DISMANTLING THE FACTORY MODEL
OF ASSESSMENT

Frank W. Serafini
University of Nevada – Las Vegas, NV, USA

The Factory Models of the 1900's had a significant and lasting impact on the educational curriculum and testing frameworks developed in America's public schools. The child was viewed as a product, the school was designed as an educational factory, and standardized testing became the quality control mechanism for measuring educational progress. The effects of these structures can still be seen in today's public school organizations. Breaking free of the limiting effects of standardized testing requires changes in teacher education, school organization, curriculum frameworks, and especially, the methods of assessment currently used in public schools. Viewing assessment as 'reflective inquiry' rather than the measurement of accumulated facts, requires time, a new perspective, and dialogue among educators.

"School cannot be a place of pleasure, with all the freedom that would imply. School is a factory, and we need to know which workers are up to snuff. . . .The teachers in charge are the floor bosses, so don't expect them to praise the virtues of free intellectual development when everything, absolutely everything in the school setting—the classes, grades, exams, scales, levels, orientations, streams—enforces the competitive nature of the institution, itself a model of the workaday world." (Pennac, 1994, p. 92)

Standardized testing and the "Factory Model of Education" have had an enormous impact on educational structures and practices since the early 1900s (Callahan, 1962). As referred to in the above quotation by Daniel Pennac, school has been traditionally designed as a factory, with the child seen as a product and all of the other educational components supporting that premise.

It is no coincidence that large-scale efforts to develop standardized tests began at approximately the same time as these "Factory Models" were being introduced into education. Both the Factory Model of Education and the Standardized Testing Programs of the early 1900s were intended to bring "hard science" into their respective endeavors to reduce

Address correspondence to Frank Serafini, 9599 W. Charleston Blvd, #1074; Las Vegas, NV 89117. E-mail: serafini@unlv.edu

uncertainty, standardize products, and create more efficient schools (Bracey, 1995).

These educational developments, the factory model of education and standardized testing, are aligned with modernist, philosophical assumptions that are based on "the point of view that all nature (including human nature) is governed by invariable laws and that these laws can be discovered and unerringly applied by means of science" (Hanson, 1993, p. 13). In this sense, assessment, namely standardized testing, is a form of measurement based on modernist philosophy (Elkind, 1997).

Educational theorists intended to bring their version of "science" into their respective models to reduce uncertainty in order to ensure a standardized product and create more efficient educational institutions. This "scientific" initiative is expressed by Murphy (1997): "Th[e] abundance of testing in contemporary American society is just one more manifestation of the desire to control, to be 'scientific' and to leave nothing to chance" (p. 262). Murphy adds that, "[s]tandardized testing is, perhaps, a prototypical exemplar of this broader desire to control chance. The ultimate reward for using standardized tests, then, was that education could be made more efficient and effective" (p. 263).

The adoption of these "scientific principles" into educational arenas forced educational administrators to view themselves as business managers concerned with efficiency and production rather than as scholars or educators (Callahan, 1962). Efficiency (namely, time well spent) and accountability (namely, money well spent) took precedence over the concern for providing a quality education for individual children. Control and cost effectiveness were prioritized over educational excellence.

This "scientific" movement was predicated on three main concepts; (1) The School as Factory, (2) The Child as Product, and (3) Standardized Testing as Quality Control. The child was thought of as a piece of raw material to be shaped by the educational "factory" into a quality "product." Teaching became viewed as a form of training, and schools were expected to operate more like assembly lines, working on children as they passed through various stages of the curriculum. Once these factories were "up and running" and the standards for the "child as product" were determined, standardized testing became the means for measuring the quality of this product.

In what follows, I first address the concept of "Standardized Testing as Quality Control." Next, I briefly discuss the types of assessment used in today's schools and the need for a new perspective concerning assessment. Then, I outline a different perspective for assessment, one based on reflective inquiry rather than measurement. Following that discussion, I describe several factors that have helped support teachers (including myself) in making this "paradigm shift" from assessment as measurement to assessment as reflective inquiry. Using examples from my experience as

a staff development facilitator working with teachers in their classrooms, I will explain the characteristics that have helped support this change in perspective. In closing, I will briefly describe some of the challenges we face as educators in supporting teachers changing their perspectives towards assessment.

STANDARDIZED TESTING AS QUALITY CONTROL

The effects of the standardized testing movement of the early 1900s had a profound impact on the way schools viewed assessment. This impact can still be felt today as we spend millions of dollars each year on standardized testing programs nationwide in order to judge the efficiency and effectiveness of schools (Hanson, 1993).

This standardized testing, along with grade level structures, has been a predominant factor in supporting the ''school as factory'' model of education. Originally, these standardized testing programs were designed to measure the specifications set out by administrations for the development of their educational ''products'' and to provide public accountability for external audiences, such as business leaders and legislative bodies (Bracey, 1995). Once the standards for the quality of each ''child as product'' were devised and the ''assembly line'' of education was up and running, the next logical step was to devise a method to judge the quality of each product. In this sense, standardized tests became the quality control mechanism used to regulate public schools and ensure a quality product.

These standardized tests were designed according to a ''consumption view of knowledge'' (Crebbin, 1992). According to this view, knowledge was seen as a product, a set of discreet facts and skills to be ''consumed.'' Standardized tests were then developed to measure the amount of consumption that took place. From this perspective, knowledge is seen as a value-free body of concepts and objectives that are independent of time, place, and individuals. This view of ''assessment as measurement'' is closely aligned with a modernist philosophy and supports the factory model of education.

In today's educational environment, it is fairly certain that large-scale standardized testing programs are not fading away; rather, they are increasing in number and frequency (Berliner & Biddle, 1995). The desire to control education through ''scientific'' principles and to be able to ''objectively'' measure student learning still influences educational decisions today. Large-scale assessments, particularly norm-referenced, standardized tests, still dominate assessment frameworks in educational institutions in the United States and Canada (Murphy, 1997).

THE NEED FOR A NEW PERSPECTIVE

The types of assessments needed by classroom teachers to guide instruction and support a quality education for every child are different from the traditional, ''assessment as measurement'' devices of the standardized testing industry (Bertrand, 1991). As our view of learning has changed from the consumption of discreet skills and isolated bits of knowledge to the construction of more complex, contextually grounded processes, assessment practices need to change to acknowledge this new perspective on learning (Johnston, 1992). As Cambourne (1997) suggests, ''the prevailing paradigm of evaluation has not kept pace with the emerging paradigm of learning and language'' (p. 6). Unfortunately, this change may not occur until teachers and other educators begin to question the foundations upon which the assessment-as-measurement paradigm is built.

By shifting the focus of assessment programs from large-scale accountability to the individual needs of the child, teachers are better able to use these ''classroom-based'' assessment procedures to gather information, influence learning, and guide their decisions concerning classroom instruction. Where standardized tests are concerned with ''commonalities,'' universals, and regularities in data, classroom-based assessment is more concerned with individual student abilities and needs (Bridges, 1995). Classroom-based assessment helps support teachers to direct curriculum and instruction based on students as individuals rather than as pieces coming along an assembly line in need of identical services.

Teachers that use classroom-based assessment procedures to make decisions about instruction are ''reflective inquirers,'' not simply the dispensers of someone else's mandated curriculum. These reflective inquirers use classroom observations and their knowledge of learning theories to make decisions regarding curriculum and classroom procedures. Because of this change in their view about learning and teaching, they begin to change their view about assessment. When knowledge is no longer seen as a value-neutral, objective commodity to be delivered to students, assessment is no longer viewed as the ''instrument'' to measure how much has been delivered.

If we change our perspective towards assessment from a concern about accountability, objective measurement, and cost effectiveness to a concern about the quality of educational opportunities afforded individual children, our assessment programs and procedures will need to change as well. The large-scale standardized testing programs no longer offer internal audiences (such as teachers, students, and parents) the type of information needed to make day to day curriculum and instructional decisions concerning individual students. Not only will this require a change in perspective, a

''paradigm shift'' if you will, but also an accompanying change in assessment procedures, instruments, purposes, and audiences (Serafini, 1997).

ASSESSMENT AS REFLECTIVE INQUIRY: ANOTHER PERSPECTIVE

The assessment as reflective inquiry perspective has different purposes and audiences, as compared to a traditional, assessment-as-measurement perspective (Farr, 1992). The three primary goals of the assessment-as-reflective-inquiry perspective are (1) helping students learn, (2) helping teachers teach more effectively, and (3) helping teachers articulate their knowledge of children and children's learning processes to external audiences, starting with parents and moving beyond the classroom walls to school districts and state educational organizations.

The assessment-as-reflective-inquiry perspective attempts to achieve these goals by heightening the teacher's awareness, understandings, and perceptions of individual student abilities, student's conceptual frameworks, the learning environment created in the classroom, the role of the teacher, the quality of the educational experiences provided, and the attitudes and behaviors of individual students (Serafini, 1995). This is a different stance towards assessment when compared to the factory model of assessment, where the main purpose was accountability, comparison, and economic efficiency.

In the assessment-as-reflective-inquiry paradigm, assessment is a social activity involving human beings, interpretive processes, and the social construction of knowledge (Johnston, 1997). It is not based on ''modernist'' assumptions; rather, it is based on an ''interpretivist'' perspective (Erickson, 1986). Teachers and students, not standardized tests, become the primary instruments used to assess children's literate abilities. Teachers, and in many instances students, collect evidence of student's learning and use this information to guide curricular decisions. In this way, the curriculum is responsive to the assessment process, and the assessments we choose are responsive to the experiences we provide children.

Assessment may be responsive, but it is not separated from the classroom learning experiences. Rather, assessment is ongoing, embedded in the authentic learning context of the classroom environment (Bergeron, 1996). From this perspective, assessment is a ''bottom-up'' process, beginning with teachers and students in the context of the classroom, and ''working up'' to provide information to external stakeholders, such as school districts and departments of education. Assessment is grounded in actual classroom learning events, not reduced from all of its complexity and ambiguities (Cambourne & Turbill, 1990).

This list represents some of the basic characteristics concerning the assessment-as-reflective-inquiry paradigm. Assessment as Reflective Inquiry:

 1. is done in an authentic context.
 2. provides information to help teachers make curricular decisions.
 3. is non-competitive.
 4. begins with learner's strengths, not their deficits.
 5. helps the learner to engage in self-evaluation and reflection.
 6. includes teacher intuition and tacit knowledge.
 7. is grounded in observation, inquiry, and reflection.
 8. uses the teacher and student as assessment instrument.
 9. uses a variety of sources and methods to collect information.
10. is on-going, continuous, and extends over a long period of time.
11. views learning as a social process.
12. cannot be standardized.
13. provides a knowledge base for teachers to articulate their understandings to parents and other audiences.
14. should not privilege one gender, race, social class, ethnicity, or group over another.

Many of these characteristics align with qualitative research methodologies and with a constructivist perspective towards knowledge (Erickson, 1986). It is my belief that assessment as reflective inquiry honors the individual student as learner rather than conceiving of the student as a product or raw material on the "assembly line" of the educational factory.

TIME, DISTANCE, AND DIALOGUE

For any type of educational reform to be successful, teachers need time to work through the proposed changes, a critical perspective from which to examine their beliefs and practices, and the opportunity to collaborate and dialogue with other interested educators (Fullan, 1994). The support for educational change can come from internal sources, such as school level administrators, staff development opportunities, colleagues, parents, or students, as well as from external sources, such as local universities, state departments of education, and legislative bodies. I would like to discuss three general characteristics that support changes in classroom practice, and then discuss three specific characteristics that support a change in assessment paradigms. I feel that both these general (as well as these specific) characteristics are important in helping classroom teachers change their beliefs about assessment practices.

Changing classroom practices or a teacher's perspectives demands adequate time to work through these new ideas plus the opportunity to collaborate with other educators. Teachers need time to understand how these new assessment practices, or teaching practices for that matter, will impact their classrooms and improve their student's educational experiences. Time to work through changes is the first characteristic that supports changes in classroom practice and assessment procedures.

In the schools where I have worked, administrators and teachers themselves have tried different ways to create additional time for the professional development necessary to support these changes in classroom practices. Many school districts have designated up to seven work days as professional development days during the school year, often allowing school sites to design how these days will be utilized. Another district that I have worked with lengthened the work day on Monday, Tuesday, Thursday, and Friday by twenty minutes so that they could use every Wednesday afternoon as professional development time. Students were released early on Wednesdays, and teachers met to work on various projects and support groups. This schedule offered more ongoing opportunities for teacher collaboration and in-depth development than was previously available to teachers during the work day. It also demonstrated the district's commitment to quality, long-term staff development.

The school I am working in now offers each teacher a substitute teacher to work in their classroom for two days a year so that the full-time teacher may visit other classrooms, attend professional conferences, or explore other professional development opportunities. Other districts I have worked with have created a summer ''academy'' where teachers are provided a stipend to attend. Well-known speakers and educators from across the country are invited to speak at this summer academy. This summer academy provides teachers with the opportunity to learn from other educators before returning to their classrooms. These are a few of the possible ways that schools and school districts have been creative in finding time for teachers to work through the changes being implemented in their classrooms.

The second general characteristic I have called ''distance,'' or more specifically, the ability to achieve a more ''critical'' perspective towards one's beliefs and classroom teaching practices. In my opinion, this is a crucial aspect to changing one's practice, but it is also one that is hard to define and harder yet to achieve. The questions seem to be, ''How do we as teachers 'step outside ourselves' to view ourselves as actors in the classroom drama? How do we achieve a better perspective to understand the impact we have on the learning experiences and learning environment we provide our students?''

In my present position as a staff development facilitator, my job entails working in elementary classrooms to support teachers in becoming

more effective literacy educators. I provide responses to teacher's lessons, demonstrate different approaches to literacy instruction, share articles and other professional resources for teachers to read, and provide general support for teachers in their journey to becoming more reflective educators. I believe that my role as staff development facilitator provides a form of support for teachers to achieve a critical perspective towards their classroom practice. By creating an atmosphere of trust and collegiality, I hope to encourage teachers to try new ideas and challenge their present understandings. I provide another perspective for them to view their teaching practice, offering my observations, responses, and advice when needed. It is my goal to help teachers implement classroom-based assessment procedures, to come to know their students more extensively, and to provide more effective literacy experiences in their classrooms.

There are other ways that teachers can achieve this critical perspective towards their practice. Reflective notebooks or journals (Cochran-Smith & Lytle 1992, p.26), teacher research projects (Shagoury-Hubbard & Miller-Powers, 1993), classroom peer visitations and alternative forms of teacher evaluation (Searfoss & Enz, 1996) may all provide new means to support a critical perspective towards one's practice. These other "reflective instruments" help teachers step back and see their practice from new perspectives.

I have been keeping a reflective notebook since I began my teacher preparation program many years ago. I have filled about twenty-five hardcover notebooks with my thoughts, concerns, notes from articles I have read, and ideas from the classes I have taken. These notebooks allow me to go back and find patterns in my thinking, to revisit earlier experiences, and to come to a better understanding of the way that I view myself as teacher and educator. For me, it has been an invaluable tool for providing a critical perspective towards my practice and beliefs.

The third general characteristic I would like to present is "dialogue." Dialogue is the opportunity to collaborate with colleagues in an open, trusting environment about concerns and ideas that are important to the teachers themselves. It is an engaged discussion where participants invest themselves in the dialogue, sharing their ideas and learning from the insights and experiences provided by other collaborative participants. Without this opportunity, many teachers feel isolated and left to fend for themselves.

Dialogue requires participants to be actively involved in discussions as well as open to accepting others views and perspectives. It requires active listening and the co-production of meaning. Peterson (1992) states, "Dialogue encompasses two qualities that are central to learning: *critique* and *inquiry*. It is dependent upon people who can rise to the challenge of paying attention and thinking critically" (p. l04).

Different ways that have supported dialogue in the schools where I have worked are team teaching structures, teacher dialogue groups, restructured staff meetings, professional development days, e-mail discussion groups, and school-based professional development classes.

Probably the most powerful professional development experience of my teaching career was the three years I spent in a team-teaching setting. I taught an intermediate, multiage class with another teacher, working with approximately fifty children, ages nine through twelve, in fourth, fifth, and sixth grades, respectively. Being able to spend every day working closely with a respected, intelligent, dedicated colleague that pushed my thinking and constantly caused me to reflect upon my practice helped me to develop into a better teacher. We were able to bounce ideas off of one another, critique each other's practice, and reflect together about the day's experiences. It was not easy finding someone that I could work with this well and I do not recommend trying to mandate this in schools, but for me it was an incredible professional experience.

On a different level, teacher dialogue groups that meet together after school once a week to discuss ideas can be very supportive. Teachers at my schools have been meeting regularly for several years, on a voluntary basis, to discuss educational issues, classroom approaches to literacy instruction, teacher research, and new assessment procedures. Teachers have told me how important the opportunity to talk to other interested colleagues about their practice has been, and I continue to this day to participate in these support groups at the school where I work. These dialogue groups help break down teachers' feelings of isolation and helps them understand the experiences of other teachers.

E-mail ''chat groups'' have been able to provide discussion with colleagues from different countries and school locations. I have been writing back and forth with several colleagues from Australia and parts of the United States about reflective practice and various assessment processes for several years now. This is not a substitute for face-to-face interaction; however, it is a viable alternative for those that do not have anyone to engage in dialogue.

I have been fortunate to work with several administrators that value dialogue as part of their staff professional development process. These administrators have redesigned staff meetings and in-service days to accommodate and promote teacher dialogue opportunities. For the business news and day-to-day announcements, these administrators have begun to use e-mail and handwritten notes to facilitate information distribution. Doing so has opened up more time during staff meetings for teacher interactions and discussions.

Many of the agendas of these meetings are designed by the teachers themselves about the issues they need to discuss. It is through this ongoing, open dialogue that teachers have been able to openly express

their concerns, discuss their own practice and instructional approaches, get ideas about classroom activities, and come to a better understanding of their own practice and beliefs.

The three characteristics mentioned above are general in scope and are essentially foundational for any educational reform process. I would now like to discuss three characteristics that are specifically designed to address the changes in assessment perspectives mentioned earlier. These three characteristics are 1) teacher as knowledgeable, reflective participant, 2) meaningful student involvement, and 3) the negotiation of criteria for assessment and evaluation. These three characteristics have arisen out of my work with teachers, my readings from professional literature, and my own classroom practice.

TEACHER AS KNOWLEDGEABLE, REFLECTIVE PARTICIPANT

The teacher as a knowledgeable, reflective participant is a different stance to teaching as compared to the traditional "teacher as program deliverer" models of education that have dominated schools for decades (Goodlad, 1983). Reflective participants, like Schon's "reflective practitioners" (1983), are not simply "test givers" or "deliverers" of a prepackaged curriculum. Rather, these teachers are astute observers of children, active participants in the assessment process, and judges of student progress and growth. Reflective practitioners do not simply follow commercially produced teacher manuals; instead, along with their students, they are "cocreators" of the classroom curriculum (Short & Burke, 1994).

Foremost these teachers are knowledgeable practitioners. Their practice is grounded in their close observations of students and the current learning theories and practices published in educational books and professional journals. Many of these authors are reflective practitioners who are widely read, are active in professional teacher organizations, and frequently speak at regional and national education conferences. They are deeply committed to their profession and usually have advanced degrees in their area of expertise.

However, knowledge of these reflective practitioners is not simply learned by reading educational journals; it is also grounded in their close observations of children, reflections on their actions and observations, and dialogue with other knowledgeable educators. Often these teachers belong to an informal "community of scholars" that share their expertise and observations through teacher–educator dialogue groups.

Reflective practitioners are able to articulate their underlying beliefs and theories that inform their practice. These teachers don't just engage in activities because they are "cute" or because they are what everyone else is

doing; rather, they engage in particular activities because they believe that these activities are important vehicles to enhance students' literate abilities.

Second, reflective practitioners often assume the stance of "teacher-as-researcher," reflecting on their classroom practice through teacher research projects (Cochran-Smith & Lytle, 1990). They are collaborators and inquirers. They use research methodologies to inform their own practice and to help them understand the needs and abilities of individual children in their classrooms.

Their reflective stance is not simply a "navel-gazing" activity but is an active, participatory stance, using the knowledge they create to guide their practice and inform their instructional decisions. These teacher researchers are not merely "consumers" of university-based research but are producers of research, often publishing their findings in teacher research journals.

Reflective participants practice what I have termed "knowledgeable uncertainty." These teachers are very knowledgeable about learning theories, children's language development, and classroom practice, but they approach all knowledge from a position of uncertainty. They are inquirers themselves, unable to blindly accept the mandates of externally prescribed programs. They do not allow themselves to be reduced to the role of "program operator."

Third, these reflective participants are "active" participants in the assessment process. Many of the teachers I work closely with have created their own teacher portfolios so that they can understand this process from the inside. I have my own portfolio that I use to demonstrate to student teachers what one may look like and the power of developing one of their own.

Reflective participants are promoters of "reflective learning communities," inviting students to reflect alongside the teacher about their classroom learning experiences. They create a democratic atmosphere, one of trust and collaboration, where students feel safe to express themselves and inquire about the world. In these communities, teachers share the "control" of the classroom, and all participants become more empowered because of this sharing.

In these reflective learning communities, teachers are seen as learners and students are invited to become teachers. Knowledge is co-constructed, and students are deeply involved in the decision-making process, often discussing classroom procedures, curriculum design, and behavioral expectations. Reflective participants do not represent the sole voice of authority; rather, they invite the student's voice to be heard and involved in the life of the classroom.

In many of the schools where I have worked, to assume the stance of reflective practitioner is to "teach against the grain" (Cochran-Smith, 1991, p. 280). It is a politically charged stance and one that has caused

many teachers, myself included, to be ostracized from various teaching communities. However, in my case and for many of my colleagues, it is the only stance worth teaching from. We find it empowering, liberating, and professionally redeeming. In my opinion, I am obligated to help students receive the most effective educational experiences possible and not obligated to simply perform mandated activities for external agencies.

MEANINGFUL STUDENT INVOLVEMENT

Along with promoting a reflective stance to teaching, involving students in the assessment process is an important aspect of the assessment-as-reflective-inquiry paradigm. Involving students in the assessment process sounds so logical that it is often taken for granted. However, traditionally designed assessment programs have operated with little, if any, student involvement other than as "test-takers." Rather than being "objects of measurement," students need to be actively involved in the assessment and evaluation of their academic progress.

Portfolio assessment processes (Tierney, Carter, & Desai, 1991), student-led conferences (Anthony, Johnson, Mickelson, & Preece, 1991), and retrospective miscue analysis (Marek, 1991) have each involved the student in the assessment process in a meaningful way. It has been shown that when students are involved in the assessment process, they become more involved in their own learning (Kohn, 1993).

In my intermediate, multiage classroom, students were involved in assessing their academic progress on a daily basis. At the end of each day, students spent time discussing and writing about their experiences at school in their "learning logs." Students filled out a form that we developed together, listing our areas of study (such as science topics, reading genres, writing topics, and behavioral aspects) that would go home each Friday for parents to review with their child. This form evolved over the course of the year from a "What I Did Today" list to a "What I Learned Today" reflection. What began as a list of the day's events expanded into a reflective journal that students used to assess their growth. Parents found this log extremely helpful in understanding their child's experiences at school and the expectations set forth in our classroom. They often expressed to me that this was a tremendous help in finding out what was going on in our classroom each week. Many parents used the learning log to talk with their child about their child's experiences at school.

Students were also deeply involved in their own assessment as part of our portfolio assessment process. At the beginning of the year, students were given a file folder and were invited to begin collecting some artifacts of their learning. Students could be found throughout the week putting

things into and maintaining their portfolio collections. We set aside a special time every Friday to talk about these collections and learn different ways to use these collections to promote student reflection.

These portfolio collections were used by the students to prepare for student-led conferences during the spring semester of each school year. They collected and organized their portfolio and presented it to their parents at conference time. These collections were designed to help students reflect upon their growth and to help them write a self-evaluation in the form of a narrative report card. Knowing the purpose and the audience for these collections was crucial in helping to establish the importance of their collection.

By establishing portfolios, allowing for discussion concerning these collections, and involving students in daily reflections about their progress, I was able to involve my students in the assessment of their academic progress.

NEGOTIATION OF CRITERIA

In the assessment-as-measurement paradigm, the criteria for assessing students' work and educational progress are preset by test developers, state standards documents, and curriculum designs. In contrast, the assessment-as-reflective-inquiry paradigm allows for the criteria to be negotiated between the teacher, the mandated curriculum documents, state standards documents, and the students themselves. Boomer (1991) described a similar process for negotiating the curriculum. From this perspective, teachers are actively involved with their students in negotiating and creating the criteria for assessing student work and academic progress. These criteria are flexible and can change throughout the course of the years to reflect student growth and experience.

A good example of negotiated criteria are rubrics developed within individual classrooms (Rickards and Cheek, Jr., 1999). These rubrics are a list of statements concerning the qualities a particular product should exhibit. They are created by the students and teachers themselves before they begin the project and are expanded as the actual work is being done.

The *process* of creating these rubrics, the negotiation itself, is more important in helping students understand what is involved in producing a quality poem, for example, than the actual rubric itself that is created. State testing agencies that have produced performance-based assessments, and have created numerous rubrics for teachers to use to judge the quality of student work. The problem with these, I believe, is that neither the teachers nor the students were involved in the discussions or negotiations, from which these rubrics were developed.

In my elementary classroom as well as my college literacy education courses, I regularly present an outline of my expectations for my students to read over and consider as we develop the criteria for a project or piece of writing. This initial outline is my ''platform statement'' concerning my beliefs, values, and expectations about a particular project we are undertaking (Kottkamp, 1990). Together we consider the expectations I put forth in my platform statement and my students ideas about the topic. Then we look at the district curriculum guidelines and state standards documents to develop a working criteria to assess our progress and our work. By beginning with our expectations and criteria and then looking at the externally mandated criteria, we can develop criteria that are grounded in our understandings and experiences. These ''classroom negotiated criteria'' are usually more extensive than those prescribed from external agencies. In this way, we are meeting the externally mandated requirements—but on our own terms.

During the semester or school year, these criteria change and enlarge to reflect our current understandings. My students and I use the rubrics we develop to assess individual pieces of writing and determine the quality of the piece. We use this information to set goals for our next piece of writing.

For example, in my intermediate, multiage class, we developed the following rubric for pieces of narrative writing, entitled ''Criteria for Quality Writing.'' It reads as follows:

1. poetic language/appropriate word choice
2. not ''generic''/unique ideas
3. correct spelling, punctuation, and capitalization
4. makes sense/understandable to the reader
5. has emotional impact
6. interesting/the reader wants to finish it
7. proper sentence structure
8. proper form or format
9. neatly written or published

These criteria were used by my students to assess their own writing and by myself to give responses to their efforts. This rubric initially began as items numbered one through four in the above list. As the year progressed and our understandings enlarged, so did our rubric. By the end of the year, it incorporated all of the items listed above. An important consideration when using classroom rubrics is that these rubrics are designed to support student learning and growth, not to create blueprints for standardization of student work. Therefore, they must remain flexible, open to revision as new insights arise and new experiences change our understandings.

The main difference between this negotiated, reflective assessment and the assessment as measurement paradigm is that there is not an external agent solely responsible for telling the class what constitutes a quality effort. It is a negotiation between the district-created curriculum documents, state standards documents, and other externally prepared criteria, and the ideas of students and teachers working in classrooms, where the actual learning is taking place.

CHALLENGES FOR THE FUTURE

One of the tensions we face concerning assessment is how to provide public accountability and the information required by state departments of education while at the same time diminishing the dominance of standardized testing programs and all of the problems associated with them (Garcia & Pearson, 1994). Can classroom-based assessment provide the information required by these public institutions while still maintaining its primary objective of helping students learn and teachers teach? It seems that until these tensions can be resolved to the satisfaction of these different audiences, standardized tests will continue to dominate assessment programs in schools.

Tierney stated that all too often, classroom-based assessment frameworks were co-opted in favor of the comparative purposes of large-scale testing programs (Tierney & Clark, 1998). The comparative designs of the large-scale assessment programs took precedence over the individual needs of students addressed by classroom-based assessments. In fact, Tierney (1998) held little hope in finding a common ground, a functional blend of these two assessment frameworks, mainly because they have such diverse purposes and audiences (p. 387).

In the state of Arizona, where I teach, we are in the middle of yet another transformation of large-scale testing. This new test, entitled ''Arizona's Instrument to Measure Standards'' (AIMS), has been designed to measure students progress in acquiring the knowledge, skills, and processes described in the Arizona state standards documents. This test has now been linked to student high school graduation, requiring a passing score on reading, mathematics, and writing portions of the test by those intending to graduate in 2002. One of the primary intentions of this test is to measure whether students have learned the required curriculum delineated in the standards. There is no further negotiation. The instrument to measure students' progress is in effect designed to provide accountability for the general public. It has been proposed that schools that ''produce'' students that can't ''measure up'' will be taken over by the state department. How far is this from the original Factory Model of Assessment de-

scribed in the opening section? For me, not far enough. The standards, and the instruments designed to measure these standards, may have changed, but the intentions remain the same: to measure how much knowledge children have consumed.

Another challenge facing us would be the changes needed in teacher education programs to support this new perspective on learning and assessment. Some programs would have to be redesigned to promote reflective practitioners instead of creating ''program delivery specialists.'' In fact, in universities across North America, teacher education programs are beginning to make this change in perspective in light of new understandings of learning processes and research on effective teaching and reflective participants (Zeichner, 1987).

Traditionally, universities have relied on ''methods'' classes to educate teachers in the best way to ''deliver curriculum.'' This philosophy aligns with the modernist, factory model of education discussed earlier in this article. In order to support the shift from assessment-as-measurement to assessment-as-reflective-inquiry, teacher education programs would need to provide time for reflection, establish more school-based teacher education programs, create partnerships with reflective teachers, and provide the time, distance, and dialogue opportunities to support these changes in perspectives. Many of the teacher education programs are currently making these changes in their programs and are promoting reflective practice in their coursework and apprenticeships.

An important question will be whether the school structures that have long supported these standardized tests, a modernist philosophical perspective with teachers working in isolation, will be able to adapt to the demands this new assessment paradigm would place on the teachers, schools, and educational communities. Teachers working with students in traditional grade levels for a single year may become problematic when we place the needs of the individual children ahead of economic efficiency. The school structures and the design of the school day may need to be changed to allow children and teachers to work together for more than a single year and across age levels.

I am fully aware that these suggestions challenge the dominant political views of education that currently influence schools. I am also aware that this is a political as well as an educational battle. Smith (1992) once wrote, ''People who don't trust children to learn, will always rely on a program to do their job'' (p. 440). I believe that this pertains to the current state of assessment programs as well. Assessment has been traditionally designed to provide accountability rather than support the educational needs of individual students. These new methods of assessment, with their focus on the individual student, are necessary if we are ever going to break the stranglehold that standardized testing has on public schools in America.

As Smyth (1992) writes, "It is becoming increasingly clear that they [teachers] are being acted upon by educational systems and governments in ways that bear an uncanny resemblance to the oppressive treatment meted out to minority groups. Indeed, only when teachers take an active, reflective stance, are they able to challenge the dominant factory metaphor of the way schools are conceived, organized, and enacted" (p. 300).

I believe that we as teachers need to "step up" and challenge the current assessment paradigm. We need to question the traditional school structures and assessment practices that limit the possibilities of children, especially children from non-mainstream cultures. The more we can articulate our understandings of student learning to wider external audiences, the less these audiences will have to rely on standardized tests to understand the quality of educational experiences provided in public schools. Assessment programs that view children as "products on an assembly line" need to be redesigned to honor the individual student, provide as many opportunities as possible for each child, respect students of diverse backgrounds, and help teachers to become more effective facilitators of children's literacy development.

REFERENCES

Anthony, R., Johnson, T., Mickelson, N., & Preece, A. (1991). *Evaluating literacy: A perspective for change*. Portsmouth, NH: Heinemann.

Bergeron, B. (1996). Seeking authenticity: What is "real" about thematic literacy instruction? *The Reading Teacher*, *49*(7), 544–551.

Berliner, D. C., & Biddle, B. J. (1995). The manufactured crisis: Myths, fraud, and the attack on public schools. Reading, MA: Addison-Wesley.

Bertrand, J. (1991). Student assessment and evaluation. In B. Harp (Ed.), *Assessment and evaluation in whole language programs* (pp. 17–33), Norwood, MA: Christopher Gordon.

Boomer, G. (Ed.) (1991). *Negotiating the curriculum: A teacher-student partnership*. Sydney: Ashton-Scholastic.Bracey, G. (1995). *Final exam: A study of the perpetual scrutiny of American education*. Washington: Technos Press.

Bridges, L. (1995). *Assessment: Continuous learning*. York, ME: Stenhouse.

Callahan, R. (1962). *Education and the cult of efficiency*. Chicago, IL: University of Chicago Press.

Cambourne, B., & Turbill, J. (1990). Assessment in whole language classrooms. *Theory Into Practice*, *90*(3), 337–349.

Cambourne, B., & Turbill, J. (Eds.). (l997). *Responsive evaluation*. Portsmouth, NH: Heinemann.

Cochran-Smith, M. (1991). Teaching against the grain. *Harvard Educational Review*, *61*(3), 279–309.

Cochran-Smith, M., & Lytle, S. (1990). Research on teaching and teacher research: The issues that divide. *Educational Researcher*, *19*(2), 2–11.

Cochran-Smith, M., & Lytle, S. (Eds.). (1992). Inside/Outside: Teacher research and knowledge. New York: Teachers College Press.

Crebbin, W. (1992). Evaluation: A political issue. In C. Bouffler (Ed.), *Literacy evaluation: Issues and practicalities* (pp. 7–11). Portsmouth, NH: Heinemann.

Elkind, D. (1997). The death of child nature: Education in the postmodern world. *Educational Leadership*, *78*, 241–245.

Erickson, F. (1986). Qualitative methods in research on teaching. In M. Wittrock (Ed.), *Handbook of research on teaching* (pp. 119–161). New York: MacMillan.

Farr, R. (1992). Putting it all together: Solving the reading assessment puzzle. *The Reading Teacher*, *46*(1), 26–37.

Fosnot, C. T. (1996). Constructivism: A psychological theory of learning. In C. T. Fosnot (Ed.), *Constructivism: Theory, perspectives and practice* (pp. 8–33). New York: Teachers College Press.

Fu1lan, M. (1994). Why teachers must become change agents. *Educational Leadership*, *50*, 12–17.

Garcia, G.E., & Pearson, P.D. (1994). Assessment and diversity. In L. Darling-Hammond (Ed.), *Review of research in education*, *20* (pp. 337–391). Washington, DC: American Educational Research Association.

Goodlad, J. (1983). *A place called school: Prospects for the future*. New York: MacGraw-Hill.

Hanson, F.A. (1993). Testing, testing: Social consequences of an examined life. Berkeley, CA: University of California Press.

Johnston, P. H. (1992). Nontechnical assessment. *The Reading Teacher*, *46*(1), 60–62.

Johnston, P. H. (1997). *Knowing literacy: Constructive literacy assessment*. York, ME: Stenhouse.

Kohn, A. (1993). Choices for students: Why and how to let students decide. *Phi Delta Kappan*, *75*, 8–20.

Kottkamp, R. B. (1990). Means for facilitating reflection. *Education and Urban Society*, *22*(2), 182–203.

Marek, A. M. (1991). Retrospective miscue analysis: An instructional strategy for revaluing the reading process. In Goodman, K. S., Bird, L. B., & Goodman, Y. M. (Eds.), *The whole language*. Santa Rosa, CA: American School Publishers.

Murphy, S. (1997). Literacy assessment and the politics of identity. *Reading and Writing Quarterly*, *13*, 261–278.

Pennac, D. (1994). *Better than life*. Toronto: Coach House Press.

Peterson, R. (1992). *Life in a crowded place*. Portsmouth, NH: Heinemann.

Rickards, D., & Cheek Jr., E. (1999). *Designing rubrics for K–6 classroom assessment*. Norwood, MA: Christopher-Gordon.

Schon, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Searfoss, L., & Enz, B. (1996). Can teacher evaluation reflect holistic instruction? *Educational Leadership*, *56*(2), 38–41.

Serafini, F. (1995). Reflective assessment. *Talking Points: Conversations in the Whole Language Community*, *6*(4), 10–12.

Serafini, F. (1997). Stances to assessment. *Talking Points: Conversations in the Whole Lanquage Community*, *8*(3), 2–4.

Shagoury-Hubbard, R., & Miller-Powers, B. (1993). *The art of classroom inquiry*. Portsmouth, NH: Heinemann.

Short, K., & Burke, C. (1994). *Creating curriculum*. Portsmouth, NH: Heinemann.

Smith, F. (1992). Learning to read: The never-ending debate. *Phi Delta Kappa*, *73*, 432–441.

Smyth, J. (1992). Teacher's work and the politics of reflection. *American Educational Research Journal*, *29*(2), 267–300.

Tierney, R. J. (1998). Literacy assessment reform: Shifting beliefs, principled possibilities and emerging practices. *The Reading Teacher*, *51*(5), 1374–390.

Tierney, R. J., Carter, M. A., and Desai, L. E. (1991). *Portfolio assessment in the reading–writing classroom*. Norwood, MA: Christopher Gordon.

Tierney, R. J., & Clark, C. (l998). Portfolios: Assumptions, tensions, and possibilities. *Reading Research Quarterly, 33*(4), 474–486.

Zeichner, K. (1987). Preparing reflective teachers: An overview of instructional strategies which have been employed in preservice education. *International Journal of Education Research, 11,* 565–575.