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Art and Cognition: Integrating the Visual Arts in the Curriculum

Efland, A. D. (2002). Art and cognition: Integrating the visual arts in the curriculum. New York: Teachers College Press & Reston, VA: National Art Education Association. ISBN: 0-8077-4218-X

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I was a student of architecture long before I became a student of the visual arts. Last year, an exhibition titled '*Frank Gehry, Architect*' at the Solomon R. Guggenheim Museum, New York, offered welcome evidence that the two disciplines are not far afield from each other. I would argue—and so did this exhibition—that they are in fact contiguous practises within a shared domain of knowledge construction. Or at very least they are aligned and correlated in my own mind and educational experience. Gehry has become internationally renowned because the combination of a unique architectural vocabulary, an iconoclastic use of materials, a penchant for collaborations with contemporary artists, and an idiosyncratic approach to the design process and the development of form have all come together as an integrated aesthetic 'sensibility that melds architecture and sculpture in exuberant buildings' (From wall bio at Guggenheim exhibition, installed May 18th – August 26, 2001).

I have to admit that a large part of what drew me to this exhibition was the prospect of satisfying my yen for viewing maps and models, the inordinate fixation to know the underlying purpose beneath the façade which all former architecture students are invariably left with. (That, along with the incapacity to inhibit one's use of unrelentingly legible block lettering.) Purposeful coherence is of course one of the goals of all maps and models. This is no less the case in Arthur D. Efland's newly released *Art and Cognition: Integrating the Visual Arts in the Curriculum* (2002). This new tome sets

for itself the admirable task of coherently mapping variously situated theories of cognition, and from an integration of those theories, modeling a rationale for the necessary integration of arts learning in general education curriculum. As Efland builds his thesis, each chapter closes with a brief examination of implications for education in the arts, aesthetics or general education.

Efland's effort stems from his belief that works of art require a particular rigour of intellectual inquiry to make meaningful sense, and become of value to the learner first and foremost because they are context-bound creations. Consequently, works of art may be understood as personally relevant artifacts only when they are grasped holistically—in their interconnectedness within the social settings couching each individual's personal experience. Through his definition of works of art as context-bound, Efland claims that the task before the learner is to resituate these domain-specific bodies of knowledge over to a position of personal relevance and interpretation and to find a cognitive strategy for doing so. Or rather, it is the task of educators to facilitate such transferences from context-boundedness to personal utility, aiding the learner's creation of newer bodies and boundaries of knowledge. Efland boldly takes us then to where the positivist bias in the human sciences will not allow us to go—toward the proposition that reductivist and scientific methodology is not 'the only way to procure reliable knowledge' (p. 5). Efland's aim draws upon an architectural metaphor: to 'build a foundation for lifelong learning inclusive of the arts' (p. 6).

According to Efland's thesis, this all becomes possible assuming that one pictures the mind as more than a hierarchical repository of logical-scientific symbolic structures, more than a socially situated field of enculturated symbols mediated by parents, peers,

and knowledgeable adults. Rather, Efland portrays a mind flexible enough to employ different strategies appropriate to the mastery of understanding in pre-packaged, generalizable, and well-structured domains of knowledge as well as ill-structured, broad and complexly fragmented arrays of knowledge—yet able to integrate the variety of knowledge domains and arrays into coherent and purposeful maps and models of the world.

Ultimately, the book purports the mind's imagination to be the most flexible and integrative of all the symbol-processing tools at our disposal, powerfully formative and capable of 'creating new ideas or images through the combination and reorganization of previous experiences' (p. 133). The imagination can acquire other cultural tools such as language, mathematics and works of art and then utilize them in continually reshaping an individual's lifeworld in accommodation to the dispositions of the learner, also described as the learner's 'habits of mind' (p. 118). Learning and the creation of new knowledge may thus be preceded by imaginative, even artistic, purpose and development.

Efland begins to make his case for linking artistic development more closely with general cognitive development in Chapter 2 of his book, presenting an extensive account of research strands in cognitive developmental theory as typified by the work of Jean Piaget and Lev Semenovich Vygotsky. Both, in differing ways, advanced 20th century psychological behaviourism and its basic stimulus-response cause-effect tenets. Behaviourism was itself the response of cognitive psychologists to positivist demands for purging metaphysical speculation from a more purely scientific study of the mind and its behaviours. The core of behavioural orthodoxy is that '[o]nly objects or events may

function as stimuli, and learning is determined by responses to such stimuli' (p. 18). Efland notes Bruner's citation of the 1956 publication of Bloom's *Taxonomy of Educational Objectives* as the 'mythical birthday' of the cognitive revolution (p. 15).

Bloom's *Taxonomy* established a cumulative hierarchy of cognitive domains descending from the *cognitive*, to the *affective*, to the *psychomotor*. In educational discourse since then, cognition has been associated with rational exercises in thinking which have been researched far more extensively than affective subjects or psychomotor embodiments. Language arts, mathematical competence, and logical-scientific reasoning were viewed as the bailiwicks of the mind's development.

Piaget established an invariantly sequenced step theory for cognitive developmental studies that eschewed the onset of artistic development as an object of research inquiry. According to Efland, whereas Piaget locates mind 'in the brain of the lone individual' (p. 30) and its ability to assimilate and accommodate emerging schemas or structures of knowledge, Vygotsky described cognitive development as part of an interactive process of social learning between a mind and its sociocultural environment. In Vygotskian theory, the brain internalizes the cultural influences that surround it; individual cognitive development begins in a proximal zone outside of the brain through symbol-driven tools, discursively mediated, serving as the stimulus for learning.

Within Bloom's taxonomic delineation and most of its subsequent elaborations throughout the course of the 20th century's scientific and categorizing predisposition in developmental psychological discourse, artistic and aesthetic thinking became relegated to the affective category, not quite at the level of cognitive activity. This relegation was conferred in spite of a range of arguments to the contrary, such as Rudolf Arnheim's that

‘visual perception is visual thinking and art making is a kind of visual problem solving’ (Parsons, 1998, p. 81), and Michael Parsons’ (1998) that the puzzle of how to recreate a perception as ‘an image in the particular terms of [an art] medium’ makes the artist or the child a ‘problem-solver’ (p. 81).

In Chapter 3, Efland traces the related emergence of three major traditions in cognitive theory. The *symbol processing* tradition assumed an objective reality independent of the learner and negotiated by a mind that manifests itself in symbolizing cognitive activity that construes an objective version of reality through which to know the world outside of the mind’s operations, and processing that reality through logical symbols. The *sociocultural, or situated* tradition assumed a socially constructed reality including the learner and negotiated by a mind that manifests itself in social and discursive interactions building conventionalized aspects of the world that simultaneously embed within the mind to shape perception and thinking. The *constructivist* tradition assumed a personally constructed reality idiosyncratic to the learner and negotiated by a mind that manifests itself in wholly personalized strategies and agency in making relevant meanings. In this chapter, Efland also lays the foundation for advancing his own modified constructivist theory of learning through the arts, integrating the assumptions of symbol processing and situatedness in development.

Chapter 4 begins Efland’s exploration of a theory of cognitive flexibility that strategizes linkages between prior knowledge arrangements and new interpretable encounters largely by the overlapping of sets of information, an analogy Efland borrows

from urban planning. Particularly useful is the discussion of learning and transfer drawing upon 'ill-structured' and irregular arrays of knowledge, versus that which draws upon 'well-structured' domains such as those encountered in textbooks and lectures. Efland quotes Spiro, Feltovich, Coulson & Anderson's (1988) work on the flexibility and connectedness of knowledge acquisition and transfer in ill-structured learning contexts, said to be more complex a task than approaching knowledge acquisition and transfer from an overreliance in the neatly compartmentalized 'pre-compiled' schemas of well-structured learning contexts (Efland, p. 97). Efland settles upon the 'hub metaphor' developed by Yang (2000) as likely to prove most influential to contemporary curriculum development when navigating ill-structured arrays of knowledge. Efland writes:

> If airlines scheduled direct flights between all of the cities they served, they would soon be overwhelmed by the sheer complexity of the flight schedule they would have to maintain. If certain cities were instituted as hubs or transfer points, the scheduling system could be simplified and made less cumbersome by having several planes, flying relatively short distances, meet at the same terminal to exchange passengers. (p. 103)

Efland urges curriculum planners to adapt the hub metaphor toward integrating areas of study and helping students 'construct possible linkages among ideas often isolated by arbitrary subject boundaries' (p. 103). Moreover Efland is now implying the utility of art educational models of curriculum planning to general educational practise.

As Efland builds his own model of cognitive learning through the arts, Chapter 5 allots valuable square footage to a focus on the work of Judith Koroscik and her associates. Koroscik's research has focused on learning problems in the transfer of knowledge from domain-specific contexts to coalesce within the framework of the learner's prior knowledge base. Throughout the book Efland does due diligence to comparing and contrasting a crop of theories on learning in the arts, some historical, such as by Bruner, Lowenfeld, Read, and Arnheim—some more contemporary, such as those advanced by Gardner, Wolf, Parsons, Brent and Margary Wilson, Anna Kindler, and Bernard Darras. But Chapter 5 belongs to Koroscik. The kernel that Efland seem to be after is in Koroscik's (1993) research into the differing strategies novices and experts use in the expansion of their knowledge base, and the suggestion that works of art offer the possibility of integrating knowledge 'since their interpretations utilize knowledge about the social and cultural landscape from which they came' (Efland, p. 167). Efland's point is that through the arts, learners discover that irregular and ad hoc transferences between a work of art and one's lifeworld are both conceivable and tenable as an extension of knowledge.

The centrality of transfer to Efland's thesis leads to a lengthy discussion in Chapter 6 on the importance of metaphoric and narrative constructions to the 'higher end of the spectrum of human cognitive performance' (p. 152). Efland ultimately believes that 'metaphor is an essential component of imagination in such forms of cognition as abstract reason' (p. 152), imbuing learners with a leaping flexible-mindedness and facility for the intussusception of both situated and embodied properties which, in their rapprochement, establish connectivity across widely diverse human experience. He

presents a metaphoric imagination as a generator of strategies for the transfer of context-bound and domain-specific essentials over into the maps of personal understanding constructed by a learner, thereby a cognitive tool making possible the architecture of process models of reality and the enabling of abstract thought. Efland emphasizes that the relevance of such a rationale for cognitive learning in and through the arts is yielded in that, unlike in scientific discourse where the metaphors in use tend to remain hidden, '*it is only in the arts where the processes and products of the imagination are encountered and explored in full consciousness*' and become the objects of inquiry (p. 153, emphasis by author).

If one compares Efland's integrationist thesis with Charles M. Dorn's developmental perspective in *Mind in Art: Cognitive Foundations in Art Education* (1999), one comes away with the suspicion that Efland might find Dorn's argument that art in the curriculum must start with the making of art just a tad myopic. This is not to denigrate Dorn's argument, which is both valid and valuable. I simply note here that Efland is more far-sighted. To Efland, a worthwhile curriculum in the arts is not one that centres on the issue of transforming ideas into forms and images; to Efland, art curriculum is about the transfer of situated experience into abstract ideas. In other words, art is in the same business as science, though science understands it not. John C. Gilmour (1986) has reached the conclusion that 'our interpretive activities fall within a general human intention to understand the world' (p.152). Science interprets the natural world and parses out its general laws; art also interprets the world, but seeks embody it as well, in visuosymbolic, musical and material exemplars that narrate the human experience.

But art also embodies the void…the gaps in our knowledge, our measurements, and models. Coherence is vital to the well-being of human cognitive functioning; the alternative is not long viable—semi-conscious awareness, nonsense, insanity, and the paranoia of a world disintegrating into the unknowable—falling away into the void. The metaphors of artistic endeavour draw upon these voids, making sense of them. At the onset of cognitive operation, when almost all is unknown or unknowable, metaphoric leaps of thought have always aided the development of mind and identity, proliferating whole mental landscapes from the barest encounters and engagements with the world. Repeated mining of this early cognitive real estate yields raw materials for knowledge structures that will be replicated and recycled in mind, migrating to and fro, in refittings and refurbishments from one knowledge enhancing event to another. Metaphors are vehicles for these refittings and refurbishments, 'minor works of art', each crafted of a keen utilitarian aesthetic (Danto, 1981 p.189). A mind can thus made, remade, unmade, and made over; it is never finished. It has no certain form.

In an earlier exhibition catalog, *The Architecture of Frank Gehry* (1986), Gehry is quoted as insisting that he likes best the 'poetic' appearance of unfinished buildings and raw building materials, frameworks revealed. In an interview for *American Architecture Now*, Gehry champions 'the quality that you find in paintings by Jackson Pollock, for instance, or de Kooning, or Cézanne, that look like the paint was just applied' (cited in *Frank Gehry, Architect* exhibition catalog, 2001, p. 311). Gehry believes in turning unfinished materials into works of art and architecture. He has practised the transformation of the humdrum mappings of topological surveys and square footage requirements into a continuing lattice of free-associative models derived of models, 'free

play ideas' culminating in a large-scale and inhabitable model or 'sketch' that remarkably retains the sense of being a work in progress. Not relying upon conventional architectural typology, Gehry seeks a freshness born not only of this process of vernacular proliferation, but also out of the practise of dialogue and collaboration, especially with other artists. In the process, Gehry has gone over to the use of new tools—first sculpting multiple solutions out of sensuously provocative materials as eclectic as wood, paper, adhesive tape, wax-infused velvet, glass, metal, plaster, chain link, mylar, and epoxy-resin fiberglas—and then three-dimensionally digitizing and rapidly prototyping fluid projections of these process models through powerful computer-aided design (CAD) technology. Gehry's strategies produce sculpted architectural frameworks that are, as a body of work, extraordinarily uncertain. It is the kind of learning Efland has in mind.

Not relying upon conventional curriculum architecture, Efland seeks a fresh approach to general education born of a process melding conventional learning exercises with the sculptural sensibilities, the dialogic engagement of the senses and materials that is inherent to aesthetic experience. Efland's suggestions that educators utilize key works of art as landmarks for cross-disciplinary and cross-social learning, that we recognize the role of metaphor and narrative in providing the basis for 'an imaginative reality' (Lakoff & Johnson, 1980, p. 193), and that we understand the purpose of the arts as contributive to the embodiment of 'the myths that bind human social systems together' (p. 171), all rise together to form new curricular indications implying ineffables vital to the furtherance of the exercise of human development. It is the kind of bold integration Gehry would be most happy to construct.

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