a portfolio component in its assessment system since 1992 when the Kentucky Educational Reform Act became law (See Redfield & Pankratz, 1997 or Willis 2000 for a historical overview). Like Vermont, the Kentucky mandated performance assessment has evolved over time with changes being made to the portfolio contents as well as the number of work samples required. Overtime some multiple choice test items and on-demand writing have been included (Lewis, 2001). The state of Maine has an on-going portfolio project that is developing tasks and scoring rubrics for use in classrooms as part of the Comprehensive Local Assessment System districts need to have in place by 2007 (for information available online at www.state.me.us/education/salt.localassess.htm). The New Standards Project coordinated and reported by Resnick & Resnick (1993) looked at samples of student work in Mathematics and English/Language Arts from almost 10,000 grade-4 students.

Discussion

Barth (2000) has made the point that in 1950 students graduated from high school knowing 75% of what they needed to know to succeed. In 2000, students graduated with 2% of what they needed to

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know because 98% of what they needed to know to be successful was not yet known. This fact alone fundamentally changes the point of schooling. Today a quality high school education that provides these *new* basic skills is a minimum. Even more than this, a quality high school education must equip the learner to continuously grow, develop and learn throughout his or her lifetime. Post-secondary education can strive to do no less. For example, the *Globe and Mail*, a national Canadian newspaper noted, “employers’ relentless drive to avoid the ill-educated. (March 1, 1999).” They went on to note that jobs for people with no high school diplomas fell 27%. In 1990 employees with post-secondary credentials held 41% of all jobs while in 1999 that had risen to 52% of all jobs. The trend is expected to continue and the gap widen. Government commissions, business surveys, newspaper headlines and the help wanted advertisements all testify to the current reality – wanted: lifelong learners who have new skills basic to this knowledge age – readers, writers, thinkers, technologically literate, and able to work with others collaboratively to achieve success. We can’t prepare students to be lifelong learners without changing classroom assessment. Broadfoot (1998) puts it this way, “the persistence of approaches to assessment which were conceived and implemented in response to the social and educational needs of a very different era, effectively prevents any real progress.” (p. 453) Traditional forms of assessment were not conceived without logic, they were conceived to respond to an old, now outdated, logic.

Meaningful assessment reform will occur when

- students are deeply involved in the assessment process;
- evidence of learning is defined broadly enough for all learners to show what they know;
- classroom assessment is understood to be different than other kinds of assessment;
- an adequate investment in assessment for learning is made; and,
- a proper balance is achieved between types of assessment

Accountability for individual student learning involves looking at the evidence with learners, making sense of it in terms of student strengths, areas needing improvement, and helping students learn ways to self-monitor their way to success. Classroom assessment will achieve its primary purpose of supporting student learning when it is successfully used to help students learn more and learn ways to lead themselves to higher levels of learning. Portfolio assessment can play a significant role.

In our experience, two things have invariably been realized through the “assessment conversations” that are entered into by teachers in the development of portfolio systems. Both of

these outcomes greatly enhance the intellectual and human capital of the systems and contribute to the potential for their improved performance. First, all who participate in the development of portfolio systems leave with higher and more clearly articulated aspirations for student performance. This should not be surprising, as the derivation of criteria and expectations for quality in performances is essentially additive. One professional sees certain things in the student work while the next recognizes some of these (but perhaps not all) and adds some more. These assessment conversations proceed until the final set of aspirations (criteria of quality) is far greater than the initial one or that of any one member of the system at the outset. The second effect of these assessment conversations is that a shared interpretive framework for regarding student work emerges. The aspirations and expectations become commonly understood across professionals and more consistently applied across students. Again, the nature of these conversations (long term shared encounters and reflections) intuitively supports this outcome.

These two outcomes of assessment conversations -- elevated aspirations and more consistently held and applied aspirations -- are key ingredients in a recipe for beneficial change. Educational research is nowhere more compelling than in its documentation of the relationship between expectations and student accomplishment. Where expectations are high and represent attainable yet demanding goals, students strive to respond and ultimately achieve them. These assessment conversations, focused upon student work produced in response to meaningful tasks provide powerful evidence that warrants the investment in the human side of the educational system.

It is for these reasons that we are optimistic about the place of portfolios in reform in North America. Yet, that said, portfolios are not mechanical agents of change. We do not accept the logic that says that the testing (however new or enlightened) coupled with North America version of accountability will motivate increased performance. In fact, we find it a cynical argument presuming as it does that all professionals in the system could perform better but for reasons (that will be eliminated by the proper application of rewards and sanctions) they have simply chosen not to. However, our experience also suggests that in order for the full potential of assessment development or teacher and student engagement in rich and rewarding assessment tasks to be realized, it must be approached in a manner consistent with the understandings developed here.

Portfolios pose unique challenges in large-scale assessment. Involving students in every part of the portfolio process is critical to its success as a learning and assessment tool. Choice and ownership, thinking about their thinking, and preparing evidence for an audience whose opinion they care about

are key aspects of portfolio use in classrooms. These critical features risk being lost when the portfolio contents and selection procedures are dictated from outside the classroom for accountability purposes. Without choice and student ownership, portfolios may be limited in their ability to demonstrate student learning. This may mean that large-scale portfolio assessment may become a barrier to individual student learning. However, using portfolios for large-scale assessment (when done well) can potentially support system learning in at least these ways:

- Facilitating a better understanding of learning and achievement trends and patterns over time
- Informing educators about learning and assessment as they analyze resulting student work samples
- Enhancing professionals' expectations for students (and themselves as facilitators of student learning) as a result of working with learner's portfolios
- Making it possible to assess valued outcomes that are well beyond the reach of other means of assessment
- Informing educators' understandings of what learning looks like over time as they review collections of student work samples
- Helping students to understand quality as they examine collections of student samples to better understand the learning and what quality can look like
- Assisting educators and others to identify effective learning strategies and programs

Purpose is key. Whose learning is intended to be supported? Student? Teacher? School? System? Assessments without a clear purpose risk muddled methods, procedures, data, and findings (e.g. Stiggins, 2001; Chan, 2000; Paulson, Paulson, & Meyer, 1991). For example, one group indicated that the jurisdiction could use portfolios to assess individual student achievement, teaching, educators, schools, and provide state level achievement information (see for example, Richard, October 31, 2001). This is true but different portfolios would be required or the purpose could be confused, the methods inappropriately used, the procedures incorrect, the resulting portfolios likely inappropriate to the stated purposes and the findings inaccurate. When the purpose and audience shifts, the portfolio design, content, procedures, and feedback need to be realigned. If the purpose for collecting evidence of learning and using portfolios is to support student learning then it may not be necessary for portfolios to be evaluated, scored or graded. If the purpose for collecting evidence of learning and using portfolios is to support educators (and others) as they learn and seek to improve system performance then portfolios will be standardized to some necessary degree, evaluated and scoring results made available to educators and others.

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