Three-Dimensional Assessment and the Art of Portfolio Building

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I have been involved in preservice art education courses in various forms for six years. These courses have ranged from 30-hour experiences for elementary education generalists to graduate seminars for art education specialists. I have experienced both the greatest sense of hope and growth, and the highest levels of frustration while working with elementary education generalists.

The sense of hope comes when students are having their first experience of art making as adults and begin to imagine the enriched insights and growth that their future students could experience through art education. The frustration comes with the recognition that even in the 60 hours of the current course I teach, there just isn't enough time for preservice generalist teachers to develop their own skills, deal with their own fears, develop the kind of teaching ideas that they want to take to their classrooms, and absorb the special nonlinear modes of teaching, inquiry, response and production that are at the heart of art education's very special role in the school structure.

Partially in response to this need to learn as much as possible in as little time as possible, my students and I have developed an extended project that functions as the site for accumulated art experience and reflection on that experience, as well as an extended inquiry into the values and beliefs these future teachers will take with them into their classrooms. Using a diorama as a starting point, students are called upon to design their own ideal classroom. This project involves small groups first doing research into cultural differences in the use of built space. Next the students are taken through a series of lectures on art education combined with a series of first experiences with materials they are likely to use with their own future elementary students. The unit culminates when the

students are called upon to apply what they have discovered to their plans for an ideal school, followed by reflective writing in their journals/sketchbooks on the experience. Needless to say, the students' ideal schools, which range from the strictly practical to the wildly fantastic, go through an evolutionary development that involves an almost endless series of decisions, modifications and visual risks. In the short time that my students have been building these dioramas, I have seen painting, drawing, printmaking, ceramics, fibers, wood, electronics, and an endless selection of found materials incorporated into the finished classrooms

The dioramas that result from this project function as portfolios of the students' successes and struggles. In assessing student work through this kind of portfolio, it is clear that thought and development are far more important than a student's specific visual skills. This is in alignment with an elementary education preservice course that encourages students to take creative risks while developing a familiarity with the learning potential in media that may be very new. It seems to me that the most significant capacity that preservice elementary generalists should take from the art experience I offer is being able to recognize different levels of skills, as well as different degrees of critical inquiry, while being able to appreciate student growth wherever it starts. Thus, students are called upon to submit a detailed self-evaluation of both the diorama and the individual studio experiences that led up to it. They are also called upon to rank their own work with reference to that of their peers in terms of content, design, and skills with materials. My role in the assessment process is to respond to the student's capacity to recognize the strengths and weaknesses and especially the growth represented in their own work (Wiggins, 1994).

Along with the diorama's function as a three-dimensional portfolio, these works are also very carefully considered three-dimensional philosophy statements. If a philosophy of

education is a reflective (Reagan, 1993) representation of an individual's assumptions, values and beliefs about the educational enterprise (D'Souza, 1992), then these assumptions must drive the student's visual decisions when building the dioramas. Any number of students have commented to me that they have experienced a kind of self-revelation in the process of making their dioramas. What they believe about education as a career and a life's work becomes clearer to them because of what they are doing with their hands and their visual intelligence.

If you accept these dioramas as philosophy statements, then it also implies that a philosophy may have a degree of complexity that can only be fully experienced through space and over time. Thus, as the evaluator of these projects, my experience of a particular student's diorama, and the philosophy that it implies, can have both a gestalt-like unity, and the possibility of layers of meaning that can only be discovered through repeated experience of the model in different contexts. These students' works can be understood as a collection of facts and accomplishments as well as an environment to be entered and experienced.

Portfolio assessment can introduce both complexity and a degree of student-teacher negotiation in defining learning objectives which are clearly addressed through the use of a three-dimensional model that is both portfolio and personal philosophical inquiry. If portfolios are also understood as a kind of sculpture, or installation, then their construction will be an act of art making and assessment will necessarily involve "three-dimensional thinking."

Vision, Memory, and Assessment

Clearly more research is needed into the notion that

three-dimensional thinking is intelligible and important to the educational enterprise. For

our purposes here, I will define

three-dimensional thinking as incorporating vision and memory into perceptions that

demonstrate both a literal and conceptual understanding of space.

In the sixteenth century the camera obscura with its phenomenal

re-presentation of the real world by means of a lens, a mirror, some ground glass and a

dark box, was accepted as a model for how the human eye worked. Coleman (1986)

argues that the camera now serves as a defining technology, a metaphor for human

perception so apt that it continues to be accepted as a kind of truth. Crary (1992) traces

the shift away from this understanding of perception as a simple transmission of facts. He

points to a parallel, but fundamentally different, nineteenth century technology, the stereo

camera, to show that, at least in some quarters, it was understood at least 150 years ago

that our perception involves a complex process of construction that incorporates the

mind, the body, and previously accumulated knowledge and beliefs. Crary argues that

understanding the subjectivity of perception is at the heart of modern culture. Whether

the viewing device is a child's Viewmaster, a geologist's stereo lenses, our great

grandparents' parlor "scene" viewer or even a virtual reality hood, our experience of

three-dimensionality in each instance is clearly being constructed mentally. Nonetheless,

the common sense trust we place in photographic experience persists (Gosselin, 1994). It

is because of the persistent apparent truthfulness of the lens media, what I have referred

to as "lens meaning" (Emme, 1989), that one of the defining projects of the modern era

has been to use visual signs such as photographs, television, architecture and textbooks

(Nelson, 1987; Apple, 1991) to control and make predictable our subjective response to

the world, whether we are responding as consumers, voters or learners.

Crary's discussion of vision and perception argues that we are more active and potentially less manageable viewers, postmodern viewers, of the world around us. Others (Quantrill, 1987; Soja, 1989) have carried this argument into the third dimension by arguing that architecture and geography are also more than just immediate experience. We are as capable of considering concept and meaning in our experience of a cathedral, as we are in a painting, or as we are in a paragraph of text.

As an example of this, consider the roll memory and vision played in my students' and my experience of their dioramas described earlier. Not only did we share in the challenges of literally building a small structure with paint, cardboard, clay, and other materials, but we also shared visions about how children and teachers could experience elementary school. When I respond to these works, it is not enough for me to look just once at my students' dioramas. I have to get physically engaged and look from a number of different angles through the various doors, windows, and openings that the student devised. I also need to mentally project myself into the constructed space just like my students did as they worked on their project. Memory is an important aspect of this kind of experience of art (Cheetham & Hutcheon, 1991; Rowe & Schelling, 1991). As Gardner (1993) suggests, one aspect of memory can be understood through our experience of space. We can experience three-dimensional space through a combination of immediate perception and memory. In a full scale building we experience the part of the room that is behind us as a present experience due to memory. Similarly, when I assess my students' dioramas I must acknowledge my immediate perception and memory, my three-dimensional thinking, as present experience in structuring and assessing student portfolios. Additionally, Gardner (1993) argues against assuming an executive level to the mind that coordinates the intelligences. This implies that if understanding can be gained through intelligences other than the linguistic and logical-mathematical, then

authentic assessment could and, I am arguing, should also be carried out in those "other" intelligences.

Artist Ilya Kabakov (Storr, 1995) offers further insight into some of the complexity of three-dimensional thinking. Kabakov feels that general viewers of installation art have little experience with some of the form's differences. His discussion centers around whether the site is understood as an architectual or a philosophical environment, whether it is a "real" or "fictional" space. In other words, do we participate in an installation work "to gain concrete knowledge and then leave, or to immerse [ourselves] in what is offered" (Storr, 1995p. 125)? I am asking similar questions about my students' portfolios and ultimately about their total experience of art. To what extent can I enter my students' work? What role can my memory play in holding aspects of my students "ideal school" in mind while I experience the spaces that I see in front of me? To what extent am I capable of recognizing my students' works as sculptural representations of their minds?

Knowledge and Assessment

While, as Crary (1992), Quantrill (1987) and Soja (1989) each point out, understanding the viewer's active role in perceived experience is not new, such understanding has very important implications for the use of the portfolio in educational assessment by general education. The appropriation and adaptation of the portfolio represents a similar shift from a concept of knowledge as the simple transmission of facts to a more complex and potentially more authentic and democratic understanding of both the acquisition of knowledge and skills, as well as the assessment of those accomplishments (Barton & Collins, 1993). Though often, like photography still perceived as essentially factual, those technologies which standardize our perceptions in the school environment (including classroom architecture, textbooks, timetables, and the many technologies of assessment)

do not represent technologies of simple transmission. As writers such as Freire (1970) have argued, educational curricula (and hence educational technologies) must be seen as controls imposed on unruly subjectivity.

In the face of the simplistic structuring of knowledge and learning, portfolio assessment, with its emphasis on process and negotiated content, has the potential of introducing layers of complexity and student subjectivity, that, like the stereo camera, represent a fundamental shift in the model being used for the student mind. While this new construction through the portfolio represents a huge step, both because it involves students in their own learning and diversifies what constitutes learning in school, it also, invariably, is a simplification of something that is still more complex. Stereo cameras, while creating the illusion of three-dimensionality actually simplify our perceptions into foreground, middle and background very much like the flats used in the theater to suggest space.

Similarly, one of the dangers I see in the adoption of portfolio building as an assessment device in the schools is the tendency to turn a student's experience into a book, a linear narrative with visual and verbal elements. I would argue that the textbook can be seen as a sculptural representation of the ideal mind with the term ideal implying practicality, efficiency, affordability, and marketability. This representation clearly has its merits. We do value ordered thinking. But the mind is not only like a book, it is also, some would contend, like a computer; and our perception, as Crary and others have pointed out, is like several different kinds of cameras. The point is that no one metaphor has adequately described the mind in all its functionings. Nonetheless, we seem to feel obliged as educators to build most of our theory and practice around a linear model of the mind that I associate here with the book. Clearly issues of efficiency and affordability inform education. Apple (1991) and others have sketched ideological assumptions

institutionalized in the textbook industry, a biproduct of the blending of business and politics with the idealism and pragmatics of curriculum design.

The same issues are a part of assessment design. In a handout for teachers produced by researchers involved with Arts Propel (Arts Propel, 1992, p. 1), numerical scoring of student performance is described as statistically reliable and convenient, while qualitative comments by teachers are more informative for students and teachers alike. Arts Propel as a program has worked toward integrating contemporary understandings about intelligence (Gardner, 1993) with our society's longstanding belief in the rationality and accountability possible through words and numbers.

Our experience of the world today is increasingly the result of graphic interfacing with media such as television and computers. Not only is that world visual but it is also suprisingly three-dimensional. From global live-broadcast video to explorations of hyperspace, we are asked to combine vision and memory to discover meaning in a three-dimensional world. I would argue, without much fear of sounding naive, that every teacher in our mediated society is a teacher of visual culture. Every visual object to which we expose our students is an argument, however unconscious, for a certain kind of truth, or a certain set of values. As so many of the objects in the classroom are manufactured, these visual arguments must also be understood as a mass-marketed product. To a suprisingly large extent we buy our visual curriculum without giving much thought to what we are actually teaching. From a variety of corners and in a variety of forms (Blandy & Congdon, 1991; Giroux & Simon, 1989; Perkins, 1994) educators are arguing that we owe our students the tools to reflect critically on their visual world. We also owe them the honesty to acknowledge that when we assess them in the art classroom we are using the same tools (with the same shortcomings) that they should have.

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