Handbook of Research and Policy in Art Education

Edited by

Elliot W. Eisner
Michael D. Day

A Project of the National Art Education Association
INTRODUCTION

The term *child development in art* has become a part of the core vocabulary in the field of art education. It has graced book titles, become a name for university courses, and established itself as a focus of a well-defined area of scholarly inquiry that has attracted contributions from the fields of psychology, art, and education. Intuitively, most people have a notion of what this term entails. Images of scribbling children mastering their drawing skills over a long period of time to eventually be able to produce images that clearly communicate the artist’s intent readily come to mind. People who are not experts in art often see artistic development in rather simplistic and unilinear ways—as an ability to progress from pictorial production that “looks like nothing” to creation of images that “look like something.” Psychologists interested in cognitive underpinnings of pictorial behavior tend to focus on changes in denotation systems, figure differentiation, segmentation and contouring, volumetric and surface representation, and the use of other pictorial devices indicative of advancement in the utilization of graphic symbol systems. Depending on their cultural origins, artists and art educators may point to the improvements in technique and ability to control and manipulate the medium or to an increase in complexity, detail, and expressiveness of images. However, even this apparent diversity of possible indicators or measures of growth seems dramatically limited and seriously insufficient in relation to the vast universe of art, in the world “after the end of art” (Danto, 1997) where the definition and potential for “art” remain open-ended.

The concept of “artistic development” becomes highly problematic in the absence of systematic and consistent criteria, requirements, or values against which it could be assessed. The ability to achieve mastery in pictorial realism is neither a necessary nor a sufficient condition for artistic success. Technical proficiency has proven redundant in some manifestations of art. Complexity and elaboration have been dethroned to embrace synthetic simplicity, and absence of form gained artistic credibility matching that of a tangible artifact. Interest in cultural pluralism has incorporated into the domain of “art” (at least in the Western understanding of the term) objects and actions that require understandings, abilities, and skills increasingly diverse and
hard to trace along a developmental continuum. Information technology, multimedia applications, and proliferation of images within the scope of visual culture have further extended the already ungraspable universe. In this context, can we still contemplate a possibility of “artistic development” as a discrete, universally shared phenomenon of a sequence that associates psychobiological and sociocultural factors with an increase in “artistic” performance?

The “ill-defined” nature of the category “art” represents only one aspect of the problem. The other comes from uncertainty, highlighted by lack of credible evidence, that artistic performance in visual arts involves separate and distinct cognitive processes that may be a subject to their own pattern of development. Even within a very narrow definition of art there is little evidence to suggest that growth or progression within the domain can be attributed to a set of developmental processes and their sequence characteristic and unique to this area of experience. A close examination of theories concerned with development in art suggests that they have been based on a principle of “the closest match” between development of selected general cognitive abilities and practical competencies with what has been deemed as key attributes or characteristics of art.

For example, in his book *Art and Representation* Willats (1997) proposes a developmental theory based on changes in the use of denotation systems: from ones where regions are used to denote contours and edges and in gradual emergence of what he regards as “higher” modes of representation of space in drawings: from topology and extendedness through orthogonal, horizontal, vertical, and oblique projections to the use of linear perspective. Although no-one in their right mind would argue that ability to use linear perspective in drawings precedes attempts to represent special relationships through topological representations in early spontaneous pictorial work of youngest children, it remains that application of linear perspective is hardly indicative of artistic success and within certain cultural contexts has historically remained irrelevant. Evidence of reaching a more advanced developmental stage according to Willat’s theory is relevant only to a limited artistic tradition and is hardly a predictor of artistic success. Furthermore, having had taught orthographic, isometric, and perspective drawing for several years, I have failed to observe any developmental facility in terms of my students’ ability to apply the three systems. In fact, orthographic projections of displayed models were at times more difficult for some students to produce than were perspective renditions, especially if students employed simple grids facilitating applications of the technique. At least for some students it seemed more difficult to correctly decompose the model into surface representations than to create an image that could be judged and corrected in relation to the three-dimensional appearance of the referent. In any case, learning of perspective drawing was clearly a process of acquisition of a skill that could be reduced to a series of step-by-step instructions and their careful execution—hardly a hallmark of “development.” It is true that Western culture has attributed a high value in art to linear perspective, but there is no strong evidence suggesting that its superiority is anything but a judgment call that reflects preference toward visual realism over retaining actual angles, dimensions, or proportions within the represented objects.

It is important to note that my reservations regarding the concept of “artistic development” are framed differently from arguments presented by Hagen (1985) as she declared that “there is no development in art” (p. 59). Hagen, who conducted a systematic analysis of projection systems focusing on the use of primary geometry and light in a drawing (1985, 1986) concluded that in these respects there was no evidence of existence of any clear developmental patterns. From my perspective, however, such a conclusion is, again, far removed from the context of art and what does and does not matter within its universe. I would consider Hagen’s “no development” stance as problematic as Willat’s insistence on development—in that what they have suggested applies only to a very limited subset of what art and artistic engagement may possibly build on, even within the domain of drawing. Hagen (1985) correctly notes that acquisition of drawing skills geared toward visual realism relies heavily on “mastery of
specifically taught canons” and the gradual acquisition of motor skills rather than being a prerogative or evidence of the existence of “a developmental progression with ordered stages that differ qualitatively from each other” (p. 76). Still, her conceptualization of developmental question remains framed within the great Western narrative of academic art and could easily be contested based on the narrowness of the criteria of development in art that she selected.

One point on which I strongly converge with Hagen is the notion that hierarchy in pictorial systems (whether restricted to consideration of geometry, as has been in Hagen’s case, or not) can be highly misguided or culturally biased and that an alternative model of a parallel growth in a range of systems that are of equal status provides a more appropriate model for describing changes in human pictorial attempts. In fact, understanding of “development” as an increase in pictorial repertoires rather than as a cumulative linear growth within a system that has a single endpoint has underlined the work of Wolf and Perry (Wolf, 1994; Wolf & Perry, 1988) and the model of development in pictorial representation that Bernard Darras and I have proposed (Darras & Kindler, 1993; Kindler & Darras, 1994, 1997, 1998). Within the context of my present claim questioning the concept of “development in art,” it is important to note that our model has been presented on earlier occasions within the “development in art” discourse because of its relevance and usefulness to the field of art education rather than due to our commitment to the concept of “artistic development.” This stance has been particularly well articulated by my research partner whose interest in imagery has consistently been less related to art education than my own focus (Darras, 1996, private communication, 1998–2001). Our model addressed the development of pictorial representation largely within a two-dimensional space, and from its onset our claim has been to incorporate or account for a vast universe of pictorial imagery that may or may not be classified as art. In other words, we have attempted to describe some principles underlying differentiation or change relative to the use of pictorial systems that may be used in the contexts of diverse applications, some of them falling within the vast territory of art and others situated outside its boundaries.

I have already eluded to a fundamental difficulty related to the concept of development in art—namely, the vastness and ill-defined nature of the artistic domain. There are some specific aspects to this complexity that pose serious obstacles to articulation of a coherent and comprehensive developmental theory in this area of human experience that I will try to highlight in this section. In this chapter, as I address selected obstacles to articulation of a coherent, comprehensive theory of development in art, I will try to present perspectives that exemplify both theoretical limitations and contributions that constitute attempts to transcend them.

PROBLEMATIC NATURE OF OPERATIONAL DEFINITIONS OF “ART”

In order to cope with the vastness of the concept of art, contributors to the debate about the nature of development have resorted, explicitly or implicitly, to the use of operational definitions or limiting assumptions corresponding to the focus of their inquiry. A good example of an explicit attempt to frame the concept of art for the purpose of a developmental theory is Hagen’s explanation that limits art to “two-dimensional creations of skilled people, whether painted, drawn, etched, engraved and photographed, or even programmed,” production that “is always skilled labor, the end product of developed technique.” Hagen discounts “intention, function, and aesthetic appeal” of an image and excludes “sculpture, crafts and artifacts,” “startlingly beautiful patterns of nature or the happy accidents of chance construction, or the uncontrolled expressions of children,” or “snapshots of summer camp and family picnics” from the category of art (Hagen, 1986, p. 3). Although such operational definition may be satisfying to a perceptual psychologist, it clearly would raise serious issues with art historians, artists, and art educators.
Implicit exclusions have been embedded in a majority of developmental theories that focused on development in pictorial representation in a two-dimensional plane, or more specifically, drawing. Some of the most influential, longstanding theories (e.g., Arnheim, 1974; Lowenfeld, 1943; Luquet, 1927) as well as recent models (e.g., Cox, 1992; Kindler & Darras, 1997, 1998; Matthews, 1999; Milbrath, 1998; Willats, 1997) exemplify this focus on two-dimensional work. Notwithstanding the important place of drawing within the world of art to say that a model of artistic development could be complete without consideration of sculpture, installation, or other forms of art that make use of three-dimensional space would be inconceivable. The issue of neglect of three-dimensional imagery and other forms of representation including those that involve cooperation of multiple modalities of expression will be further discussed in a separate section later in this chapter.

**IMPORTANCE ATTRIBUTED TO VISUAL REALISM**

Some of the most prevalent and influential developmental theories have rested on the assumption that experimentation with pictorial devices is directed toward finding and adopting solutions that lead to the creation of “simile” (Darras, 1996)—images that display a high degree of visual resemblance to their referents. Luquet (1927) argued that children’s learning in drawing is concerned with and motivated by an interest in producing recognizable representations. The criterion for measuring growth has been a progression from “fortuitous realism” through “failed realism” and “intellectual realism” to finally arriving at the “visual realism” stage. Victor Lowenfeld’s work (1943) has further asserted this general conception of artistic growth in his own stage theory that consists of early scribbling and preschematic stages, followed by the schematic stage and the stage of “dawning realism.” Although Lowenfeld contended that the final “stage of reasoning” characterized by naturalism (visual realism) refers especially to the developmental progression of “visuallyminded children,” and that “haptic individuals” may instead focus on expressive qualities in their work as a result of their heightened awareness of muscular, kinesthetic sensations and experiences, the general direction of his developmental account has clearly favored specific cultural models, namely, visual realism and expressiveness characteristic of modernist art. Lowenfeld also closely linked artistic and mental growth that favored, from a developmental perspective, a great amount of detail in a drawing over a more synthetic image. Linking an increase in drawing differentiation to a greater level of a child’s awareness of his or her environment placed more complex drawings higher on a developmental scale—with no consideration of the drawing’s intent of purpose, which could have well accounted for a selective elimination of detail.

More recent studies of development have also largely focused on drawing development with visual realism as its endpoint (e.g., Chen, 1985; Cox, 1992; Milbrath, 1998; Willats, 1997). This is well exemplified in the work of Milbrath, who asserted that “drawing of less talented children reflects categorical properties rather than visual properties” (1998, p. 41) and considered “remarkable visual realism” (p. 369) in drawings as an indicator of artistic talent. As I have signaled earlier, concern over visual realism also underlined the developmental account formulated by Willats, who argued that changes in children’s drawings are prompted by “a series of interactions between picture production and picture perception” (p. 318). According to Willats, children progress from drawings that offer, in their estimation, acceptable solutions to pictorial problems (drawing that seem “right”) to drawings that also “look right.”

It is interesting to note that the criterion of visual realism has underlied developmental accounts by scholars otherwise representing differing perspectives on the specific causes or mechanisms accounting for appearance of drawings. For example, Piaget closely linked cognitive...
development with development in drawing and regarded early pictorial work of children as evidence of their cognitive deficit (e.g., Piaget & Inhelder, 1956). Freeman (1980, 1995), who disagreed with the cognitive deficit theory and suggested that it is not the lack of knowledge about the world but rather the lack of ability to translate it in a drawing is responsible for an "immature-looking" pictorial production of children, nonetheless characterized development as a move from object-centered to view-centered description, pointing to the developmental superiority of realism-based representation. Optical realism also remained the endpoint of development in work of many neo-Piagetian researchers concerned with artistic development (e.g., Porath, 1997; Reith, 1995).

Although it certainly is true that some of the pictorial work of children, adolescents, and adults tends to gravitate toward visual realism, there is also a range of imagery that emerges in spontaneous pictorial production that is not concerned at all with the appearance of things. It is very common, for example, for young children to produce drawings that focus on actions rather than on objects and where iconicity is restricted to the kinetic dimension (e.g., Kindler, 1999; Kindler & Darras, 1994, 1997, 1998; Matthews, 1999; this volume; Wolf & Perry, 1988). This highlights another problem embedded in classical theories of development: a general lack of consideration of the relationship between the purpose and the intention behind a pictorial attempt and the choice of expressive media, which will be discussed in the next section of this chapter. Furthermore, there is no evidence to suggest that an ability to produce realistically looking replicas of the world is regulated by a developmental mechanism. On the contrary, most adults never reach this “endpoint” in their pictorial production, and those who attain such ability typically acquire it through extensive training situated within culturally based forms of apprenticeship.

The problem with relying on visual realism as a benchmark for artistic growth has been exposed by Arnheim (e.g., 1966, 1974), whose work challenged the assumption that the concept of development should be tied to the notion of art as a copy of reality. Arnheim noted that children and artists alike do not necessarily strive to “copy” a scene but rather concern themselves with the creation of equivalences guided by their own internal graphic logic and which only structurally or dynamically correspond to the objects to be represented. Like a hobby horse, in Gombrich’s (1985) essay, that does not need to visually resemble a horse but “becomes a horse” because a child can ride on it, in pictorial representation there is a range of graphic solutions that allow the creation of well-functioning pictorial substitutes. Arnheim’s theory has greatly influenced the developmental work of Golomb (e.g., 1992, 2002), who concluded that “based on empirical findings reported by different investigators, one has to reject a unilinear view of developmental progression toward realism in artistic development” (2002, p. 48) The ecosystemic approach recently advocated by Darras (2002) further highlights the fact that visual culture is composed of systems of imagery that do not necessarily consistently favor a visual/mimetic or a schematic/pictographic orientation but that also include systems that select, integrate, and mix different aspects of these two traditions.

ISSUES OF PICTORIAL INTENT AND PURPOSE

One of the greatest problems with traditional developmental theory has been the focus on the issue of “translation” of a three-dimensional reality into a two-dimensional plane with little or no attention given to the nature of decision making and to the intentions behind the pictorial act. In her recent critique of accounts of “drawing development as a unidirectional progression towards optical realism,” Golomb (2002) noted that such theory “ignores the diversity of cultural models and the effectiveness of alternative modes of representation that depend on the intention of the artist” (p. 18). One of the earliest studies that systematically explored young
children’s capability to use multiple drawing systems within a timeframe of a single “stage” in relation to diverse drawing tasks was conducted by Bremmer and Moore (1984). These researchers demonstrated that even very young children have and exercise choices in selecting such systems depending on the context and purpose of their drawings.

Their findings complemented Project Zero researchers’ work concerned with early symbolization that lead to the broadening of the definition of representation and to the identification of distinguishable drawing systems in production by children as young as 12 to 15 months of age (Shotwell, Wolf, & Gardner, 1980). In their critique of traditional stage theories, Wolf and Perry (1988) referred to the work of sociolinguist Dell Hymes who argued that language acquisition by children was not limited to learning of a language but rather “languages—ways of using words in face-to-face conversations and long-distance communications, in arguments and songs, in writing and in speech, in poems and recipes” (p. 17). By analogy, Wolf and Perry suggested that the use of pictorial language is not restricted to a developmental acquisition of one system of visual representation and have argued that depending on the context different drawing systems may be utilized. Atkinson (1991) further provided examples to substantiate the claim that children have an ability to access multiple pictorial systems.

**“FROM ENDPOINTS TO REPERTOIRES”**

The notion of possible multiple endpoints of artistic development has underlined theoretical contributions that reconceptualized development in drawing as a growth in pictorial repertoires (e.g., Golomb, 2002; Kindler, 1999; Kindler & Darras, 1994, 1998; Matthews, this volume; Pariser, 1995, 1997; Wolf, 1994; Wolf and Perry, 1988). Unlike classical developmental theories that regarded visual realism as an ultimate destination of artistic growth, these more recent accounts consider the strive toward realistic representation as only one of the possible avenues of development in the pictorial domain.

Wolf and Perry (1988) defined a “drawing system” as a “set of rules designating how the full-size, three-dimensional, moving, colored world of ongoing visual experience can be translated into a set of marks on a plane surface” (p. 19). They noted that these rules referred to at least two categories of issues: consideration of kinds of information crucial to the representational success and aspects of pictorial behavior of the individual engaged in the drawing task that may also carry meaning. In Wolf and Perry’s account, the earliest drawing systems are not graphic in nature and involve object-based representations where very young children may use paper or felt pens in a course of symbolic play. In other words, in these types of representations, drawing materials themselves become substitutes for referents. They also identify gestural representations that are concerned with motions rather than with objects that eventually lead to point-plot representations at approximately 20 months of age. Wolf and Perry argue that “existence, number and position” (p. 21) take precedence here over shape, color, or volume. As they describe other drawing systems; those that involve consideration of shape and relative size, as well as systems that situate objects in a larger space or that call for application of rules of projective geometry, Wolf and Perry assert that development in drawing consists of a growth in pictorial repertoires as well as of an evolution and improvement within each of the drawing systems. They claim that the ability to use the most recent, newly acquired system is less relevant to the concept of progress in the pictorial domain than the ability to select from among the attained choices a system that best matches a specific pictorial task.

The notion of pictorial repertoires has also been central to the model of development proposed by Kindler and Darras (1997, 1997b, 1998). This model attempted to chart some possible avenues of acquisition and roads toward mastery of pictorial systems that collectively add to pictorial repertoires from which cultures and individuals prioritize and select depending on
their purpose and values. Relying on Peirce’s semiotic theory, we have argued that development in graphic representation can be explored through examination of the use of icons, indexes, and symbols that constitute components of signs (1997). We suggested that the range of graphic production of children, adolescents, and adults can be treated and interpreted as systems of dynamic signs that are subject to change, mutation, and evolution as a function of diverse teleologies or purposes and to shifts in salience of different attributes of a concept that becomes selected or prioritized in the act of representation. This process leads to development of pictorial repertoires that are cumulative rather than substitutive in nature, that rely on single or multiple modalities of expression in representation attempt, and that can be purposefully selected from depending on contexts and specific pictorial tasks.

Our account of development pointed to the close and circular relationship among changing teleologies of representational behavior, shifting semiotic saliences, and growing pictorial repertoires. We have argued that change in pictorial imagery results from this dynamic system where a shift in one of the elements affects changes in other components. A new teleological orientation or purpose can influence selection of different conceptual and/or visual attributes of objects to be represented, but it can also emerge as a result in shift in importance given to specific aspects of the object/concept. Similarly, a new pictorial repertoire may emerge as a result in changing purposes or teleologies, but it may also open the door to new pictorial teleologies and endpoints.

In explaining the origins of pictorial behavior, we benefited from work of Varela (1989), who proposed that cognitive activity emerges at the crossroads of activities of the sensorimotor type, on the one hand, and the activities of the central nervous system, on the other. We have argued that an interaction of sensorimotor activities, which are subject to environmental influences and activities of the central nervous system, allows for emergence of the teleology of representation. This teleology develops from the ability to recognize similarities and differences in movements opening the door to the creation of first iconic signs. An ability to re-create kinetic acts with an awareness of their identity or similarity to an earlier movement is at the foundation of representation, as it allows for both production of icons of gestures and experimentation that would lead to the development of new, different signs. We consider gestures as iconic signs of movement and regard icons of gestures as first observable behaviors within the domain of representation. Our approach here is congruent with Wolf and Perry’s (1988) assertion that pictorial development must be traced further back in its origin than to the first tangible marks left on a surface.

I have also argued that iconic gestures are at the heart of an important pictorial repertoire that children spontaneously use well beyond infancy (Kindler, 1999). The “I am the picture” repertoire (p. 336) relies on the interplay of gestural, visual, vocal, and verbal cues and is manifested in “action pictures” that gain in elaboration, complexity, intentionality of specific purpose, and ability to carry explicit meanings. However, these “action pictures” are grounded in the same teleology of representation and general iconic principles as the earliest iconic manifestations, testifying to the fact that the first, initial iconic behaviors neither atrophy nor become replaced with more sophisticated pictorial systems. Instead, they function in parallel to other repertoires that can emerge later in life and have found ways to claim a place within the realm of professional art through the performance-based artists such as Allan Kaprow or Rebecca Horn (e.g., Henri, 1974).

In Darras and Kindler’s model, the shift of salience from the kinetic aspects of movement to the marks or traces that they can leave on a surface leads to the emergence of teleology of figuration. Now figurative aspects of a gesture trajectory that have acquired a static dimension can be further explored, interpreted, and modified. As has been the case earlier, a pictorial repertoire of icons of traces has a potential to be sustained and developed beyond early childhood years and boundaries of a dilettante production. The notion of indexality in image making
and creation of imprints not only is common to many pictorial efforts of toddlers and older children but also surfaces in works of mature artists such as Matisse and in artistic techniques such as printmaking.

The existence of icons of traces in early phases of pictorial experimentation also allows for consideration of another teleology where repetition of icons creates a sufficient increase in the number of graphic elements to create structures of special organization. This teleology of organization is still closely tied to the kinetic dimension and in its earliest manifestations results in “icons of rhythms” that capture trajectories of multiple movements with a varied degree of kinetic diversity. Such icons of rhythms create the possibility for two new qualitatively different teleologies and resulting pictorial repertoires: one, drawn out of an analysis and interpretation of forms; and the other, concerned with the dynamic dimension and potential for representation that unfolds in time. In the Darras and Kindler model, the former is referred to as a teleology of autonomy where interest in regularity of marks, closure, and coherence contributes to development of “icons of forms.” Closed shapes separating segments of space create intrinsically semantic forms that communicate roundness, harmony, and coherence (Arnheim, 1974) and lend themselves to reinterpretation as a result of child’s interactions with his or her environment. An increase in realization of the potential to create graphic marks that can “stand for” objects and people in the environment leads to the emergence of teleology of description with icons of objects that satisfy the need to communicate by achieving a desirable level of basic correspondence between the intention and the interpretation of the image. We have argued, however, that icons of objects as they emerge in early pictorial production are seldom created in isolation from vocal, verbal, or gestural commentary. In other words, the semiotic process in which they play a role is not restricted to graphic communication and relies on a much more extensive range of modalities of expression.

A parallel development of the “teleology of narration” highlighted, in our model, the fact that representation of static aspects of experience calls for a different pictorial system than representation concerned with dynamic events. “Icons of actions” documented in a toddler’s drawings by lines or dots, generated through a process of play imitating a driving car or a jumping rabbit, leave cars and rabbits outside of the picture. The existence of a car in these drawings is required only for the action to take place, and it can be sufficiently asserted through verbal or vocal clues. Again, it has been documented that in pictorial production of older children, in drawings where “the bare essence of the story” matters (Kindler, 1999, p. 336), children readily refer to this early acquired pictorial repertoire.

We have also pointed to the early emergence of two additional teleologies of pictorial behavior that combine interest with narration and description, with an emphasis on either the story-telling aspects or the descriptive mandate of representation. We noted that depending on the salience attributed to each of these dimensions children select different pictorial repertoires. It is only within the realm of imagery concerned with “how things look” that visual realism may become of relevance.

We have never suggested that our model represents the universe of possibilities within a pictorial domain but have noted that the emergence of pictorial teleologies that we have described is sufficient for the system of “initial imagery” (Darras, 1985, 1986; Darras & Kindler, 1993) to emerge. This pictorial system that characterizes production of preadolescent children, “nonartistic” adolescents, and adult art novices, in addition to being present in exemplars of prehistoric art, comprises simple but stable schema that satisfy the basic needs of representation. We highlighted the fact that although this system is often degraded as “primitive” or immature, its schematic and “generic” qualities and ability to capture the essence rather than the particular make it exceptionally strong and effective in its universality, economy of means, and effectiveness in communication as it exemplifies Arneheim’s (1974) notion of an internal strive toward simplicity. We also noted that initial imagery is often employed in the context of
representation that incorporates gestural or verbal elements and as such is not deficient in lack of detail or elaboration.

A recent study by Kailin (2002) offers additional support to the repertoire-based models by demonstrating that elementary-school-aged children have a very good understanding of different pictorial systems and different strategies that can support learning of each of them. For example, participants in Kailin’s study made it clear that copying is the most effective strategy in becoming good at cartoon drawings, whereas looking closely at an object and being coached step by step may most effectively lead to success in “life-drawing” tasks that are concerned with visual realism. They further indicated that drawing emotions may best be learned through a study of the work of artists or even that of peers or drawing alongside someone else.

Although the repertoire-based accounts of development have addressed some limitations of classical-stage theories, they still fall short of describing “development in art.” First, they have been focused primarily on development in two-dimensional representation; and second, they have not attempted to delineate developmental mechanisms specifically responsible for production of art as opposed to other kinds of pictorial imagery. In fact, the category of “art” has hardly been central to these theoretical positions and has entered the picture only to the extent to which some of the production that they attempted to explain could be classified as art according to selected cultural and historical criteria. Kindler and Darras (1997) made it explicit that although certain categories of imagery tend to be classified as art and others may more readily belong to the category of “visual communication,” there are certainly no clear demarcation lines that could be consistently applied for the purpose of this differentiation and that the boundaries between these categories are subject to fluctuation depending on historical and cultural perspectives and values.

DEVELOPMENTAL MODELS AND CULTURAL AESTHETIC BIAS

Wilson (1997, this volume) has convincingly argued that “child art” is a concept of the modernist era and that cultural biases and assumptions have long muddled the developmental discourse. A similar observation was made by Hamblen (1993), who claimed that models of development in art “tend to be prescriptive of art learning that conforms to the values of modernity, to the characteristics of a hierarchical society, to the institutional needs of education” (p. 45).

An excellent example of a theory heavily dependent on a specific cultural perspective is the U-curve model of artistic development proposed by researchers associated with Harvard’s Project Zero (Davis, 1991, 1997a, 1997b; Gardner & Winner, 1982). The essence of the U-curve theory is that an initial outburst of artistic creativity in early childhood years is followed by a demise in the quality of children’s artistic production in middle childhood, and that only in late adolescence or adulthood there is a rebirth of artistic ability, at least in the case of artistically inclined individuals.

Observations leading to this conclusion initially made by Gardner and Winner (1982) were later empirically confirmed by Davis (1991, 1997a, 1997b) in an experiment involving 5-, 8-, and 11-year-old children as well as “artistic” and “nonartistic” adolescents and adults in the United States. Participants in Davis’s study were asked to make drawings representing themes of “happy,” “sad,” and “angry.” Completed drawings were then presented to expert judges (artists), who were asked to evaluate them using a protocol based on the analysis of the “symptoms of the aesthetic” (Goodman, 1976). The judges were specifically asked to pay attention to the following criteria: overall expression, balance, and the use of line and composition, as appropriate to the target emotion being expressed. These assessments
confirmed that the work of the youngest children was superior in its artistry to production to that of all other children and nonartistic adolescents and adults.

However, subsequent studies conducted in diverse cultural settings that replicated Davis’s experiment (Pariser & van den Berg, 1997), including those that freed the judges from the obligation to follow strict criteria predetermined by the experimenter and allowed for application of standards that the judges themselves deemed relevant to the task, consistently failed to yield the U-curve developmental patterns (Kindler, 2001; Kindler, Liu, Pariser, & van den Berg, 2003; Kindler, Pariser, van den Berg, & Liu, 2001; Liu et al., 2002; Pariser & van den Berg, 2001). The explanation proposed by those who have expressed doubts about the U-curve theory points to the bias embedded in a Western, modernist perspective of Davis’s judges. In other words, it has been argued that this developmental theory has been constructed here in relation to a very specific set of aesthetic values that are not universally shared (Kindler, Pariser, van den Berg, Liu, & Dias, 2002, 2002a). Given the fascination that modernist artists have with young children’s imagery; both as collectors and as borrowers of stylistic characteristics of young children’s art in their own work, it is not difficult to see that an assessment of artistic development using a scale conforming to the modernist taste would put young children’s production in a very positive light. Fineberg’s *The Innocent Eye* (1997) systematically documents the intimate relationship between children’s art and the creative output of modernist artists. The author highlights Picasso’s admiration of the “visual inventiveness of children” and pointed to its connection with the artist’s “own extraordinary access to the memories and urges of childhood that most of us have buried beyond the reach of our adult consciousness” (p. 137). Similarly, Franciscono claimed that Dubuffet “turned in the 1940s to children’s drawings as a means of cutting to the truth of the ordinary experience” (1998, p. 116). If artists such as Picasso, Duchamp, Klee, or Miro modeled some of their work on young children’s imagery, it is only natural that the work of young children would, conversely, carry elements characteristic of the modernist artists. The thesis of dependency of the U-curve theory on a particular aesthetic tradition associated with a specific period in history of art is further substantiated by the fact that in selected North American (Canada) as well as South American (Brazil) and Asian (Taiwan) cultural contexts nonartist adult judges and children and adolescent judges alike consistently failed to evaluate young children’s drawings as superior to images produced by other age groups (Kindler, Pariser, van den Berg & Liu, 2002; Kindler, Pariser, van den Berg, Liu, & Dias, 2002, 2002a). Developmental patterns found among different age and art-expertise groups resembled, in a majority of cases, either a rising line or “dragon-like” curves with a general upward direction. Only selected expert judges who have been heavily exposed to the modernist tradition in their own artistic training produced patterns reminiscent of the U-curve. This is not to say that the U-curve model does not describe some aspects of a phenomenon that fits the “development in art” discourse. Within the modernist ethos of elevation of child art to serve as an exemplar of excellence in the domain, it is certainly possible to argue that artistic development indeed takes a dip and that, paraphrasing the famous Picasso’s statement, it takes a lifetime before an artist can attain the quality of a child’s imagery in his or her mature artistic production. However, it is necessary to remember the qualifying conditions of this assertion; and given the limitations that they impose, it is difficult to argue that the U-curve model defines universal patterns of artistic development.

**NATURAL DEVELOPMENT OR CULTURAL LEARNING?**

Although much consideration has been given to the concept of artistic development as a natural unfolding of cognitive abilities, some researchers have argued that there is nothing “natural” or “developmental” about acquisition of drawing skills and that it all is confined to cultural
learning. This theory receives significant attention in a separate chapter (Wilson, this volume) and consequently will not be given much elaboration here. It is important, however, to highlight Wilson and Wilson’s theoretical contribution to the debate about development in art (Wilson & Wilson, 1977, 1982, 1985; Wilson, 1997).

Unlike Arnheim (1974) or Golomb (1992), who posited that artistic development involves children inventing graphic language, Wilson and Wilson (1977, 1982, 1985) argued that such language is strictly culturally acquired. They suggested that with the exception of the earliest years of life that are marked by development of general cognitive abilities relevant to consideration of artistic process, all images created by children or adolescents can be traced back to preexisting schemata that are socioculturally shared. They claimed that such schemata become naturally shared among peers and are adopted from imagery that permeates visual worlds in which children grow up.

In essence, their argument reverses Lowenfeld’s (1943) claim that if not for the interference of the external world, every child would grow up to be an artist. According to the Wilsons, it is precisely this interference that lays foundations for artistic accomplishment. Research in art education and psychology offers numerous examples demonstrating powerful influences of sociocultural contexts on the development of pictorial imagery of children (e.g., Burton, 1980; Golomb, 1974; Hamblen, 1999; Kindler, 1992, 1994, 1995; Kindler & Darras, 1994; Kindler & Thompson, 1994; Thompson & Bales, 1991)—many of them clearly very productive in encouragement of children’s artistic activity.

Leaving expert theories aside for a moment, it may be of interest to consider children’s views regarding the nature/nurture influence on their artistic progression. Kindler and Darras (1995) conducted a study of 3- and 5-year-old children in France and Canada concerned with young children’s conceptions of the nature and modes of the acquisition of drawing skills. They found that although most of their interviewees contended that people get better at drawing with age, they have not attributed this improvement simply to maturation. This was especially the case with the 5-year-old children, who overwhelmingly discounted the natural improvement hypothesis and claimed that they and others learn how to draw from others by being taught, through copying and through practice. A recent study by Kailin (2002) further demonstrated that forms of interaction with the environment such as “learning to draw the object step-by-step,” “looking at other children’s drawings,” or “copying” rather than natural maturation are consistently identified by children as possible means of improvement in their artistry.

One of the most significant implications of the Wilsons’ position is realization of the power and influence of visual culture. This impact of exposure to and engagement with visual worlds has been signaled by the “Flynn effect” (Darras, 2002) in terms of its impact on cognition. Flynn (1987) conducted a study comparing, across 14 cultural settings, IQ scores obtained within several decades and noted a consistent, significant increase over time. Progressive elimination of alternative hypothesis of the cause of this increase (such as improvement in nutrition, increase in quality of education, etc.) led to the observation that the improvement was almost exclusively noted on nonverbal tasks that relied on visual–spatial competencies. It was eventually stipulated that the change in visual environment and the resulting growing expertise in visual analysis account for the new patterns of the IQ test results. This is consistent with the notion forwarded by Fish and Scrivener (1990), who observed that:

Despite scholarly arguments for a greater emphasis on visual modes of thought (…), Western culture and education are still dominated by verbal/propositional reasoning and information storage. New evidence of the importance of mental imagery in memory, reasoning and invention, and research that reveals the awesome proportion of the brain that is dedicated to vision, emphasize the need to redress the imbalance. (p. 125)
SELF-CONTAINED GRAPHIC LANGUAGE OR COLLABORATION OF MULTIPLE MODALITIES OF EXPRESSION?

The majority of accounts of artistic development regarded development in graphic representation as restricted to a single-symbol system. This view has been especially well articulated by Arnheim, whose notion of visual thinking involved thinking within a medium and stipulated development of ability in creation of pictorial equivalences in negotiation within the medium properties. This notion has been also strongly entrenched in the thinking of neo-Piagetian psychologists concerned with development in the pictorial realm. I recall a roundtable session on graphic development at a Jean Piaget Society International conference in Geneva several years ago, where a suggestion of a possible existence of a more integrated cognitive system—in which gestures, vocal-verbal and graphic forms are inseparably bound and create a plurimodal language of early childhood that subsequently becomes broken down into culturally accepted categories of movement, language, and graphic worlds (Kindler & Darras, 1996)—was quickly dismissed because the notion of the need to study simultaneously phenomena that have traditionally been fragmented without breaking them into the component parts seemed impossible to conceive.

Yet, in recent years there has been a growing interest in more integrated conceptions of early cognition involving pictorial behavior. The work of Matthews (1994, 1999, this book) well documented the interplay of different modalities of expression in visual representation in early childhood. Evidence from cognitive sciences contributed further evidence that “the mind uses imagery and verbal processes for complementary and interdependent purposes” and that “it may be an error” to separate them (Fish & Scrivener, 1990, p. 125). Parsons expresses similar sentiment arguing that “systems approach to cognition identifies the different arts as each being a different symbol system” and “requires thought to stay within boundaries of a single medium it is dealing with on the assumption that, if it moves from one system to another, it loses its coherence” (Parsons, 1998, p. 106). He expresses concern that such an understanding of cognition in the arts “transforms a dimension of difference into a principle of separation” not compatible with his view of artistic learning. Efland’s (2002) recent book Art and Cognition offers additional support to the more complex and integrated notion of artistic learning.

MEANING VERSUS FORM: WHAT ABOUT DEVELOPMENT IN “ARTISTIC THINKING?”

Another question relevant to the concept of development in art addresses the salience of the production aspect, which has traditionally been at the heart of the developmental debate in art education, in relation to the nature of artistic thought. In other words, to what extent performance within a medium can be considered as a sole or even as a key determinant of “artistic development?” One does not need to resort to examples of conceptual art to argue that the quality of thinking and ability to identify, pose, and solve problems within the realm of artistic creativity are fundamental to art. If the meaning and message in art can be regarded as equally or, at times, even more important than the form, then a question regarding developmental pathways guiding growth in “artistic thinking” becomes central to the concept of “development in art.” It also becomes of interest to explore how “artistic thinking” intersects with cognitive processes that account for abilities to translate artistic ideas into tangible artifacts within a selected medium along a developmental continuum.

One area of research that attempted to provide some answers to the first question has been the inquiry concerned with the nature and development of artistic creativity. Although
the relationship between art and creativity can certainly be problematized, especially from a cross-cultural perspective, and the definition of creativity poses no fewer problems than does the definition of art, it may be worthwhile to examine accounts of development in creativity in the context of developmental discourse in art, given the strong common association of the two concepts. The ability to generate original ideas, find new associations, and build innovative, unconventional connections among concepts that characterize creative behavior tends also to be associated with artistic accomplishment.

Sobel and Rothenberg (1980) argued that artistic creativity is related to the development of homospatial thinking—“a particular type of cognitive operation involving highly complex mental imagery” where “images and representations derived from any sensory modality” (including visual) are consciously brought into the same special location” (p. 994). The resulting mental conception allows for the production of new forms and structures, and their integration, which characterizes creative endeavors, as documented in research on distinguished artists, musicians, and creative individuals in other fields (Rothenberg, 1979). However, this research has left many questions unanswered regarding the specific links between the homospatial processes and their creative function, nor has it given any indication that development in homospatial thinking would be characteristic of artistic development as opposed to creative activity in other areas.

Tucker, Rothwell, Armstrong, and McConaghy (1982) presented some evidence linking allusive (loose) thinking and the type of creativity exhibited by acknowledged artists. They differentiated between a low-level creativity associated with divergent thinking that involves an ability to “generate or produce, within some criterion of relevance, many cognitive associates, and many that are unique” (Wallach & Kagan, 1965, in Tucker et al., 1982, p. 840) and allusive thought demonstrated by successful visual artists. The researchers have acknowledged, however, that “with changes in accepted art forms, allusive thinking could become more or less valuable to artists” (p. 840) and contended that creation of nonrepresentational art, for example, particularly benefits from this kind of thinking. In other words, they acknowledged that development in allusive thinking would not necessarily effectively support development in all domains or styles of art.

An interesting account of development in artistic creativity was also proposed by Smolucha and Smolucha (1980), who posited that such creativity emerges at the intersection of analogical thinking (thinking that characterizes children’s symbolic play) and logical thinking. They argued that visual artists have an ability to perceive and manipulate perceptual resemblances (which they called isomorphisms) between different things to create multiple levels of meaning by consciously controlling their analogical thinking and oscillating between the analogical and logical modes of thought. Considering perception of isomorphisms as a function of sensorimotor thought, Smolucha and Smolucha suggested that, in the visual arts, isomorphisms function as means of implying relationships between seemingly unrelated parts and allow a work of art to acquire multiple levels of interpretation. They argued that “imagination has its origins in the sensorimotor domain in the form of mental images which are reconstructions of external reality” and that “these mental representations can be used to represent more abstract ideas by semiotic extension” (p. 97). When Smolucha and Smolucha put their theory to an empirical test by constructing a series of tasks that allowed the measurement of manipulations of isomorphisms and the collection of scores of fluency and flexibility of divergent behavior of subjects ranging in age from 2 to 57, they discovered a J-shaped developmental pattern indicating that “artistic creativity is at its highest in adulthood” (p. 98). They noted that this contradicted the U-curve model and suggested possible further qualitative change in artistic cognition that could be attributed to the improved collaboration between the two forms of thinking and a desired state of equilibrium between the analogical thinking based on sensorimotor thought, on the one hand, and the verbal–logical thought, on the other.
An interesting insight into the consideration of the nature of artistic growth and its socio-cultural determinants comes from studies by Petrov (1996, 1998), who explored the creativity of artists in relation to relative brain asymmetry. Using expert ratings categorizing stylistic orientations of over 200 European artists from the mid-15th century to the mid-19th century and plotting these judgments against bipolar scales on indicators of the two opposing types of information processing that characterize left- and right-hemispheric functions, he concluded that these two types of processes “are periodically dominant during the evolution of the socio-psychological life of a society” with a mean duration of each cycle of approximately 20 to 25 years. He predicted “a new half-cycle of L-brain prevalence in the next several years, with such features as rationality and predominant role for verbal elements, theoretical concepts, reflexive processes, etc.” to dominate in the visual arts (1998, p. 229). According to Petrov’s theory of evolution in art in relation to shifts in value that favor or deemphasize selected types of information processing, it could be stipulated that developmental models such as the U-curve proposition generated within a particular cycle would likely carry a respective bias.

None of the aforementioned approaches have, however, unconditionally linked artistic development to specific forms of thinking exclusive to the domain; nor have they suggested that these account for the entire realm of artistic production. Although these approaches suggested possible connections between certain characteristics or modes of thought and creative activity, no claims were made of a comprehensive theory of artistic development.

ARTISTIC DEVELOPMENT AND THE BRAIN

Although research in neuroscience has not led, as of yet, to any attempts to formulate comprehensive accounts of development in art, several studies conducted especially over the past decade have contributed important insights into the nature of human artistry. Relevance of such research to art education has recently been explored by Dake (2000), who outlined a number of studies concerned with neurological foundations of visual perception, cognition, and selected art-related behaviors, such as thumbnail sketching.

A body of work in neuroscience has been concerned with identification of brain areas involved in artistic activity. For example, Miller and Tippet (1996) identified right frontal lobe as the area particularly involved in visual problem solving. Elliot (1986) demonstrated that integration and synchronization of functions of the right and left hemispheres relate to creative visual thinking. Changeaux (1994) argued that artistic creativity involves not only cortical areas of the visual system located in the posterior (occipital) part of the brain that are responsible for analysis and synthesis of forms, colors, spatial locations, and movement pertaining to the objects and figures in the external world that fund creation of a mental image, an inner representation of the external world, but also cortical areas located in front of the visual areas in temporal and parietal regions that are responsible for recognition and spatial localization. He further claimed that there is a strong evidence of involvement of “a number of complex and heterogeneous areas in the brain cortex located in the front most part of the brain, on the frontal lobe” (p. 192), where “transitory assemblies of active neurons, or pre-representations, are formed and remain in the conscious short-term memory ( . . . ) in order to compose a “fundamental thought,” a mental stimulation of the picture” (p. 194). Changeaux also noted the significance of cells found in sensorimotor areas of the cortex—which through the spinal cord “send their orders to the muscles (of the hand) that carry them out” (p. 195)—and the role of cerebellum in guiding visual movement. He argued that whereas invention of art is a cultural phenomenon and is not linked to any particular predisposition of human brain, he also contended that humans possess an ability to “unlock the pre-frontal cortex” (Leroi-Gourhan,
1965, in Changeaux, 1994, p. 200) in ways that allow for evolution of mental and cultural representations that make use of “neural structures of reasons” (p. 200).

Neuroscientists Zeki and Lamb (1994) asserted in their “Credo (manifesto of physiological facts)” that “all visual art must obey the laws of the visual system” (p. 607) and that “no theory of aesthetics” (and by extension, possibly also a theory of development in art) that is not substantially based on the activity of the brain is ever likely to be complete, let alone profound (Zeki, 1999). In this context, it could be argued that development in art could perhaps be described in relation to the development of visual brain. Zeki and Lamb’s work clearly suggests a possibility to study and articulate “relationships between the organization of the brain and its manifestations in art” (p. 633).

The concept of visual brain (Zeki, 1999) challenged a longstanding tradition of regarding vision as consisting of two separate cortical processes located in separate areas. According to the traditional conception of the “seeing eye” and the “understanding brain,” the process of seeing originated with an impression of an image of the visual world on the retina that was transferred and decoded by the visuosensory cortex (the primary visual cortex also referred to as area V1). It was posited that interpretation, or making sense of the image, happened in a different part of the brain, the “association cortex,” in the context of present and past impressions. According to this theory, seeing was regarded as a passive process that engaged active cognitive involvement only at later stages of processing.

In contrast, Zeki’s (1999) visual brain theory stipulates that vision “is an active process in which brain, in its quest for knowledge about the visual world, discards, selects and, by comparing the selected information to its stored record, generates the visual image” (p. 21). Zeki noted that visual brain functions in ways that can be paralleled to the tasks undertaken by artists when they create images. One of the important dimensions of such common tasks is a search for essentials and “seeking of knowledge in ever-changing world” (p. 12) while overcoming the fundamental problem of vision, the fact that “the image at the eye (retinal image) has countless possible interpretations” (Hoffman, 1998, p. 13). Hoffman argues that an ability to interpret retinal images that are in constant flux in consistent and coherent ways is fundamental to “visual intelligence.”

According to Hoffman, visual intelligence is a universal gift acquired rapidly in early childhood years with “each normal child, without being taught, reinvent(ing) the visual world, (…) much the same way” (p. 13). Hoffman parallels development of visual intelligence to the processes of language acquisition by suggesting that children learn “the rules of universal vision” (p. 14) in a way similar to that in which they gain linguistic ability. He refers to Steven Pinker’s quote: “The crux of the argument is that complex language is universal because children actually reinvent it, generation after generation—not because they are taught, not because they are generally smart, not because it is useful to them, but because they just can’t help it” (Pinker in Hoffman, 1998, p. 15).

Zeki (1999) notes, however, that engagement in artistic tasks has the potential to influence visual brain processes and documents how some artists trained in their craft have an ability to “override” some of the prewired mechanisms. Using the example of Monet, he claims that artists who deliberately paint something differently from the ways in which they see it have two subdivisions of the frontal cortex of their brain that naturally become activated in different sets of circumstances to communicate with each other. This could suggest that engagement with visual imagery can allow for forms of neural interactions and dynamics that otherwise may not be achieved.

Zeki also proposes the notion of “modularity of visual aesthetics” that relates to the earlier described conceptions of artistic development as a growth in pictorial repertoires. Through research involving mapping of neural activation zones in relation to different pictorial tasks, Zeki concluded that “different modes of painting make use of different cerebral systems”
KINDLER (p. 215) and suggested that it may be possible to speak of distinct neurologies of nonobjective, representational, and narrative art.

**ARTISTIC DEVELOPMENT REVISITED**

In this chapter, I have questioned the concept of artistic development on several grounds. I have argued that its definition may not be possible because of the ill-defined nature and vastness of the domain which it attempts to describe. In this context, I have identified a number of limitations of single-endpoint models of development, pointing to their insufficiency and embedded cultural bias. I have suggested that even the repertoire conceptions of artistic growth that address many of these limitations are not free from constraints of preoccupation with a predominantly two-dimensional medium of expression. I also highlighted the fact that the processes described in these and other theoretical attempts to define artistic development, regardless of their specific situation within a given field of scholarly inquiry, identify, analyze, and interpret behaviors and phenomena that are not necessarily restricted to artistic endeavor. My suspicion regarding the appropriateness of asserting that artistic development is a self-contained category encompassing a unique set of cognitive processes that develop in a systematic, organized manner along one or even more dimensions has further been reinforced by the lack of any credible evidence pointing in this direction.

It may be worthwhile to refer here to Gardner’s theory of multiple intelligences (Gardner, 1983, 1993a). Although this theory is often invoked in art education to substantiate claims about the uniqueness of cognitive processes relative to artistic learning, it is important to note that “artistic intelligence” does not figure among the seven distinct intelligences identified by Gardner. The spatial intelligence especially associated with artistic creativity characterizes not only painters or sculptors but also sailors, engineers, and surgeons. Perhaps even more importantly, Gardner cautions that it is a combination of different types of intelligence rather than a single intelligence that possibly accounts for one’s success within a domain. So even if development in different aspects of cognition may benefit development of a particular intelligence, it is the interaction of such developmental processes and their selective combination that would account for achievement in artistry.

The 10th anniversary edition of *Frames of Mind* (Gardner, 1993b) includes reference to Csikszentmihalyi’s (1988) and Feldman’s (1980) work from whom Gardner borrows the concepts of “domain” and “field.” These concepts may also be of help in the discussion of difficulties in defining artistic development. Csikszentmihalyi’s “systems approach” to creativity “highlights the interaction of the individual, domain, and field. An individual draws upon information in a domain and transforms or extends it via cognitive processes, personality traits, and motivation. The field, consisting of people who control or influence a domain (e.g., art critics and gallery owners), evaluates and selects new ideas. The domain, a culturally defined symbol system, preserves and transmits creative products to other individuals and future generations” (Sternberg & Lubart, 1999, p. 10). In essence, in Csikszentmihalyi’s model creativity is neither biologically determined nor socially constructed but instead builds on certain psychobiological predispositions that are realized within a specific area of human endeavor and are further subjected to recognition by designated experts. The systems view of creativity implicates a triadic relationship among individual society, and culture as collaborators in the creative process. Reciprocal interaction between the individual and the culture allows for transmission of information that is necessary to distinguish “new” from “old,” original from trivial. In Csikszentmihalyi’s (1999) model, the interaction between the individual and the field stimulates novelty, whereas the interaction between the field and the domain allows one to select it.

This confluence theory of creativity signals perhaps a new way in which artistic development discourse could be structured. Although many existing accounts have pointed to the
simultaneous role of the “nature and nurture” factors in development in art, no theoretical model has combined the biological, social, and cultural elements in ways that are quite as explicitly stated and systematically connected. The advantage of this approach is that it introduces a sense of relativity to the concept that makes it elastic enough to fit the changing landscape of art and different sets of cultural values. The problem, just as with Csikszentmihalyi’s theory of creativity, is, however, that this elasticity also introduces a great deal of imprecision to the concept and makes it a subject to interpretations and understandings that can possibly become divergent to the point of rendering the discourse meaningless.

Having invested years of work researching what well may be nonexisting as a unique, well-defined, domain-specific phenomenon, or at least nondescribable in ways that can maintain a high degree of consistency over time, I am firm in my belief that this time has not been wasted. For even if “development in art” may only be an illusion created out of our need to precisely define and grasp phenomena that account for achievement of human artistry, research concerned with changes in graphic representation in early childhood years—strategies that people of different ages and cultural experiences employ in solving pictorial problems and ways in which they approach, classify, and make sense of the visual world—is of great value to the field of art education. It informs us about the universe of factors and interactions between psychobiological and cultural processes that selectively support or distract us from art-oriented pursuits. It highlights the complexity of artistic performance and asserts the value and uniqueness of this complexity. It offers a collection of cases and examples that collectively build a significant body of knowledge. It directs us to shift attention from waiting for a developmental unfolding toward accepting responsibility for guiding our students through a multidimensional and multifaceted journey of learning. But perhaps, most of all, it makes us realize how little we still know about the nature of the artistic process, about the ways in which it engages different facets of human cognition, and about how it relates to the functions of the “emotive” and “visual brain.” Exploration of these phenomena in their own right without the mandate to formulate theories of “development in art” will in no way diminish the relevance of the outcomes of this research on art education—as long as art education will continue to be concerned with the visual world and our students’ ability to fully experience and contribute to it.

REFERENCES


Elliot, P. (1986). Right or left brain cognition, wrong metaphor or creative behavior. It is prefrontal lobe volition that makes the human difference in release of creative potential. *Journal of Creative Behavior*, 20(3), 203–214.


12. MODELS OF ARTISTIC DEVELOPMENT RECONSIDERED


