Program and Outcomes Assessment

EDU 6300

30 Hour Research Project:

Education for the Real World

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Take a trip to a time when we were in the classroom as students. Remember the experiences as a student, and the topics that we were expected to learn. The teachers, the classes, the struggles we all faced in being able to learn how to spell, adequately comprehending the concept of angles in geometry; remember the elation of successfully completing 12 years of schooling and receiving a diploma. Then it was out into the world, looking for a job or furthering one's education in a nearby college or university.

And then we decided to become educators. Our first experience in the classroom with discipline, wondering how good a job would be done by us. Those gleaming eyes of our students, desirous to learn; the tough guy in the back of the class just daring us to teach him something new. Students wondering how far we could be pushed tested our limits almost to the brink of insanity!

Teachers are truly slaves of time. We are expected to teach content from August through May, and students are still expected to learn it. There are the traditional pencil-and-paper tests, pop quizzes, standardized tests, tests written by the professionals at publishing houses, and the reviews at the end of various units. Tests are still typically given at the end of a chapter or unit to determine what students have learned. Tests will still continue to be given in class after class to show their mastery of a definitive skill.

However, there is a nationwide movement to determine exactly what it is that students know currently, and how their learning in the weeks, months, and years ahead can be used in the real world. This is the position we currently find ourselves examining and questioning. What are some valid ways to assess student performance and know that our students are more than adequately prepared for the next fifty years that lie ahead. In what way is it possible to link content, performance standards, and assessment to our daily grind of curriculum and instruction?

Is it possible that, what drives business in the realm of technology, may also be used in the classroom too? How can technology, rubrics, portfolios, websites, multiple intelligences, and that all-encompassing system of accountability be more fully utilized for our benefit, and that of our students, today? What are strategies one may examine to drive students to higher standards of excellence, and push them higher and harder than they have been thus far? Therein lies the question. (Sullivan, 1999, 33)

In the middle school setting (where this writer has spent considerable years as an educator), forces outside our abode are expecting more. They decree curriculum standards, expect more from our students, and expect a higher degree of accountability. And the outcome will be one of two pathways: student learning will be augmented, or the scope of student learning will be narrowed considerably. (Clark and Clark, 2000, 201)

According to the National Research Council (1989, 1990, 1991), the National Council of Teachers of Mathematics (1989, 1991, 1995) and the Mathematical Association of America (1991), ten years of study suggests that our current student population must be capable of far more than simple computational skills. Their finding cited that "thinking, being comfortable with problems solving, questioning and formulation of hypotheses, investigations, and simply tinkering with mathematics" was essential for the students' futures.

According to the National Council of Teachers of Mathematics, the gist of all mathematical computation is that students will learn to think in terms of mathematics, become problem solvers, reason from a mathematical perspective, and grow to love and appreciate math because they are capable of performing well in it. This council has also determined that there is much more than just memorizing algorithms. Vocabulary, once confined to the Language Arts/English curricula, is now carrying over to math as well. This educator has learned to

integrate what is taught in one class to a multiplicity of other classes. Common verbs from the Standards (NCTM, 1989) include investigate, formulate, reflect, listen, draw, explore, justify, clarify, model, appreciate, link, and apply as well as compute and estimate. (Hopkins, 1997)

However, what if this idea was applied not only in the math classroom, but in other subjects as well? What would happen if students in social studies, language and grammar, computer technology, business, and literature, were actively engaged in learning such as this? What would the future hold for them?

Teacher education programs, instruction and curriculum designs must be looking and planning for the future as it pertains to a performance-based curriculum. This scope of teaching, training, and learning must allow for ample opportunity for students to gain sufficient time and skills in practicing what must be learned, in addition to a framework being developed for gathering acceptable means of assessment (portfolios, for example), and multi-dimensional profiles of student learning and progress throughout their entire educational experience.

Portfolio assessment was involved as a means of identifying strengths and weaknesses among upperclassmen. This was implemented as a part of gaining entrance to college or taking a position in the workforce. Much more than just schoolwork was collected; checklists were developed with middle school students pertaining to group work behaviors. Rubrics were developed with the full knowledge and assistance of those students so that the process of assessment was done in the light, without students grueling over what was going to be expected. This educator has also found that students are much more likely to do a more thorough job when they know that, when a standard is in place for them, it will be the same for the other students in the class. Standards are thus removed from being arbitrary, to ones that are definitive and clear.

However, one must look at an event that occurred in the 1980s and 1990s that was undoubtedly the most ambitious undertaking in the area of performance assessment: the New Standards Project (NSP). A nationwide effort, involving 17 states and seven urban school districts, was formed for the express purpose of "creat[ing] tests worth taking." From c. 1990-1995, thousands of professional educators attending hundreds of meetings were involved in the crusade of designing and building assessments which professionals would want to implement into their curricula; involved in this effort were also thousands of students from upper elementary, middle school and high schools settings to demonstrate scholarly ability to complete standards that were in the development stage concurrently.

The outcomes of the New Standards Project brought strong critiques concerning large-scale implementation in the May 1999 *Kappan*. These outcomes, in general, proved to be unfavorable, for the following reasons:

1. The reliability and generalization of performance-based assessments are questionable, making them unsuitable for purposes of accountability.
2. In practice, the impact of external performance-based assessment and portfolios on curriculum and instruction has been minimal and, in some cases, negative.
3. Because of their open-ended nature, performance-based assessments and portfolios do not lend themselves to standardization of implementation or scoring.
4. Not only are such assessments unwieldy and intrusive, but they have done little to shrink performance gaps between and within groups, thereby raising questions about equity and opportunity-to-learn.

However, some positive results can be more fully realized with a cautious approach, as discussed in the following points:

1. Performance-based assessment and portfolios reflect contemporary, constructivist views of knowledge, thinking, and learning. Traditional, multiple-choice testing was based on behaviorist views, which are now passé in many circles.
2. Performance-based assessment and portfolios have the potential to influence curriculum and instruction in a positive way.

3. At the moment, performance-based assessments and portfolios look like our best hope for providing meaningful information about the performance capabilities of students and for bringing about institutional change.

The overall impact of education does necessarily revolve around the students, but on the professional growth of classroom educators. The overarching goal of the New Standards Project was to provide an outlet concerning the relationship between instruction within the classroom and internal and external assessment. (Spalding, 2000, 758.)

The scope of the New Standards Project allowed educators the opportunity to be involved in collaboration with fellow laborers in their choice of occupation. Many individuals have a tendency to see that teachers are isolated in their work. This project allowed that idea to be disproven and that the work of teachers and what they know is of utmost importance. The idea of "sweeping education reform" -- if and when it does come – must of necessity proceed from the classroom on an individual basis (i.e., from class to class) and by teacher to teacher.

The far-reaching effects of the New Standards Project enabled educators to pool their ideas and resources and contribute to one another what they already knew as individuals. Alternative assessments were already being developed individually, but the end goal was to develop a system that would have as it core ideas these functions: performance examination, portfolios, and projects. Tasks would be developed that would impart data about a select group of students, namely those in the fourth, eighth, and tenth grades.

However, large-scale projects have been plagued by many a problem. One educator pointed out that even the best of intentions can inundate even a program that is already on sound footing. Because rubrics can be applied mindlessly rather than as a foundation, performance assessment may be greatly compromised. In the end, the New Standards Project sought to deliver excellent professional development with other like-minded educators, engaged in their struggles

over such questions as “How good is good enough?” and “Good enough for whom?” It took much more thought to describe instead of assigning a letter or numeric grade. It caused those educators to question their own instructional techniques and practices in a class of their own peers.

Performance assessment and portfolios, the heart of the New Standards Project, required teachers to reexamine their rationales for what they chose to assign in classes. Student performance is the crux of the issue for most, if not all teachers, and the need to propagate effective teaching models is essential for developing communities of learners and inquirers. The promise of performance assessment for bringing about lasting, beneficial changes in teaching and learning exceeds its limitations.

In the final analysis, there were several significant outcomes to the development process:

1) Teachers should not single-handedly put a judgment value on everything that the student does;
2) True assessment means involving the learner in the decision-making process;
3) The student must know what the performance criteria are prior to the learning task (and participate in their design when appropriate); and
4) It is quite effective to use a variety of assessment practices within a subject area or classroom depending on the curriculum task and the students’ developmental learning needs. (Moore, 1998)

The term *alternative* can be defined as “a different approach.” There are many students who are content with the usual forms of evaluation through traditional tests; others are more apt to thrive in a practical, hands-on class. As it pertains to learning in the classroom, more choices and alternatives should be made available so that there will be a more all-encompassing portrayal of student learning. In that light, then, collection of data is an important facet of the professional educator. (Moore)

Standards are much more than simply checklists; there is the interconnectivity and structure of the academic disciplines. Performance assessments, therefore, can be defined as those tasks that require students to demonstrate their synthesized knowledge, understanding, and skills by addressing several objectives, sometimes across multiple disciplines, all without teacher assistance. Commonplace activities are the use of comparison, contrast, summary, and prediction. The students are responsible to engage their thinking that characterizes what professionals do in the "real world."

In other words, performance assessment does the following:

1. It replicates the authentic tasks that one might face in "real life";
2. It assesses knowledge in terms of its constructive use for learning in the future;
3. It guides rather than judges, allowing educators to find out if students can create their own answers, choose their own learning activities, and determine the basis for their own assessment;
4. It serves the needs of students;
5. It documents what students have done and/or learned over a period of time;
6. It asks students to prove that they have mastered objectives by having them judge the quality of their own work, monitor their own progress, and design their own remediation; and
7. It allows teachers to watch learners pose questions, tackle and solve slightly ambiguous problems, build a body of evidence, plan and arrange arguments, and take purposeful action that confronts problems. (Clark and Clark)

These qualities are highly recommended for setting standards of performance assessments:

1. Class activities require the students to show an exhibit of their own personal understanding, and the accompanying abilities that go along with the task;
2. Class activities and skills that will be used in the real world and represent real-life challenges, not simply busywork that presents no challenge to the students, and is easy for the teacher to grade;
3. Tasks that set standards in pointing students toward higher, richer levels of knowledge;
4. Task that are promote the higher learning levels and are worth taking the time to master through consistent practicing; and
5. Tasks that generally involve a higher-order challenge for which students have to go beyond rote memory to use.

Although educators have many additional educational stresses in the classroom, performance assessment allows them to concentrate on the academic diversity found in their class. When properly constructed, performance assessments and the accompanying rubrics guarantees that students know teacher expectations and that what they will be learning finds its basis in the real world, and that the skills are interrelated to the various academic disciplines. (Moon, 2002, 53)

To be sure, performance-based assessment is highly time demanding; standardized results and accompanying benchmarks cannot be measured from class to class, but the higher level thinking skills, so commonly left absent in many classes, causes more students to take a more active role in their own learning. (Phillips, 1998, 18)

If any school or class is to be successful, then reasonable and appropriate standards must be initiated and implemented, and cultures must be built that will ensure student success. The advantages of standards-based reform, especially in the middle school setting, are as follows:

1. They delineate what all students should learn, not just what they should be taught;
2. They establish more challenging norms for acceptable levels of student performance;
3. Within the school system, common expectations are applied to what the teacher expects from the class, and how well the students should learn it, and
4. These standards ensure that, once implemented , all responsible parties are held accountable to a common standard for ensuring that the students will be performing at the agreed-upon standard. (Clark and Clark)

Successful implementation of performance assessment, by its very nature, necessitates that educators be familiar with the criteria that supports performance assessment. Wiggins's categories of structure and logistics, intellectual design features, standardized grading and scoring, and fairness and equity of guidance, are helpful in establishing an assessment program:

1. Structure and Logistics
    a. Will the assessment be held in a public location with an audience, the individual, or consultants?
    b. Will the assessment have a time limit, and within that time period, will there be tasks that have not been identified?
    c. Will the assessment necessitate cooperative activity with other individuals?

2. Intellectual Design Features
    a. Are the tests free of intrusiveness and unpredictability?
    b. Are the tests contextualized, complex, intellectual challenges (not fragmented and static bits of tasks)?
    c. Are the tests able to accurately assess rigors of the course of study?

3. Standards of Grading and Scoring
    a. Do the tests measure the core curriculum, not just count mistakes?
    b. Do the tests use multifaceted scoring systems instead of a single aggregate grade?
    c. Does the assessment process exist in harmony with school-wide aims?
    d. Does the assessment, when completed, represent the level of achievement that the entire school body should be able to achieve?

4. Fairness and Equity
    a. Do the tests ferret out and identify strengths?
    b. Do the tests seek to eliminate intimidating comparisons with other individuals and minimize a dreaded concern for the eventual outcome?
    c. Will the tests be equitable for all students to do well, eliminating to the fullest extent possible that it may have been "dumbed down" due to a lack of experience or poor instruction?

In this educator's opinion, any school that is to be considered successful and responsive to the developmental needs of its students must have a faculty-designed program that will be inculcated into the curricula, and can be expanded so that the students are provided with a well-rounded, active, and intellectually stimulating learning environment. (Clark and Clark)

However, another element that should be considered and included in the flow of coursework is the theory of Multiple Intelligences, first proposed by Howard Gardner, a neuroscientist at Harvard University in the early 1980s. An interesting way of viewing this theory is not "how smart are you, but how are you smart?" According to Dr. Gardner, every

individual has all of these intelligences to one degree or another. Intelligence, according to traditional standards, limit a person in one category: either that person is smart, or they are not smart.

Dr. Gardner's revolutionary book *Frames of Mind: The Theory of Multiple Intelligences* (1983) was a radical divergence from many traditional ideas. He suggests that intelligence is based on multiple "frames", all based entirely on an individual's abilities. He also believes that genuine understanding is possible and be made readily evident to those who understand that students can possess any given number of ways concerning this knowledge.

The intelligences, with Dr. Gardner's own definitions, are divided into nine unique categories.

1. Logical-mathematical: "People with highly developed logical/mathematical intelligences (math smart) understand the underlying principles of some kind of a causal system, the way a scientist or a logician does; or can manipulate numbers, quantities, and operations, the way a mathematician does."

   This intelligence is especially seen in children and youth who are capable of performing mathematical functions mentally without the use of manipulatives, and in a quick manner. They are also able to be a model student to the rest of the class because they are in tune with the logics of the lesson that is being taught. They especially like the abstract, as opposed to the concrete, and this is seen by their reordering of objects in class. Many are classified as "human calculators" as they can memorize a multiplicity of numbers, such as credit cards, schedules, financial records and the like.

2. Naturalistic: "Naturalist intelligence designates the human ability to discriminate among living things (plants, animals) as well as sensitivity to other features of the natural

world (clouds, rock configurations). This ability was clearly of value in our evolutionary past as hunters, gatherers, and farmers; it continues to be central in such roles as botanist or chef. I also speculate that much of our consumer society exploits the natural intelligences, which can be mobilized in the discrimination among cars, sneakers, kinds of makeup, and the like. The kind of pattern recognition valued in certain sciences may also draw upon the naturalist intelligence."

History bears records to many naturalists; preeminent among them are George Washington Carver and Charles Darwin. The student who enjoys looking at insects, shells, and other parts of creation, and can sort and classify them, would be described as having a naturalist intelligence. For this child, the great outdoors can provide hours of thought-provoking stimulation and enjoyment. Field trips and hikes in the woods, caring for pets, the use of observation instruments are what cause this person to derive tremendous pleasure because they provide a hands-on mechanism for learning.

3. Bodily-kinesthetic: "Bodily/Kinesthetic intelligence, (body smart) is the capacity to use your whole body or parts of your body (your hands, your fingers, your arms), to solve a problem, make something, or put on some kind of production. The most evident examples are people in athletics or the performing arts, particularly when dancing or acting."

Detailed ability with fingers, hands, and feet describe this student. Their ability to work with objects precisely, whilst at the same time to use delicate movement causes this intelligence to be used for every specific purposes. The most common example of the bodily-kinesthetic intelligence are the professions of surgeons, doctors, plumbers, mime performers, and carpenters, to name just a few. Athletes are capable of using precise

timing to improve their ability in a certain sport to become more accurate, fast and powerful. Dancers are capable of performing highly complex moves that appear very simple to execute with the greatest of ease and are aesthetically pleasing to the viewers. Children and youth with this intelligence enjoy touching objects, such as manipulatives; this is the way they learn. Students such as this cannot sit still for long periods of time, so they ought to have an object in their hands. Lest individuals think that this is hard to believe, corporations have found that having "toys" in the corporate boardroom increases productivity and creativity. This type of student needs to have something in their hands so that thinking and learning can take place.

4. Linguistic: "Linguistic Intelligence (Word Smart) is the capacity to use language, your native language, and perhaps other languages, to express what's on your mind and to understand other people. Poets really specialize in linguistic intelligence, but any kind of writer, orator, speaker, lawyer, or a person for whom language is an important stock in trade, highlights linguistic intelligence."

This intelligence focuses especially on the use of grammar and word choice. Words that are memorized can be used for entertainment, persuasion, and explanation. The intelligence that is most often found in educators is the linguistic intelligence; people understand with words. However, teachers with the linguistic intelligence must communicate on a level that is compatible with the audience. In order for students to more fully develop this intelligence, students should be presented regularly with the opportunity to read, write, and give presentations concerning issues and ideas that are important in their lives. Sports, media, and music interests are among some of the best in this area.

5. Spatial: “Spatial intelligence refers to the ability to represent the spatial world internally in your mind – the way a sailor or airplane pilot navigates the large spatial world, or the way a chess player or sculptor represents a more circumscribed spatial world.

“Spatial intelligence can be used in the arts or in the sciences. If you are spatially intelligent and oriented toward the arts, you are more likely to become a painter or sculptor or architect than, say, a musician or a writer. Similarly, certain sciences like anatomy or topology emphasize spatial intelligence.”

Spatial intelligence gives a person the ability to manipulate and create mental images in order to solve problems. Spatial thinkers "perceive the visual world accurately, to perform transformations and modifications upon one's initial perceptions, and to be able to re-create aspects of one's initial perceptions, even in the absence of relevant physical stimuli”. Spatial intelligence can lend itself to the ability of visual perception, while lacking in the ability to draw, imagine, or transform or vice versa.

Architects, navigators, hunters, painters, and sculptors possess this intelligence. Those with spatial intelligence often like to play chess, have a vivid use of color, and envision the world differently. The spatial learner enjoys videos, overheads, diagrams, and should be strongly encouraged to draw what they visualize. This intelligence deals with what is tangible, and is compatible with the bodily-kinesthetic intelligence.

6. Interpersonal: “Interpersonal intelligence, (people smart) is understanding other people. It’s an ability we all need, but is at a premium if you are a teacher, clinician, salesperson, or a politician. Anybody who deals with other people has to be skilled in the interpersonal sphere.”

If one sees an effusive, outgoing extrovert, a safe guess is the interpersonal intelligence. Teachers, religious and political leaders, guidance counselors, and even cult leaders rank high on the interpersonal intelligence. This ability if encouraged through working together on cooperative learning projects; observation and experience are encouraged to further develop this intelligence.

7. Intrapersonal: "Intrapersonal intelligence, (self smart) refers to having an understanding of yourself, of knowing who you are, what you can do, what you want to do, how you react to things, which things to avoid, and which things to gravitate toward. We are drawn to people who have a good understanding of themselves because those people tend not to screw up. They tend to know what they can do. They tend to know what they can't do. And they tend to know where to go if they need help."
Self-respect, discipline, inward motivation, imagination, and originality are developed from internal resources. Children such as these need frequent praise and reinforcement that comes in the normal classroom. Projects that are done in stages and need to be checked for thoroughness and completion will ensure that patience and procedure are learned more completely. The mental visualization of organization, and then "making it happen" are typical with those who tend to focus internally.

8. Musical: "Musical Rhythmic Intelligence, (music smart), is the capacity to think in music, to be able to hear patterns, recognize them, and perhaps manipulate them. "People who have strong musical intelligence don't just remember music easily - they can't get it out of their minds, it's so omnipresent. Now, some people will say: "Yes, music is important, but it's a talent, not an intelligence." And I say, "Fine, let's call it a

talent. But, then we have to leave the word intelligent out of the conversation and out of all discussions of human abilities. You know, Mozart was pretty smart!"

Pitch and rhythm, meter, a full use of sounds (predominantly musical) are realized at a young age. The young person who can sing, versus the one who cannot, are readily apparent from the very first day. Musical intelligence students learn to read music, are engaged in critiques, and use musical-critical categories. Music and the furtherance of education should be highly desired because it captures feelings, a needed trait for educating children. Music, because it can be used for other intelligences as well, should be valued, especially in the logical-mathematical intelligence, as it furthers numbers and counting ability.

9. Existential: "Individuals who exhibit the proclivity to pose (and ponder) questions about life, death, and ultimate realities."

Because this intelligence is open to consideration, this intelligence is being left closed for discussion, as the theory of multiple intelligences is still in its infancy. (Gardner, 1983.)

The idea of multiple intelligences is a theory, not a classroom methodology. Each person will possess all of the multiple intelligences, and is capable of using them, by understanding what they have and through the nurturing affects within the classroom. A teacher who uses these abilities will find that there can be any number of effects by more effectively utilizing this flexible way of learning, such as

- A more complex understanding of concepts through multiple depictions, rather than being limited to simply one idea;
- All students will be more inclined to enjoy their learning experiences rather than through the humdrum of lecture;
- Focus on a students' distinguishing strong points, encouraging more diversity in the classroom;

- A creative experimentation with learning ideas and the student's ability to contribute.

An enlightening way of ascertaining what intelligences each student has is to provide a survey, included in this report in the appendix. It is a four page survey that has been adapted slightly, based on the author's permission in the copyright. (Willis, 2001, and Nolen, 2003)

However, with the drive that currently exists in the classroom to prepare our students for a technology-driven society and workplace, one must consider implementing the phenomenon of multiple intelligences and technology side-by-side.

More than 30% of all students in the classroom are visual learners, which means that they learn better through the use of pictures, images, graphic organizers, and the like. Neuroscientists have discovered that the brain is capable of responding immediately to visual sources, rather that through the auditory senses only. Because technology is rapidly taking over our classrooms, the art forms can have an exciting allure, thereby encouraging a high output of artistic expression. Because there are some children with the visual/spatial intelligence, the facets of technology through which they can learn causes their motivation to become highly stimulated, as well as enabling their problem-solving abilities to be cultivated.

The technology-rich society in which we live offers a veritable smorgasbord of practically everything visual. Although some who are auditory learners may be inundated by what they see and understand, for those who have the visual spatial intelligence, it can prove to be one of life's most rewarding experiences in learning. Those who possess a strong linguistic/verbal intelligence can be engaged in tasks that open the virtual vocabulary world; these would enable this type of student to learn word etymology and its proper use, learning how

to contribute in his own writing journal, learning other world languages, and even improving spelling. Studies have shown that students who are not especially good at spelling can be encouraged to incorporate this task into games found online. The pictures, sounds, and words that can be integrated into daily learning activities from such sources can be further improved through the use of word processors, thereby even improving spelling, writing abilities, while at the same time teaching them to use available technology.

Intrapersonal intelligence students provide individual attention and learning; in some cases, instant feedback may also be provided. Self-pacing and individual responsibility allows students to explore and learn at their own pace. When these two independent ideas are merged into one aspect of learning, a higher quality, more in-depth and thoughtful work emerges. This contributes to more positive factors in standardized test results when students feel that they are able to contribute further into newer frontiers of their own learning.

With students having the interpersonal intelligence, collaboration with fellow students, in addition to others available around the world in a virtual setting provides them the opportunity to have online mentors in learning about facets of cultural studies, or the opportunity to have an email pen pal. This is possible because interpersonal intelligence students are willing to overcome any barriers necessary to language barriers. Even those with physical challenges are more than able to overcome any obstacles in the virtual world with the multiplicity of tools available currently.

Bodily-kinesthetic learners are especially attuned to computer usage, as their motor skills are able to become more finely tuned. Companies are in the process of developing software that will allow students to more effectively develop this intelligence, in addition to hardware that

intertwines bodily activities and mathematics through the use of haptic devices, tools that involve force and the sense of touch.

And not to be outdone, for those with a squeamish stomach, those with the naturalist intelligence can learn though the virtual frog dissection, instead of the actual "hands-on" participation common in most laboratories! (Carlson-Pickering, 1999)

In keeping with providing opportunities for students in the classroom to learn and expand their intelligences, many software programs are currently in existence and used on a regular basis by businesses that are also available for use by the students themselves. The following is a sampling at what can be more fully utilized. Included in this project is a series of pages concerning how to more fully utilize Multiple Intelligences in the classroom on a practical basis.

Verbal Intelligence:

- Word processing/desktop publishing (Microsoft Word or Corel WordPerfect)
- E-mail programs (Microsoft Outlook Express; Eudora)
- Web Page Composers (Netscape Composer; the most popular program is WordPad)
- Multimedia Presentation tools (Microsoft PowerPoint)
- Typing programs (Mindscape's *Mavis Beacon Teaches Typing*)

Logical/Mathematical:

- Spreadsheets (Microsoft Excel)
- Map Making tools
- Databases (Microsoft Access)
- Science programs
- Critical thinking programs
- Problem Solving programs

Visual/Spatial Intelligence:

- Animation programs (GIF Animation Factory)
- 3D modeling languages (Sim City 2000)
- Clip Art programs
- Computer-aided visualizations (AutoCAD)
- Digital Cameras and Microscopes
- Draw & Paint programs (Paint Shop Pro by Jasc; Photo Shop by Adobe)
- Electronic chess games (Chess Master 4000)
- Spatial problem solving games
- Electronic puzzle kits

- Geometry programs
- Digital Imagery/Graphics Programs
- Virtual Courseware

Bodily/Kinesthetic Intelligence:

- Hands-on construction kits that interface with computers
- Motion-simulation games
- Virtual reality system software
- Eye-Hand coordination games
- Tools that plug into computers
- Haptic tools (tools that involve force and the sense of touch)

Musical/Rhythmic Intelligence:

- Music literature tutors
- Singing software (voice synthesizers)
- Tone recognition and melody enhancers
- Musical instrument digital interfaces (commonly called MIDI)
- Create Your Own Music Programs

Interpersonal Intelligence:

- Electronic bulletin boards
- Simulation games
- E-mail programs

Intrapersonal Intelligence:

- Personal choice software
- Career counseling software
- Any self-paced program
- Downloadable multi-media applets

Naturalist Intelligence:

- Scientific plug-ins
- Nature sound and/or image files
- Classification of Flora/Fauna software
- Animal sounds identification programs
- Earth Science programs

Existential Intelligence:

- If there were programs that deal with Socratic questioning, they would fall into this category
- Software such as the "Dr. Brain" series incorporates many of the above intelligences
- Web sites that incorporate any/all of the above
- Videodiscs in any discipline can draw students into a topic in which they may not otherwise be interested. (Carlson-Pickering)

This writer has spent multiple pages discussing how multiple intelligences, and the coinciding technology that exists can be used in the furtherance of education. However,

paramount to authentic assessments is the development of a rubric, a document which will give details and standards for their work to receive an excellent, good, satisfactory, or needs improvement rating, or simply a letter grade, depending on the teacher.

Good teachers use rubrics most commonly to determine what is expected at each level of performance. Because they are most commonly developed by educators, perhaps it would be a good idea to involve students as well in the development process; then it would be possible for them to set high guidelines and standards that they would place on their own work, in addition to being an effective instructional tool. Thus, students could and would be welcomed into the process as full partners and would be allowed the process of understanding, analyzing, and developing high quality work. They could see for themselves what essential components are needed, and would thus become higher-end achievers themselves. This is one of the goals of education: to produce students who will learn, understand, grasp, and have better expectations of given assignments that will prepare them for their futures in the real world.

Rubrics can be used quite effectively in math, science, and the social studies. They can also be used by the students as an assessment of their own learning; as it pertains to personal portfolios, which will be examined later in this work, it assists in the development of students' own performance standards.

Because educators have specific guidelines for submitted class work, students should be given the opportunity to see and evaluate for themselves work that simply meets expectations, is of a superior nature, or is simply unacceptable. When students are given this opportunity, they will become empowered themselves, and their own personal standards of work should be enhanced tremendously.

Rubrics can be used to enable students to think about what they have done and learned, and then transfer that learning to an entirely different unique situation. These educational tools have the ability to serve as a foundation for additional learning and metacognition (the ability to think about one's own thinking). The students' educational process is enhanced when they are permitted to see and understand why they made a lower grade in comparison to a higher project.

Typically, feedback from students is most revealing when they come to realize all that is needed in the assessment of their work, and they can learn from the missing elements and discover that they can improve, if they can know where their work somehow went astray. Included in this project are both sample and actual rubrics that have been developed for the classroom. (Skillings and Ferrell, 2000)

When it comes to writing, amazing processes can take place when students are permitted, and even encouraged, to develop and maintain an educational portfolio. A portfolio is a container for carrying or storing documents. Portfolios are able to enhance growth and learning in any numbers of ways, and it is because of this fact that its usage has continued to increase in use throughout many years. Because there are no precise definitions for a "portfolio", a clear determination must follow what we mean by it, and exactly how the portfolio will be used. Will it be an actual case that can be carried and hold items that have been developed, or is it nothing more than a theoretical act, every time something is designed, organized, or created, or when the individual is engaged in an act of theory?

For the sake of clarity, this writer will be conveying that a portfolio is a device of some sort, used for the storage of created documents, whether those documents are actual "hard copy" or virtually produced and kept on a CD-ROM, a computer hard drive or network server drive. It should also be understood that there is no inherent value to the portfolio's contents. They are

simply used to capture variety and growth in many different ways, over either a short- or long-term period. Portfolios, by their very nature, can make profound impacts in the lives of those who produce them, as well as the ones who are responsible for their evaluation. (Kubler LaBoskey. 2000, 590)

Portfolios, when used as properly intended, may be used to show just exactly what a student is capable of accomplishing, and in fact has completed. It is not intended to be just a collection of papers, projects, poems, tests, and art work that has no rhyme or reason. The portfolio should include reason why the student has selected a particular piece of work, why that piece has merit, and a measure of self-reflection. The portfolio should also include teacher evaluations and teacher produced rubrics. It may be used to address one class only, a multiplicity of classes, or developed as a cross section of multiple classes to show proficiency and competency in a wide variety of subjects.

But what is the reason for developing a portfolio, whether in an actual hard copy format or an electronic style? The purpose is dependent upon its final usage. The following are a few types and their uses.

1. Developmental. This style shows what improvements a student has made in the year. Various samples are kept, which may then be shared during an evaluation time with the student or during parent-teacher conferences.
2. Proficiency. This style indicates a level of mastery in the class. It may also be used to determine graduation eligibility. Among those areas evaluated are community service projects, the sciences, technological achievement, and a variety of social and ethical issues.
3. Showcase. This portfolio documents a student's highest quality work, to include research reports, laboratory experiments and findings, as well as art work. The time period seems to be irrelevant, as it can follow the student for their entire education, or simply for a school term.
4. Educator preplanning. Educators determine what the educational standing may be by examining their portfolio before a class enters. This would allow them to determine what plans need to be made an adjusted accordingly.
5. Pre-employment skills. Companies, both large and small, may be able to determine how a prospective employee can be placed, and in what areas they have

a propensity to succeed. Attendance records, critical thinking and solving and ability tasks would be of tremendous interest to employers.

6. College/university admission. Institutions of higher learning determine what are the prospects of success in requiring portfolios to be sent as part of a pre-admission process. (Lankes, 1998)

One such school in the New York City area has found success in developing a rigorous electronic business portfolio. This is a high-stakes environment, as the portfolio determines their eligibility of graduating from high school. Items included are the development of a business resume, various meeting with adult mentors, the compilation of news articles for publication, and preparing either an actual business plan or a website. This program has allowed the students to become more self-confident and prepared that is theirs alone, and can be more fully utilized by the school and business community. (Quesada, 2000, 46)

Class and individual portfolios can be more valuable that the traditional pencil and paper tests because they can be integrated in the class plans. Portfolios also allow the quality time in instruction to be more fully realized, because they supplement the actual instruction periods. In light of this, there are two questions that must be asked:

1. Why should be do something new? We've always tested achievement this way. Because students have a tendency to save work, this allows them to return to their works and develop plans for improvement and higher achievement. It requires them to learn from their works and exactly what they need to do to make it better for the classes in the future, where much more will be expected from them
2. How do I make this portfolio thing work anyhow? Students are expected to collect works, select them for possible inclusion, and make a reflection on why that piece was chosen to begin with in the first place. Well-developed rubrics

enable students to have clearly defined guidelines and structure. The best time to start this process of discussion is "as soon as possible."

What research seems to indicate concerning portfolios and achievement is that students view their class work as nothing more than a passive activity. According to David Sweet's work on Classroom Uses of Student Portfolios (2000), work is completed, received by the teacher, graded with a number of letter, and returned. There appears to be no data with the actual evaluation; therefore, students view their work with a high degree of passivity in which they have no choice in determining what "say" they have. Portfolios allow students the opportunity to develop criteria, seeing and understanding what actually constitutes "good work" not only from themselves but from their fellow classmates as well.

Pupils benefit from the awareness process of writing and strategizing in such areas as problem solving, topic research, information analysis, and personal observation to a much higher degree than previously thought. But without intense thought and instruction related to the processes and strategies for effective performance, it seems to be the case that students will learn only very minimally, or possibly not at all. Portfolios allow students to be made acutely aware of strategy development and implementation, not only in the classroom, but in the real world too.

However, in this intense process there are significant additional requirements that are placed on all staff involved in the process. Time for planning, teacher peer and small group/student conferences, strategy development and materials planning, and determination of available resources to be allocated tend to be some of the drawbacks. However, educators who have been confronted with these issues have not backed off, because the clear-cut results in student achievement and motivation to perform with a high degree of excellence has been worth much more than the effort expended. (Sweet, 2000, 1)

But with the coming of the electronic age and the many available ways of storing information, many educators have considered ways that portfolios can stay with the students through 12-13 years of schooling. Because paper forms and portfolios would necessitate additional space, the computer-based or "electronic portfolio" enables the information to be captured, managed, and stored electronically. This way of utilizing information can be greatly enhanced, as digital formats enable much more than just paper forms to be kept; it opens the door widely to various forms of text, graphics, sounds, videos, multimedia presentations, varying degrees and types of projects. There simply is no limit to what can be done with electronic formats!

Because larger capacity hard drives are commonplace today, single computers can store information for one year, and then be transferred to a network system that is capable of following that student for the course of their enrollment. Information that is kept on such a system enables educators and administrators to have easy access for updating purposes. Possible alternatives include burning CR-ROMS, which are a highly effective and inexpensive way to keep information available.

One such program currently available for educational purposes include Hyper Studio, readily available for educators to design and maintain templates to assess portfolios; teachers can include student written drafts and outlines, while another teacher may choose to include only the finished product with the self-evaluations.

East Syracuse-Minoa High School in East Syracuse, New York is currently using and developing electronic-based portfolios for their student population in grades 10-12; they have chosen to use this medium as a prospective form of evaluation for colleges in the admissions process and employers for suitable placement in the workforce. One portfolio developed with

Hyper Studio was the "Portfolio Manager" which included the traditional items of transcripts, recommendations, and work history; additional information included student selected entries of class work, multimedia research reports, and short video clips.

Because the students must keep their electronic portfolios updated, they are responsible to include items that they believe their best work. These portfolios are started in the tenth grade and continually revised during their high school years. Because this electronic format is updated regularly, when it is completed, the portfolio can be transferred via almost any means possible, including diskette, videotape, print mode, CD-ROM, and the Internet.

From 1996-1998, 110 portfolios have been included with college applications. Reports received have indicated that colleges and universities have been highly receptive to this idea, and now all students at this high school have electronic portfolios.

There are other examples available in which schools have utilized the phenomena of electronic portfolios. Mt. Edgecumbe High School in Sitka, Alaska, enables their students to create them by utilizing the power of the Internet and learning HTML, the language used for designing web pages. Each Electronic Learner Portfolio includes a cover page, table of contents, resume, personal statement and eight samples of work representing at least four academic subject areas. As of January 1998, over 500 students at the school had created HTML portfolios. This information is able to be accessed at the following website: http://www.mehs.educ.state.ak.us/portfolios/portfolio.html. (Lankes, 1998)

Included in this project are pages that incorporate a Project-Based Learning with Multimedia on a simpler basis, generally leaving the content up to the teacher. (San Mateo County Office of Education, 2001)

The most interesting aspect of alternate assessment is in its effects upon the teaching community as a whole. Because teaching as a profession has changed so much over the years, colleges and have developed programs that are seeking to prepare the educators of tomorrow with the knowledge, skill, and courage it takes to lead our schools. Development of educational leaders is crucial for reform, and there are several factors that must be more closely examined both now and over the next several years.

- Perspectives concerning roles in the community and places of leadership are in a state of flux;
- Flexibility in a globally-based economy;
- The family is in a major state of change concerning demographics, both in the area of ethnicity and cultural diversity;
- What exactly does it take to be an educator so that students can learn, as well as modes of teaching;
- A higher core of principles for those who are desirous of being administrators; and
- Increased understanding concerning how science may enable us to understand thinking.

The wonderful outcome of these ideas is that there are many now alternatives and programs that are being developed and offered to prepare the future educational leaders for the future generation. The leaders of tomorrow will have some clear qualities that will enable them to be prepared. There are no single best leader types, but they must have some of these characteristics.

- A sense of purpose and a moral foundation;
- Traits that will allow them to build a sense of community and engage others in constructive dialog;
- Knowledge of skills and able to user them to bring inquiry, transition and change to the classroom and all those connected with it; and
- A view in which that person can see that everything has a degree of interconnectivity.

The sense of purpose and moral foundation which has just been referred to will enable relationships to be forged with the educational community as a whole, and will further strengthen the ties when all seem to oppose the plans that have been clearly laid out and individuals want their own way and threaten to bail out. (Lambert, 1995)

Success or failure comes when teachers either know or do not know what they are doing in the classroom. Because of the rapidity with which changes come in our society, it is imperative that teachers and administrators enable their pupils to earn to think at all levels, develop their learning capacities and abilities in different ways, and aspire to be lifelong learners. And in order for educators to become more effective in the classroom, solutions must be implemented to the problems that will come in the class, teachers must learn to work more cooperatively, as well as continuing to learn throughout their professional careers. Those who cease to learn will become stagnant, and the changes that should come will stay locked away in a closet.

INTASC, the Interstate New Teacher Assessment and Support Consortium, has worked intensely by promoting collaboration among the states concerning teacher preparation and professional development programs. Principles that have been developed have as their foci the ability of teachers to present new ideas that are connected to what the students already have learned, provide tasks that will actively engage students in the higher level thinking and ordering skills, learning styles and how it fits into the overall scheme of learning and knowledge, and focusing on an environment that is more conducive to student learning and activity.

Based on this information, a portfolio-based assessment was developed. Primary data from instructional learning of the beginning teacher, videotapes, interaction, feedback, secondary sources such that teacher's comments and steps to be utilized in improving lessons presentation

allowed the new teacher to have a much greater depth through a multiplicity of avenues, rather than the traditional classroom observation.

This specific portfolio documented ten hours of in-class teaching. The areas to be explored were documented through lesson development, written evaluations, student work samples, and videotapes. The actual teaching portfolio consisted of the following elements:

- The Context of Your Teaching: a form and written commentary describing the community, school, students in the class, three highlighted students, and available materials, textbooks, and technology.
- A Series of Lessons: lesson plans with copies of tasks, notes, assignments, textbook pages, and other artifacts; a commentary describing the mathematics, types of tasks, discourse, environment and analysis planned; a commentary describing the accommodations is planned for the three highlighted students.
- Two Featured Lessons: a more detailed analysis of two of the lessons, including a videotape of approximately 20-30 minutes of each lesson to include whole and nonwhole group instruction, the assessment given to students and samples of three students' work, and a commentary that expands on the lesson plans and describes what actually occurred.
- A Cumulative Evaluation of Learning: an assessment and scoring criteria for the series of lessons, marked copies of the highlighted students' work including feedback to students, and a commentary on the assessment and its results.
- Analysis of Teaching and Professional Growth: a commentary reflecting on the teaching presented in the portfolio, aspects that might be improved, and preliminary plans for continued professional development.

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In light of what has been presented here, in a limited scope, it is possible for beginning educators to determine what seem to be the most desirable aspects and methods to include in the teaching portfolios, in addition to examining more closely why some strategies do not or will not work as intended. The essence of what is intended here is good teaching, not only from a novice position, but also for the more experienced teacher. And if it’s good enough for the pupils, then why would it not be good enough for those who are responsible to teach our children what they need to know in the most effective way possible? (Weber, 1998)

According to Dr. Bonnie Jones (2001), an education program specialist at the U.S. Department of Education, portfolio usage can be used in a wide variety of situations and with multiple students. They can be used over a longer period of time than with traditional assessments, and they are flexible enough to be used in student implementation, based on a student's own abilities. The students are able to choose relevant activities that accurately reflect what they themselves are capable of doing.

Typically, portfolios demonstrate a student's highest level of work, and typically follow a student through their school careers. Because they can be utilized from year to year, actual samples will follow the student as they move from grade to grade. The essential components that must be followed, according to Dr. Jones, are as follows:

1. The content standards that follow the portfolio; that is, what a student can both know and do in a particular subject area;
2. Students must be shown clearly thought out performance standards via a rubric so that they can see how their products and activities will be evaluated. The performance standards offer clear examples that will meet content standards, as it is not enough to simply put together products without thought and have opportunities to reflect on their learning.
3. Multiple examples of work must be included in the portfolio which is indicative of student learning. The continuing growth of the portfolio should emphasize the student's learning over weeks, months, and years.
4. Time is greatly needed for students and teachers to collaborate on the work samples, and to discuss what the future plans will be in designing the portfolio. The assessment by the teacher should not be perceived as being just another requirement for the teacher. If it is deemed in this light, then the effectiveness of the assessment will be lost.

Dr. Jones further believes that some of the potential problems that occur with portfolios are time to review, manage, and develop the standards needed for such a program. Standards that must be developed are content-alignment with the curriculum, meetings with the pupils and related parties to understand and develop their interests, development of meaningful activities

that are closely related to the curriculum, ways of assessment, and consultation with other faculty.

Another obstacle may be that most individuals perceive norm-referenced assessment as the traditional way to view student achievement. The difficulty with portfolio assessment and the need for them is that it could possibly take a great amount of time to convince such individuals that portfolio assessment is not intended as a replacement, but as a supplemental informal measure. When it is possible to help individuals understand this process, these people are more than likely to proffer their support. It must be presented from the perspective that portfolios are to be aligned with clearly stated curriculum standards, not just another collection of work that serves no valid purpose.

Portfolios can be used in helping families what is meant by content standards, how these standards are taught and measured, and how they can enhance student learning. There are many ways in which parents can be involved in the process: newsletters, parent-teacher conferences and meetings, the school's website, and word-of-mouth referrals. Because parents want to know what is going on in their child's life, a systematic way of presenting this information must be implemented year after year, teacher after teacher.

The future of portfolios can be shared between teachers in seeing that students learn by completing assignments, learning strategies, concepts, and skills that will increase their proficiency in a vast array of areas. Because all parties to the education of our children must be attended to now, this area can no longer be confined to just one educator or resource personnel. (Jones, 2001, 225)

However, in examining alternate assessment, it is also important to evaluate what some people are seeing and saying concerning performance assessment. Mr. Richard L. Andrew, a

program development specialist with Professional School Services and assistant professor of education at Eastern Illinois University, contends that performance and testing on a state-wide level is a waste of time. His perception concerning this area is that a booming bureaucracy is seeking to justify its inefficiency and chaos in the classroom. He further contends that this monstrosity is discouraging teachers, students, and parents alike.

It seems to be the case there are inappropriate tests that have no right or wrong answers, student response in areas such as language are irrelevant, as the students' answers will be left unscored. He further contends that grammar and reading skills are not important in the scoring criteria; only the response is what is sought at the end of the question.

Mr. Andrew further feels that mathematics is not exempt from this fraud. Problems solving requires students to give detailed explanations of how they arrived at their answers, and he feels that it is possible for students to give more credit for how they arrived at a wrong answer than at a correct one! In the final analysis, it is possible that teachers will be required to redirect their efforts in constructing answers that will satisfy the scorers in this whole process, rather that strict adherence to a curriculum-based form of knowledge that students will need to succeed in life.

Mr. Andrew sees that there are problems nation-wide with performance-based assessments. Arizona, California, Florida, Colorado, Georgia, Indiana, Iowa, Kentucky, Maine, Maryland, Michigan, Tennessee, and New Jersey are among those states that have tried to implement performance-based assessments, and found numerous problems. Problems of accuracy concerning what students were learning, teacher subjectivity, psychological risks and invasion of privacy issues, political correctness in reading and poetry selections, teachers feeling that they have no time to teach creative projects because of continued test preparation,

elimination of electives such as music, business-related courses, and art are just a few of the many complaints. Tennessee found that many of the students in the large, metropolitan districts tended to score higher than in the rural communities, based on their Tennessee Comprehensive Assessment Program. In addition, the nationally-normed test scores are much higher than on their competency test.

Concerning effective programs, students' attitudes and why they do the things they do in classes must be the focus of attention. Restoring faith in high school diplomas and what they represent can only be valued in what the students are asked to do, when they demand more for and from themselves. Curriculum should be the very best that schools have to offer, a curriculum that challenges and stimulates the pupils' minds, rather than simply test-taking for the sake of taking more and more tests.

Helping to cultivate a loving home atmosphere is for the benefit of everyone. Focusing on their home beginnings would help children get what they want and need; this in turn would create a motivated learner, prepared for the challenges that life will present. This would cause children to want to learn, and would tend to be self-perpetuating. (Andrew, 1997)

Mr. Andrew feels that performance-based assessments are a colossal waste of time, and that there are better alternatives, such as focusing on the home life, and the curriculum in the school. However, this educator feels that without there being a challenging curriculum and receptive students who are externally motivated by their parents, and internally motivated to want to learn and do their best, in what way can we challenge students to higher scholastic achievement? The technology exists to prepare students in a diverse number of ways. In what way are we utilizing what is currently available?

Another factor that must also be considered in performance-based assessment, particularly with portfolios, is the understanding that just scores are also accurate scores; these are intended to reflect state content and quality standards. A group of teachers in Kentucky found that working with scoring guides enabled them the opportunity work with their classes, in addition to the language needed for such discussions. Of concern was the agreement needed among teachers, as well as how many scorers would be needed. The need to be "impersonal" when evaluating works was required in that the evaluators were reading real work by real students. The teachers who participated in this type of project found that being totally detached and impersonal was nearly impossible according to what the state Department of Education wanted, as these teachers both knew and taught these pupils.

Truthful scores would be genuine accounts of the strengths and weaknesses of each student writer. Truthful scores, for instance, would reveal just how seriously students had taken the assessment; the amount and kind of assistance they had received; and the emotional, intellectual, and physical constraints that had influenced the writing. Truthful scores would probably not be either just or caring because they would include factors not addressed by the scoring guide and would contain information some interested parties might prefer not to have acknowledged.

A concern that these teachers expressed was a lack of concern by graduating students, who saw no imperative to submit their best work, as they were required to submit a portfolio simply to graduate. The degree of student accountability seemed to be highly lacking with some groups; other groups put much effort but saw little measured in the way of progress; it seemed as though the emphasis was placed on achievement only. (Callahan, 2001, 177–200)

In the final analysis, portfolios and performance-based assessments can be used to enhance quality teaching and greater student achievement in many ways. According to David Sweet's guide on the uses of student portfolios for administrative purposes (2000), some of the ways that this task can be accomplished are as follows:

- Features and guidelines of high quality work to extend instruction and discussion that the students may apply to their own work and progress;
- Engaging others in productive projects and learning that can be shared with others and referenced regularly; and
- Keeping a chronicle of work that opens channels of dialogue between student and teacher, and is substantially focused on individual student work.

To this point, administrators are being called upon to ascertain what role portfolios, standardized tests, and other forms of assessment are playing in the educational process, especially as it relates to administrative duties. Several questions are being asked; here are the ones that must be answered:

- What do we know about the technical adequacy of portfolios for administrative decision making and reporting? How comprehensive are portfolios in covering important cognitive skills? How valid are they for the purposes schools set for them, and for the uses that go beyond these purposes? How reliable are the ratings we assign to a student's portfolio? Would someone else give a different rating?
- How will using portfolios for administrative decisions and reports affect their utility as instructional tools? Have portfolios been revamped to satisfy the technical requirements which can still play a constructive role in teaching for understanding and in motivating students to be active learners? For example, would students work as enthusiastically on assigned projects as they would on projects they were allowed to choose on their own? Would the amount and quality of their work suffer?

Research indicates that classroom level portfolios and performance-based types of assessments are intensely personal and highly individualized. The purposes for their use in "high stakes" uses do not appear to contain enough information for such use. Other tools, such teacher observations, sentence completion quizzes and tests, multiple choice tests, and essays must also

be strongly considered for important aspects of students learning. No one particular measure of student learning should be the sole source of reward or punishment for a student, teacher, school, or academic program. Portfolios and performance-based assessments are just one of the many tools that can and ought to be utilized for student learning.

There are problems and easily remedied solutions with portfolios and performance based assessments. These are some that ought to be considered.

1. Pupils are not capable of doing what is required for the portfolio. Several strategies are needed.
    a. If the students have not had the needed time to learn what is required concerning the material and appreciate the links between the concepts and procedures, then no assessment is going to be fair and right. In fact, the assessment will be meaningless. A change in course offerings, coverage of the curriculum and methods of instruction may be needed.
    b. If students have not had the hands-on experience in applying what they know to a new set of problems, or in working cooperatively with other students, then it is possible that they will perform less well than have other students who have had such experiences. It may be necessary to treat them in the same way as having not learned the subject material.
    c. It is also possible that student who have limited English proficiency will not do as well as those who have English as their native language. Bilingual support and translated materials may be needed for such students. Researchers are currently pilot testing regular tasks with those who are limited English proficient.
2. Different students have worked on different tasks or projects that are not comparable either to each other or across classrooms. Several things can be done:
    a. General guidelines need to be developed that can be utilized in a wide variety of class settings and curricula;
    b. Train teachers and other related personnel to use what has been developed;
    c. Include "on-demand" tasks that all students complete as part of their portfolio collection;
    d. More than one evaluator needs to be had for the portfolio assessment; and
    e. Use more than just portfolios as the source of evidence of student accomplishments.
3. There are too many grading criteria for evaluations, or there are different scores, even when the criteria has been decided and agreed upon previously.
    a. Planning and training time needs to be planned so that teachers can be directly influential in the selection of rubrics that clearly define what the expected performance is to be. Under clearly set guidelines, teachers and evaluators can be trained to grade work consistently and fairly.

b. How teachers work and evaluate in the classrooms are different. Because fairness is an issue with students, rules must be developed, and teachers must have the opportunity to discuss their ideas with other teachers. Training sessions must be a part of training sessions, and staff development is absolutely essential so that teachers can work through their ideas and be trained more effectively.
c. Peer review can also be troublesome, since students placed in higher ability groups would likely receive more helpful peer input. As a consequence, many teachers and assessment experts have argued that peer review has to be given up if student-level comparisons are to be made equitably.
d. Parent, sibling, or other help may also present a problem in assessing student performance based on portfolio projects that extend over a period of time. Sending notes home with guidance for parents has been one approach, and student honor codes have been another.

4. What are the number of tasks that need to be assigned? Students so far have worked out only a few tasks; the tasks that have been assigned are not alike, and extended tasks take a great deal of time to plan and implement.
   a. Accomplishing a limited number of tasks can be addressed only by increasing what needs to be completed by the students, or incorporating other areas to be evaluated, rather than by judging portfolios only.
   b. Occasionally, fewer tasks would be needed if each task came with fairly extensive passages of task-related information, such as those used by some researchers to assess deep understanding of history and science. On the other hand, more tasks would be needed if the tasks were less carefully structured or less carefully researched, or the content area to be assessed were defined more broadly, for example, mathematics and science combined.
   c. Increasing the number of tasks in a portfolio may not be a bad idea anyway: It would give additional emphasis to student production of papers and other work products. In terms of administering tasks or assigning work, ten tasks might be carried out over an extended period of time as a continuing cycle of instruction, performance, and assessment. At the opposite extreme, 10 tasks that require 15 minutes each might be administered in a single morning at the high school or junior high school level.

There are also several general strategies that can be implemented to shore up the more technical aspects of portfolios and performance assessments.

1. Evaluators must be trained to a pre-determined standard which is deemed acceptable;
2. A regular schedule of in-service training for the teachers;
3. The opportunity to share students portfolios among the faculty;
4. Methods of auditing for acceptable work; and
5. Ongoing research and development activities. (Sweet, 2000)

Portfolios and performance-based assessments are not the universal remedy. They can be effective only when teachers, administrators, and schools what is important for their students to learn, and then abasing activities around those clearly defined guidelines. A question that must be asked is "What do I want my students to learn, and how will I know when they have learned what they need to learn?" Each part of the assessment should show the students what they must accomplish, based on the objectives of the course.

Portfolios and showcasing them gives an opportunity for learning as well as assessment. The students have an opportunity to show, in a different light, what they have learned , as well as deepening the concepts that they have accomplished. Student self-evaluations should provide ample evidence that they have not only learned about assessment in complex ways, but that the concepts which they have learned can re directly related to their own skills and personal goals. Many educators are seeing portfolios and performance assessments as a way to support reform of education and learning in the classroom.

Based on what has been researched and presented in this project, there are many ways in which student learning can be enhanced and used for the real world. Multiple intelligences, performance-based assessments, technology-based projects, and portfolios are just a few of the ways in which the students who pass through our classrooms an be prepared for the challenges that will face them upon graduation. What are we doing to prepare them for their futures? Are we as educators up to the challenge? Are we preparing ourselves in seeking to help prepare them? May our thirst for learning never stagnate as we do what is necessary and needed for the future of our students. (Taylor, 1997, 123-147)

References

Allison, Eileen, & Friedman, Stephen J. (1995). Hassle-Free Report-Card Reform. *Education Digest, 60*(8).

Andrew, Richard L. (1997). The Statewide Waste And Discouragement Of Performance Assessment. *Contemporary Education, 69*(1).

Browder, D. M., Spooner, F., Algozzine, R., Ahlgrim-Delzell, L., Flowers, C., & Karvonen, M. (2003). What We Know and Need to Know About Alternate Assessment. *Council for Exceptional Children, 70*(1).

Callahan, Susan. (2001). When Portfolios Become a Site of Ethical Conflict: Using Student Portfolios for Teacher Accountability. *Educational Assessment, 7*(3), 177–200. Lawrence Erlbaum Associates, Inc.

Carlson-Pickering, Jane. (1999). MI & Technology: A Winning Combination! *Teachers in Technology Initiative.* Retrieved February 28, 2004, from http://www.chariho.k12.ri.us/curriculum/MISmart/mi_smart.htm

Chang, Chi-Cheng. (2001). *Construction and Evaluation of a Web-Based Learning Portfolio System: An Electronic Assessment Tool.* Taiwan, ROC: National Taipei University of Technology, Graduate Institute of Technological and Vocational Education.

Clark, Donald C. & Clark, Sally N. (2000). Appropriate Assessment Strategies for your adolescents in an Era of Standards-Based Reform. *Clearing House, 73*(4), 201.

Clayton, Mark. (1997). More Kids' Grades Ride On A Portfolio Of Work. *Christian Science Monitor, 89*(238), 12.

Ford, A., Davern, L., & Schnorr, R. (2001). Learners With Significant Disabilities. *Remedial & Special Education, 22*(4).

Gardner, Howard. (1983). *Frames of Mind: The Theory of Multiple Intelligences.* New York: Basic Books, 1983.

Hopkins, Martha H. (1997). Getting Real: Implementing Assessment Alternatives in Mathematics. *Preventing School Failure, 47*(2).

Jones, Bonnie. (2001). Using Student Portfolios Effectively. *Intervention in School & Clinic, 36*(4), 225.

Kampfer, S. H., Horvath, L. S., Kleinert, H. L., & Kearns, J. F. (2001). Teachers' Perceptions of One State's Alternate Assessment: Implications for Practice and Preparation. *Council for Exceptional Children, 67*(3).

Kennedy, Dan. (1999). Assessing True Academic Success: The Next Frontier of Reform. *Mathematics Teacher, 92*(6), 462.

Kleinert, H., Green, P., Hurte, M., Clayton, J., & Oetinger, C. (2002). Creating and Using Meaningful Alternate Assessment. *Teaching Exceptional Children, 34*(4), 40-46.

Kleinert, Harold L., & Kennedy, Sarah, (1999). The Impact Of Alternate Assessments: A Statewide Teacher Survey. *Journal of Special Education, 33*(2).

Kubler LaBoskey, Vicki. (2000). Searching for the Essence of 'Educational Portfolios. *Phi Delta Kappan, 81*(8), 590.

Lambert, Linda. (1995). New Directions In The Preparation Of Educational Leaders. *Thrust for Educational Leadership, 24*(5).

Lane, S., Parke, C., & Stone, C. (2002). The Impact of a State Performance-Based Assessment and Accountability Program on Mathematics Instruction and Student Learning: Evidence From Survey Data and School Performance. *Educational Assessment, 8*(4), 279–315; Lawrence Erlbaum Associates, Inc.

Lankes, Anna Maria D. (1998). Portfolios: A New Wave In Assessment. *T H E Journal, 25*(9).

Lucas, Bill. (2002). How to develop multiple intelligence. *People Management, 8*(25).

Marks, Jeff. (2000). Credit Card Quiz. *Mathematics Teaching in the Middle School, 6*(3), 150.

McConnell, Scott R. & Odom, Samuel L. (1999). A Multimeasure Performance-Based Assessment Of Social Competence In Young Children With Disabilities. *Topics in Early Childhood Special Education, 19*(2).

Moon, Tonya R. (2002). Using Performance Assessment in the Social Studies Classroom. *Gifted Child Today, 25*(3), 53.

Moore, Rita A. (1998). Helping Teachers Define and Develop Authentic Assessment and Evaluation Practices. *Assessment Update, 10*(3).

Nolen, Jennifer L. (2003). Multiple Intelligences In The Classroom. *Education, 124*(1).

Novak, John R. (1996). Establishing Validity for Performance-Based Assessments: An Illustration for Collections of Student Writing. *Journal of Educational Research, 89*(4).

O'Donovan, Theresa. (2003). Doing It Differently: Unleashing Student Creativity. *Teaching Theology and Religion, 6*(3), 159–163.

Phillips, Ione D. (1998). A Texas science academy takes authentic assessment to a new level in a technology course designed to work like a high-tech firm. *Techniques: Making Education and Career Connections, 73*(3), 18.

Quesada, Arli. (2000). Projects, Portfolios, and Performance-based Assessments. *Technology and Learning*, p. 46.

Rabinowitz, Stanley N. (1995). Beyond Testing. *Vocational Education Journal, 70*(3).

Roanoke County, Virginia, Public Schools. (2002). *Bright Ideas* newsletter. Roanoke County Department of Gifted Education, 21.

Roberts, Larry, (2002). Technology Education Projects: Portfolio Grading System. *Tech Directions, 62*(1), 12.

San Mateo County Office of Education. (2001.) *Project-Based Learning with Multimedia.* Retrieved April 4, 2004 from http://pblmm.k12.ca.us/PBLGuide/Activities/Activities.html

Shriner, James G. (2000). Legal Perspectives On School Outcomes Assessment For Students With Disabilities. *Journal of Special Education, 33*(4).

Siegle, Del. (2002). Creating a Living Portfolio: Documenting Student Growth With Electronic Portfolios. *Gifted Child Today, 25*(3), 60.

Skillings, Mary Jo, & Ferrell, Robbin. (2000). Student-Generated Rubrics: Bringing Students Into The Assessment Process. *Reading Teacher, 53*(6).

Spalding, Elizabeth. (2000). Performance Assessment And The New Standards Project. *Phi Delta Kappan, 81*(10), 758.

Special Education Report. (1999). Survey – States Progressing with Alternate Assessments. 25(16).

Stage, Scott A.& Jacobsen, Michael D. (2001). Predicting Student Success On A State-Mandated Performance-Based Assessment Using Oral Reading Fluency. *School Psychology Review, 30*(3).

Strong, Sue, & Sexton, Larry C. (2000). A Validity Study Of The Kentucky's Performance Based Assessment System With National Merit Scholars And National Merit Commended. *Journal of Instructional Psychology, 27*(3).

Sullivan, Mark. (1999). The Making of a Distinguished School. *Thrust for Educational Leadership, 28*(3), 33.

Sweet, David. (2000). Student Portfolios: Administrative Uses. (Office of Educational Research and Improvement, *Consumer Guide*.) Washington, D.C. U.S. Department of Education.

Sweet, David. (2000). Student Portfolios: Classroom Uses. (Office of Educational Research and Improvement, *Consumer Guide*.) Washington, D.C. U.S. Department of Education.

Syre, Thomas R. & Pesa, Jacqueline A. (2002). Teaching Portfolios: Suggested Contents. *College Student Journal, 36*(2).

Taylor, Catherine S. (1998) An Investigation of Scoring Methods for Mathematics-Based Assessments. *Educational Assessment, 5*(3), 195-224; Lawrence Ehrlbaum Associates, Inc.

Taylor, Catherine S. (1997). Using Portfolios to Teach Teachers About Assessment: How to Survive. *Educational Assessment, 4*(2), 123-147; Lawrence Erlbaum Associates, Inc.

Tindall, G., McDonald, M., Redesco, M., Glasgow, A., Almond, P., Crawford, L., et. al. (2003). Alternate Assessments in Reading and Math: Development and Validation for Students with Significant Difficulties. *Council for Exceptional Children, 69*(4), 481-494.

Turner, M. D., Baldwin, L., Kleinert, H. L., & Kearns, J. F. (2002). The Relation Of A Statewide Alternate Assessment For Students With Severe Disabilities To Other Measures Of Instructional Effectiveness. *Journal of Special Education, 34*(2).

Viadero, Debra. (2003). Challenging Conventional Wisdom: Evidence From Neuroscience. *Education Week, 22*(39), 24.

Weber, Jr., William B. (1998). Improving The Teaching And Learning Of Mathematics: Performance-Based Assessment Of Beginning Mathematics Teachers. *School Science &*

Mathematics, 98(8).

Willis, Jody Kenny. (2001). Multiply With MI: Using Multiple Intelligences To Master Multiplication. *Teaching Children Mathematics, 7*(5).