

# Importing Artistry: further lessons from the design studio

JACQUELINE COSSENTINO

*University of Maryland, Department of Education Policy and Leadership, 2110E Benjamin Building, College Park, MD 20742, USA;*  
*e-mail: jc381@umail.umd.edu*

**ABSTRACT** *This paper considers what it would take to translate the language and logic of learning in the design studio to that of the general curriculum. Using the practice of exhibition as a case in point, the ground-breaking work of Donald Schön is revisited and the lessons of the design studio are recast in light of Schön's influence on what has come to be known as the reflective practice movement. Rather than seeking to operationalize the general notion of reflection, a closer look is undertaken of the phenomenon of reflection-in-action as it occurs in the particular context of the design studio. This view offers a set of lessons built around what Schön called 'artistry'. The image of exhibition as a pedagogical system rather than merely an assessment strategy suggests a powerful metaphor for instruction, one that might enable practitioners to import the essence as well as the language of artistry into the general curriculum.*

## **Introduction: artistry and teaching**

The language of the arts has made its way into educational reform, and nowhere is this more apparent than in the field of assessment. The terms 'portfolio', 'performance', 'demonstration', and 'exhibition' are used frequently and often interchangeably in discussions of 'authentic assessment' (Wiggins, 1993; Wolf *et al.*, 1991; Zessoules & Gardner, 1992). What is remarkable about these terms and the practices they identify is that they transcend mere assessment strategies. Although often promoted as discrete activities, practices like portfolio or performance assessment make claims on the totality of instruction. Substituting the image of the studio for that of the classroom, the language of these reforms evokes the constructive, personalized and reflective promise of learning in the arts, suggesting, if only metaphorically, the lofty goal of importing artistry.

Not surprisingly, the inflated promise of authentic assessment has remained largely unfulfilled by real teachers in real classrooms (Madaus & O'Dwyer, 1999; Stiggins, 1992, 1999; Tanner, 2001). Researchers attempting to address the halting progress of these and other constructivist-oriented reforms identify a constellation of factors influencing this apparent gap between theory and practice. From weak

pedagogical content knowledge (Elmore *et al.*, 1996; Shulman, 1987) to the persistence of traditional conceptions of teaching (Tyack & Cuban, 1995) to structural obstacles such as insufficient time for planning and teacher isolation (Johnson, 1990; Lortie, 1975), these researchers identify a daunting array of barriers to the successful implementation of 'new' pedagogies.

Rarely, however, do these scholars acknowledge that the pedagogies in question are, in fact, not new at all.<sup>1</sup> Practical analogues to portfolios, performance and project-based curricula abound in the arts; and in cases where those analogues are associated with terminology, the so-called problem of implementation may be more accurately understood as a problem of translation. 'Translation' means the conceptual as well as practical maneuvers teachers undertake when they encounter reforms like those associated with authentic assessment. Here, the problem of translation is examined on three levels. First, there is a look at how concepts such as 'performance' or 'portfolio' are converted from theory to practice. What, in other words, does artistry look like? Second, the movement of those concepts across domains is considered. What happens to ideas like performance or portfolio when they cross over from the realm of the studio into that of the general classroom? That is, to what extent is artistry an importable commodity? Finally, there is a close look at linguistic translation of words like 'performance', 'mastery' and 'criticism'. What does it mean to perform or demonstrate or critique in the design studio versus a high school history or algebra classroom? To answer these questions, one rendition of authentic assessment is examined—exhibition—as it occurs in the studio; what would it take to stage a successful translation to the general classroom? The role of metaphor in fostering this translation is investigated.

Like many tasks associated with authentic assessment, exhibition is difficult to elucidate. In theory, exhibitions are public events in which students present and are judged on a performance that 'demonstrates mastery' (Sizer, 1984). In practice, exhibitions are often more successful as celebrations of completed work than as demonstrations of mastery (Cossentino, in press; McDonald, 1991a, b; McDonald *et al.*, 1993). Moreover, the term itself is flexible; exhibition evokes a variety of possible meanings. For many teachers, exhibitions are culminating performances (Kordalewski, 2000; Podle & Metzger, 1992). For others, they represent multiple performances within a given course or project (McDonald, 1993). In all cases, incorporating exhibitions into one's teaching constitutes interpretation of the term and translation of personal meaning into pedagogical action. The example of exhibition suggests that such a translation can be perilous, in part because teachers' understandings of terms like 'exhibition' or 'performance' or 'mastery' tend to be personal, even idiosyncratic (Cossentino, 1999). Multiple, and sometimes contradictory, understandings of important terms can signal conceptual confusion and theoretical incoherence. Yet those same words offer a valuable window into the translation process.

With exhibition as a case in point, this paper seeks to discover how teachers in the general curriculum might translate the language of artistry into practice distinguished by artistry. Using the analogue of the design studio, the meaning of exhibition is explored when it is directed toward artistry. What emerges is a picture

of exhibition as a pedagogical system rather than merely an assessment strategy. This system is characterized by reciprocal cycles of performance and criticism on the part of both teachers and students that epitomizes what Schön (1983, 1985) called ‘reflection-in-action’. The analysis of exhibition in the design studio in this paper leads to a revised metaphor of exhibition, which it is proposed may help teachers import a more authentic conception of artistry into the general curriculum.

### *Reflective Practice and the Metaphor of Exhibition*

The design studio, particularly as analyzed by Schön (1983, 1985, 1987, 1990), is a potent example of the drive to import concepts and language from the arts into the general curriculum. A principal outcome of Schön’s analyses of the pedagogy of the design studio was his identification of ‘reflection-in-action’ as a particular brand of professional expertise characterized by the practitioner’s “moment-by-moment appreciation of a process [within which] he deploys a wide-ranging repertoire of images of contexts and actions” (1987, p. 29).

Explicating a constructivist epistemology and making visible a previously elusive dimension of professional knowledge, both *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987) have attained the status of classics in fields as diverse as business, medicine, and, perhaps most notably, teacher education. In both volumes, Schön grounded his treatment of reflective practice in an analysis of the unique character of reflection-in-action as it occurs in design learning. He moved rapidly, however, toward generalization, suggesting that habits and traditions unique to the studio and crystallized in the concept of reflection-in-action, are, in fact, features of much of professional life. Learning to reflect in as well as on action, he concluded, might constitute a new core of professional education.

Learning to reflect is the lesson many teacher educators have drawn from Schön. These ‘architects of reflective practice’ (Finkelstein & Efthimiou, 2000) put the emphasis on reflection as a powerful tool for professional development. Reflection, like exhibition, is a flexible concept; and advocates of reflective practice invoke the term to connote a stance, a set of activities, as well as an identity. The concept enjoys such broad appeal that it is now widely considered a ‘movement’ (Zeichner, 1994). From journal keeping, to action research, to formative and collaborative evaluation, these prescriptions imply a simple lesson drawn from Schön: that reflecting on practice will necessarily lead to improved practice (Cruikshank, 1987; Valli, 1990).

Scholars have critiqued this rendition of professional development, what Zeichner (1994) calls the ‘generic tradition’ of reflective practice, for its over-simplification of the meaning and applications of reflection (Calderhead, 1989; Grimmet *et al.*, 1990; Valli, 1990; Zeichner, 1994; Zeichner & Liston, 1987). These scholars call for alternative approaches to reflective practice, but maintain the focus on reflection as an approach to developing and honoring the unique craft knowledge of teaching. Implicit in the analysis here is also a critique of the reflective practice movement, but

a different set of lessons is gleaned from Schön. Rather than seeking to operationalize the general notion of reflection, there will be a closer look at the phenomenon of reflection-in-action as it occurs in the particular context of the design studio. This view offers a set of lessons built around the theme of what Schön (1987) called 'artistry'.

In highlighting artistry, the focus will be on both the quality and the content of reflection. Reflection as it occurs in the design studio characterizes a system built on continuous cycles of performance and assessment dominated by the presence of a design teacher who is also a 'master' designer. Exhibition, in this context, is 'generative',<sup>2</sup> meaning it comprises the entire system of performance and criticism. Rather than serving as a final or even intermediate occasion for assessment, design studio teachers use exhibition to generate stronger performances throughout the process of instruction. Exhibition, which is characterized here as a special blend of showing and telling, is ongoing, reciprocal, and sequenced in such a way as to lead students to construct increasingly sophisticated understandings and to exhibit those understandings through increasingly masterful designs.

As a metaphor, exhibition in this context connotes a series of events distinguished by reciprocity between performance and assessment, between teachers and students, and, most importantly, between the ends and means of instruction. By contrast, exhibition in the general curriculum often highlights the end at the expense of the means. What might be called 'summative exhibition' is often defined by exponents as an 'exit event' (Sizer, 1984), 'rite-of-passage' (Feeney, 1984) or 'substitute for the final exam' (Podle & Metzger, 1992). Summative exhibitions offer opportunities to reflect on completed work, but their emphasis on finality nullifies the invitation to reflect-in-action. Both the generative and summative conceptions of exhibition conjure images of performance and reflection. However, it is argued that the former offers a more robust metaphor of exhibition because it conjures an image in which these activities are integrated, ongoing, and reciprocal. Applied to the idea of reflective practice, the metaphor of exhibition offers a visible link between reflection and artistry.

### **The Design Studio: the journey toward artistry**

The purposeful movement toward artistry is the defining feature of exhibition in the design studio, and it clarifies the value of the studio as both a pedagogical exemplar and a referent for the metaphor of exhibition. Although the concept is central to the pedagogy of the design studio, the term 'exhibition' rarely appears in discussions of design learning. Other terms, such as 'desk-crit', 'pin-up', 'review', and 'presentation' are familiar to anyone trained as an architect. These terms define a process by which students move toward artistry through a remarkably coherent system of performance and criticism. What follows is a description of exhibition in the design studio, an analysis of the elements of the system that may be translated to the general curriculum, and finally, a proposal for a revised view of reflective practice animated by the metaphor of generative exhibition.

### *The System*

Based on the method developed in the nineteenth century at the Ecole des Beaux-Arts (Chaffee, 1977), most architects are trained according to a version of what in Paris was known as the *atelier* system. *Ateliers*, or design studios, were organized around the work and tutelage of a master architect. The curriculum consisted chiefly of a series of design problems set by the master and solved by the students. Advancement occurred when the solutions were judged acceptable by a jury of critics. This system was brought to the USA with the founding of the first schools of architecture in the nineteenth century and remains a mainstay of architectural education.

Studies of the design studio range in scope from investigations of the cognitive moves involved in the design process (Goldschmidt, 1989; Jansson, 1993) to critiques of particular aspects of the studio experience, namely the deleterious effects of competition and hierarchy (Anthony, 1987; Dutton, 1987). Examinations of the pedagogy of the design studio are disappointingly few in number (Beinart, 1981a, b; Dutton, 1987; Ledewitz, 1982; Shaffer, 1998). The monumental work of Donald Schön (1983, 1985, 1987, 1990), however, makes a persuasive case for viewing the design studio as a model of reflective and rigorous education.

The power of that model hinges on two hallmarks of the design studio, both of which feature generative conceptions of exhibition. The first is that performance is built into the structure of learning to design through the mechanisms of ‘desk-crits’, ‘pin-ups’ and ‘reviews’. (Beinart, 1981a, b; Schön, 1985; Shaffer, 1997). These are occasions of varying formality in which students present their work-in-progress to teachers (the desk-crit), peers (the pin-up) and outside critics (reviews). Together they comprise a system of performance and criticism that authentic assessment theorists would describe as ongoing or embedded in instruction (Wiggins, 1993; Wolf, 1992; Zessoules & Gardner, 1991).

A second hallmark of the studio is the unique character of the desk-crit. What many consider the heart of the design process, desk-crits are essentially conferences between a student and teacher in which the student presents and describes his or her work and the teacher probes for clarity, suggests possible design solutions, and offers alternatives for proceeding with the design. Often, in the course of considering various design choices, student and teacher may ‘design together’ (Schön, 1985). Designing together may involve the teacher sketching directly on the student’s drawing (with or without the overlay of tracing paper) a series of potential design solutions. In this instance, exhibition occurs on at least three levels.

On one level, the student exhibits emerging understanding through executing the design itself and also through describing it. On a second level, the teacher, through the medium of drawing, shows the student the consequences of possible design choices. On a third level, the teacher demonstrates how designers think about designing. Exhibition, in other words, demands a special kind of show and tell (Howard, 1982). Both teacher and student demonstrate, reflect and discuss the design-in-progress throughout the process of instruction, and it is through this

process of demonstration, reflection, and discussion that the student learns how to design as well as how to think about designing.

### *Learning-by-Doing in Context*

The tradition of ongoing and reciprocal performance punctuated by criticism is so central to the pedagogy of the design studio that it is not considered assessment at all. Rather, it is the essence of instruction. A central goal of design learning is to ‘think architecturally’ (Ledewitz, 1982; Schön, 1981). Learning to think architecturally means developing a new set of skills as well as a new vocabulary, and using both to address a particular domain of problems that are fundamental to professional practice. The problems an architectural student confronts are familiar to the practicing architect, and often are drawn from actual situations encountered in the field. Assessment theorists label such situations ‘authentic’. Schön called them “rich context for learning-by-doing” (1985, p. 7). When considering how this system might inform practice in general classrooms, the richness of the context cannot be overlooked.

The culture of the design studio is deeply enmeshed in the culture of architecture generally. The same cannot be said of the culture of the eleventh grade science lab or the ninth grade algebra classroom. The difference illustrates a cultural divide between the worlds of the studio master and the classroom teacher that may be too wide to bridge. Still, an understanding of the nature of that divide helps clarify the conditions necessary for teachers to, as Schön (1987) put it, ‘coach artistry’.

Two themes, mastery and criticism, arise consistently as central to both pedagogy and practice in architecture. These themes are presented as sticking points in the drive to import artistry because their translation from the studio to the classroom often results in dramatically different renditions of the concepts. For many classroom teachers, ‘mastery learning’ (Guskey, 1985; Hunter, 1982) connotes a set of ideas that are antithetical to the ideals of authentic assessment, understanding or artistry. Similarly, criticism is widely shunned by general educators in favor of standardized evaluation (Eisner, 1985; Wiggins, 1993). However, in the design studio, the themes of mastery and criticism are intertwined to form a culture of artistry, a method for coaching artistry, and an identity for coaches.

### *Mastery*

In general parlance, mastery is usually understood to be the possession or display of great skill or knowledge. While ‘greatness’ remains a matter of interpretation, in many fields the qualities of skill and knowledge are readily apparent. For instance, a 16-year old knows that he or she has ‘mastered’ driving sufficiently to earn a driver’s license when he or she ‘passes the test’. Anyone who has ever taken the test knows that it typically involves performing a number of skills basic to safe operation of a vehicle on public roads. Turning left into traffic, the three-point-turn,

and parallel parking are all tasks the prospective driver practices. When the time comes for mastery to be judged, the evaluator accompanies the candidate on a drive, either through a course or around town, and checks off the skills as the driver demonstrates them. Passing the test means successfully performing a minimum number of skills.

The acquisition of discrete sets of skills characterized by the above description is often how ‘mastery’ is interpreted by general educators. The connotation of mastery as proficiency resonates with current calls for accountability through ‘high stakes’ testing, and it casts mastery as clear, fixed, and perhaps most important, measurable. Such clarity does not exist in the design studio. Rather, mastery in this context refers to the more elusive goal of thinking architecturally, which has been described as ‘problem-setting’ (Goldschmidt, 1989; Schön, 1985). In contrast to the skill of driving, where the problems are pre-set and the driver’s expertise is a matter of how well he or she performs the correct solution, architectural problems have no correct solutions. Instead, the designer faces a program, or set of qualifications and constraints, and from this must develop a problem. Only when the program is framed in terms of design choices may the process of solving the problem begin.

Designing, then, involves envisioning a problem as well as a number of potential solutions. Selecting and executing the most effective solution requires mastery of a number of skills. Visualization or the ability to ‘see’ potential results of spatial design is a key ability. Visualization, traditionally, is taught through the development of another skill: drawing. Whether in two dimensions (drawing) or three dimensions (model-building), architects must master the skill of representation. They must also be able to represent their ideas verbally. In the course of demonstration and criticism, drawing is almost always accompanied by talking. The ability to think architecturally is gauged by the ability to use the language of design in both verbal and visual media (Schön, 1985).

The ability to transform a set of preferences and constraints into a workable design is one measure of mastery, but the more significant criterion is the degree to which the design demonstrates creativity or innovation in its conception of space (Beinart, 1981b). Here the concept of mastery merges with artistry. Great architects, like great artists, change the way we perceive our relationship to the world around us. From the Palladian ideal of balance, proportion and expanse to the Bauhaus preoccupation with form and function, greatness has been determined by the work of individual architects whose work sets the standard for particular schools, styles and generations. To make the argument a circular one, mastery is the work of masters (Howard, 1982).

Mastery, in the context of the design studio, is a complex and fluid phenomenon. Its meaning is shaped more by tradition than by policy. It balances the goals of proficiency and artistry, assuming both command and creativity, and it is revealed through both student and teacher performance. As teacher and student work side by side to construct representations of mastery, they engage in generative exhibition. Exhibition, in this system, serves as both the representation of mastery and the means of arriving at it.

*Criticism*

In the course of most teacher-student interactions in the design studio, performance merges with criticism. Developing that skill goes hand in hand with learning to draw or think spatially. Architecture students learn to be critics in the same way they learn to design, through experience and example. They are subject to criticism throughout the instruction process, and they witness their peers' experience in interim and final reviews. Less frequently, they are called on to critique the work of their peers as students. However, most practicing architects expect to perform the art of criticism in the formal venue of a jury as well as in consultation with peers on works-in-progress.

As a form of initiation for the fledgling architect, desk crits and juries are notoriously harrowing experiences (Anthony, 1987; Frederickson & Anderton, 1990). Students report extreme anxiety at the prospect of negative criticism as well as feelings of despair when jurors are dismissive, distracted or overly harsh. Juries, the analogue to summative exhibition, are rarely described as effective learning situations (Anthony, 1987). On the other hand, interim reviews receive more favorable comments; some desk-crits (Beinart, 1981b; Schön, 1985; Shaffer, 1998) have been celebrated as exemplary forms of instruction.

If the final review or jury counts as the summative exhibition, the desk-crit is an example of generative exhibition. That is, in the desk-crit, both student and teacher reflect-in-action around an evolving design solution, and in so doing, the desk crit becomes an occasion to demonstrate an emerging set of competencies through reciprocal cycles of performance and criticism. It is distinguished from what might be called formative exhibition (Scriven, 1967) by virtue of the quality of the interaction between student and teacher. In the best cases of generative exhibition, student and teacher shift easily between analytic, synthetic and evaluative modes of discourse (Dutton, 1987), often in the same sentence, "You might carry the gallery level through, and look down into there ... which would be nice" (Schön 1985, p. 12). Generative exhibitions are performances, and they involve anxiety on the part of the student and a desire to present his or her best work, even if it is dominated by partially-formed ideas. Because they involve presentation to a master, they count. But when the operative mode is reflection-in-action, the performance assumes a more spontaneous, improvisational character. Because student and teacher are partners working toward a common goal, the emphasis shifts from being critiqued to learning the art of criticism in the context of performance.

This view of exhibition makes partners of performance and assessment, action and reflection, as well as student and teacher. It is most certainly an ideal. Just as the meaning of mastery is inevitably mediated by the individuals who would be masters, the efficacy of generative exhibition hinges on the ability of the teacher to serve as critic as well as designer. They must, in the words of Schön, "become not only master practitioners, but master coaches" (1985, p. 7). The literature testifies to an all-too-frequent disconnect between criticism and coaching (Anthony, 1987; Balfour, 1981; Frederickson & Anderton, 1990). However, the central role of criticism,



even when it is poorly executed, makes it possible to imagine a form of exhibition that, by design, helps guide students toward artistry.

### **Coaching Artistry**

In arguing that the design studio is a setting in which exhibition illuminates the link between artistry and reflection, two propositions have been offered. The first is that exhibition is ongoing; the second is that exhibition is reciprocal. The ongoing nature of exhibition is most evident in the mechanisms of the desk-crit, the pin-up and the review. Through these occasions, exhibition is blended into the process of instruction; and this integrated conception of performance and assessment is a key factor in helping students perform in ways that demonstrate mastery. Where the first proposition points out areas of continuity between the realms of the studio master and the classroom teacher, which may be summarized as a concern with embedded or ongoing assessment, the second proposition highlights gaps between these two worlds.

Embeddedness may be framed as a structural issue, but reciprocity concerns the very nature of interactions between teachers and students. The design studio is built on a vision of education usually called the apprenticeship model. Most traditional classrooms operate according to a 'transmission' model of teaching (Gardner, 1991; Jackson, 1986; Sizer, 1984). For teachers steeped in the transmission model, skills associated with delivering information are of paramount importance. Transmission thwarts the goal of reciprocity by promoting a rationalized, step-by-step approach to organizing curriculum and, even more, by featuring classroom management and motivation as key 'survival' strategies for beginning teachers (Hunter, 1967, 1982; Skinner, 1968). Within this world, mastery is equated with technical rationality (Schön, 1983) rather than artistry. Order takes precedence over experimentation; recall precedes analysis; and evaluation becomes standardized. Within such a model, little room remains for reflection or exhibition, let alone artistry.

Recent reforms in teacher education have sought to remedy the fractured, rationalized perception of teachers' work, largely through advocacy of reflective practice. Aiming to honor the unpredictable, evanescent nature of teachers' craft knowledge, reflective approaches to professional development often focus on the formation of collaborative learning communities, procedures for conducting classroom inquiry, venues for sharing knowledge, and mentoring other professionals. Valli (1990) attributes this development to what she identifies as a conceptual shift from behaviorist to cognitive assumptions about learning. A new focus on thinking rather than on observable behavior has authorized teacher educators to highlight teachers' thought processes and their own development in learning to teach. This focus on reflection and development, while welcome, still discounts the qualities of the design studio that led Schön to the notion of reflective practice. Ongoing and reciprocal reflection-in-action, what can be called generative exhibition, is the defining feature of the pedagogy of the design studio, and this pedagogy assumes much more than reflection. Generative exhibition demands performance,

discernment, and the social construction of understanding. Coaching artistry demands that teachers as well as students demonstrate mastery and perform the art of criticism.

The conviction that teachers should see their roles as helping students construct their own knowledge and develop their own understanding is not new (Dewey, 1933; Parker, 1896; Piaget, 1974). It is, perhaps, stronger today than it has been in recent decades because of reform efforts aiming to reconfigure the practice of teaching from a transmission to an apprenticeship model. These reforms, characterized generally as ‘teaching for understanding’ (Cohen *et al.*, 1993; Wiske, 1998) promote the very sort of active, constructive and reflective learning visible in the design studio. They define mastery as understanding; they locate performance as the central instructional activity; they embed assessment in instruction; and they prescribe for teachers the challenging role of ‘coach’.

Of course, the ideas of coaching and reflective practice have long been linked. Characterizing coaching as a ‘reflective conversation’, Schön described the “design-like artistry of professional practice” as “earnable, coachable, but not teachable” (1987, p. 158). Learning artistry, in other words, calls more for doing than listening. Coaching artistry, likewise, calls for the skillful balancing of show and tell. Reflective conversations involve not just reflection, but reflection-in-action. As the case of the design studio makes clear, the action in question revolves around the development and demonstration of mastery.

Whether most teachers can demonstrate mastery of the sort common to the design studio is doubtful. Whether they should is a matter of some controversy among scholars of pedagogical reform (Gardner, 1999; Shulman, 1987; Sizer, 1984). Still, the example of the design studio suggests that the success of ‘new’ pedagogies, such as those implied by authentic assessment, will, as Cohen and Barnes (1993, p. 242) put it, require teachers to “treat the terrain of teaching as intellectual practices”. In other words, whether or not they are themselves historians or mathematicians or scientists, teachers aiming to coach artistry should be both engaged in the central questions of their disciplines and comfortable in the role of critic so that they may engage in reflective conversations with their students.

### **Importing Artistry: linking language and action**

The master/apprentice relationship crystallized in the design studio is the heart of an architect’s education, and it may provide a critical link between the theory and practice of ‘new’, constructivist pedagogies, such as authentic assessment. Proponents of authentic assessment ask teachers to engage in tasks and create conditions that are alien to most traditional classrooms, but quite common in the design studio. Although the purpose of this paper is most certainly not to suggest that the pedagogy of the design studio be adopted by teachers in the general curriculum, it is proposed that the image of exhibition in the design studio can be a useful tool for thinking about what constitutes a pedagogy aimed at understanding.

By examining the practice of exhibition as it occurs in one segment of arts learning, the education of architects, an attempt has been made to offer a concrete picture of what artistry looks like. By investigating links between the meaning and practice of exhibition, and by proposing that those links constitute the translation rather than implementation of practice, there has been more than a description of exhibition in the design studio. The intersection of language and action has been examined. That intersection occurs in the metaphor of exhibition.

Metaphors fill in the gaps between the concrete and the abstract, making it possible to see relationships that were previously invisible (Lakoff & Johnson, 1980; Schön, 1993). The metaphor of exhibition drawn from the referent of the design studio, what here is called generative exhibition, reveals relationships on two levels. On a structural level, the metaphor of exhibition makes visible a relationship between performance and assessment, which suggests a way of organizing instruction. On an interpersonal level, exhibition illuminates the relationship between reflection and action. What authentic assessment theorists call 'embeddedness' and what Schön called 'reciprocal reflection in action' are key concepts informing both assessment and reflective practice. They are also abstractions; and making these concepts real presents a formidable challenge to any teacher wishing to apply the lessons of the design studio to her teaching in the general curriculum. This paper, has argued that the most useful lessons of the design studio may be captured in the metaphor of exhibition.

In keeping reflection tied to action, the metaphor of exhibition reminds us that artistry is not a final pedagogical flourish. Rather, artistry characterizes the end as well as the means of instruction, and importing artistry will demand the translation of a system rather than discrete elements of instruction. In highlighting the systemic nature of coaching artistry, the metaphor of exhibition warns against attempts to graft 'new' approaches to assessment onto existing conceptions of instruction. Applying the lessons of the design studio to the general curriculum will involve a transformed conception of instruction, which may begin with the words we use to talk about instruction.

This examination of the pedagogy of the design studio offers a new referent for the metaphor of exhibition. In contrast to the prevailing image of exhibition as summative event, the generative image of exhibition suggested by the design studio calls for teachers as well as students to perform, to critique, to demonstrate mastery, and to reflect in as well as on action. Put in terms of 'coming to see relationships', the metaphor of exhibition prompts us to see relationship between performance and assessment in a new way, a way more closely aligned to the artistry of the design studio. In seeking to import a more authentic conception of artistry, classroom teachers may move toward practice that is both reflective and masterful.

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## Notes

1. Madaus and O'Dwyer (1999) do acknowledge the antecedents to authentic assessment. Additionally, see Howard (1982, 1992), Eisner (1994), Greene (1995), and Jackson (1998) for penetrating treatments of pedagogies both drawn from and aimed at artistry.
2. The use of the term 'generative' in the context of the metaphor of exhibition invokes another concept originated by Schön: generative metaphor (1990, 1993). Although the analysis here asserts a link between the language of exhibition and its practice, it leaves a robust consideration of the generative properties of the metaphor of exhibition for a future paper. This investigation concentrates on the power of the practice to generate increasingly sophisticated performances.

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