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The Meaning of Transfer in the Practices of Arts Education

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Redressing the marginalization of the arts is often linked with attempts to redefine and broaden their cognitive structure. Recent evidence of transferability between knowledge in the arts and other curriculum domains is currently advanced as one useful approach. Taking a social realist approach to education in the arts this article argues that the meaning of cognitive transfer, including evidence of a cognitive structure shared with other domains, varies according to its representation within different values of arts educational practice. This article examines the impact of three frameworks of value on the evidence of cognitive transfer in the arts.

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This study examines the role of cognitive transfer within the practices of education in the arts. Borrowing from the social realism of Searle (1996), Bourdieu (1977), and Boyd (1988) it takes an anti-reductionist approach to the explanation of institutional practice. Rather than reducing explanations of practical causation to raw evidence and theoretical ideas, social realists are more interested in the institutional terms under which evidence and ideas are applied. Understanding how evidence and ideas are put to work within a practice involves disclosing the ways in which meanings, values and intentions are ascribed to them by its institutions. Variations in these ascriptions explain how facts and theories are able to exert their influence over the conduct of practice within a domain. The value *ascribed* to scientific evidence by a practice is expressed as a function of its symbolic capital (Bourdieu, 1977). The symbolic capital attributed to evidence are those of its properties that can be traded in exchange for the advantages they contribute to the field. Thus the symbolic capital ascribed to cognitive transfer is redeemed through the value of the role it transacts in the arts educational "economy." It is argued here that the redeemability of cognitive transfer, its meaning for practice in arts education, varies in significance according to the terms under which the arts are valued within the curriculum.

Educational Practice in the Arts

The arts are part of a wider group of practices historically referred to as the practical arts. The practical arts include fields such as medicine and engineering (Brown, 1997). It is rare to find any of the present-day practical arts, other than the visual and performing arts, represented in the curricula of elementary and secondary schools. Because the practical arts are vocational they have been historically separated from the education of children. Their tradition of apprenticeship relegates them in most instances to post secondary education. Practical skills need to be rehearsed and coached. Practices are not easily reduced to the sequential rules and principles commonly found in school subjects. Although children learned

pattern drawing and choral singing at school in the 19th century, singing and pattern drawing were regarded as general accomplishments at a time when mechanical means of reproduction were limited (Smith, 1966).

Before the advent of child psychology there was no tradition of acknowledging children's spontaneous expression in practical domains (Fletcher & Welton, 1912). The psychological repositioning of the concept of childhood early in the 20th century, however, changed the role played by subject matter in children's education (Cunningham, 1995). Subject matter began to be chosen for its contribution to the development of the child (Thorndike, 1914). This created a tension between psychological evidence and standards of specialized knowledge in the arts that continues to resonate in the literature of arts education today.

Three Claims of Value for the Arts in Education

Claims of Inherent Value in the Arts

There are three contemporary arguments supporting claims for the importance of education in the arts. The first claim argues that educating children in the arts exposes them to subject content, qualities of experience, conceptual structuring, ways of life, depth of participation, and forms of subjective reasoning that cannot be gained through other subjects or by accidental exposure to the arts in everyday life (Eisner, 1972; Clark & Zimmerman, 1978). However, the claim for the educational particularity of the arts is not enough to make their inclusion within the curriculum a necessity on its own. It requires the additional claim that children accomplished in making and understanding the arts transfer their abilities to everyday life in ways that enrich it uniquely.

This view is referred to as the educational claim of inherent value for the arts. According to this strong claim the quality of life is diminished in children who are denied the opportunity for serious engagement in the different artistic modes. Incidental immersion in the arts through play, entertainment and leisure is considered insufficient. Because of their different expressive modalities and their disciplined history, full participation in the individual arts depends upon being schooled in their specialized techniques and expressive traditions. In this sense education serves the arts as fields of practice.

Claims of Instrumental Value in the Arts

The second claim argues that while the arts possess their own idiosyncratic modes of expression, provide unique kinds of experience, and offer children singular opportunities for participation they, nevertheless, call upon the use of mental skills and abilities that share a common structure with other subjects. The arts, for example, tend to share in the educational history of other disciplines. The arts had a high profile in the child-centred reforms of the 1930s and 1940s, and were instrumental in redressing the plight of minorities in the social reconstructionism of the 1970s and 1980s (Geahigan, 1992).

While presented in the form of different visual, kinesthetic and auditory modalities, instrumentalists argue that subject matter in the arts is mentally represented by children in ways that call upon similar frameworks of

reasoning used in the humanities and sciences. It is claimed that the visual arts, for instance, place the same emphasis upon the need for literacy and critical thinking as other subjects do. However, when these general skills are adapted to the particular visual/spatial content of the visual arts, they are converted into "domain specific" forms such as "visual literacy," and "visual thinking" (Arnheim, 1974). Metaphors of "reading" and "communication," even the "recital" in music, are commonly used in reference to the interpretation of artistic content in music, drama, literature and dance (Hodge & Kress, 1988; O'Toole, 1994). The educational justification of the arts underlying this claim is twofold. First, the arts provide children with the opportunity to round out their repertoire of mental skills. Second, the arts are valuable insofar as they provide children with the opportunity to further exercise the general skills which underlie competent involvement in everyday life (Diblasio, 1997). In this sense the arts serve education. This view is referred to as the claim of instrumental value for the arts in education.

Unified Knowledge in the Arts

The third claim is a softer amalgam of the first and the second. It is agreed that the arts have inherent value but that this value is shared among the different art forms as a generic disposition of knowledge. According to this position the arts are a field in which the properties of individual member arts are unified under a number of over-arching dispositional concepts. It is these concepts that lend the arts their educational value. The two most important of these distinguishing concepts are the "creative" and the "aesthetic" (Reimer & Smith, 1992, p. 25). For example, while many disciplines outside the arts place a high value on creative thinking, their subject matter is not devoted to the production of creative artifacts to the same degree (Getzels & Csikszentmihalyi, 1966). It is also commonly assumed that the arts are transacted educationally through aesthetic kinds of experience (Broudy, 1972; Ecker, Johnson, & Kaelin, 1969; Aesthetic Education Program Lincoln Center Institute, 1999).

Despite the complexity of their underlying structures and their differing expressive modalities it is believed that artworks, in general, are presented to children as a form of educational content prepared for immediate interpretation. Both the creative and the aesthetic are thought to correspond with native dispositions that allow young children to engage with artworks spontaneously. Under the unifying mechanisms of the creative and the aesthetic, children experiencing one art form are understood to be sympathetically rehearsing another. In this way the arts are able to capture the creative and expressive agenda in school education under the one umbrella. Similar claims of unification among the arts are advanced under the theoretical and disciplinary umbrella of Cultural Studies and Multimedia. However, these latter structures are unaccompanied by especially dedicated behaviors. In this sense the arts serve generic dispositions. These generic positions can be referred to as claims of unified knowledge in the arts.

The Transfer of Knowledge Within the Arts and Education

Subject disciplines are included within the curriculum in the belief that the knowledge they provide has a relevance to wider human competencies. Nevertheless, it is also generally held that transfer of abilities between one group of specified skills and another only happens when these skills share a level of surface similarity (Hebb, 1949).

It is important to point out, however, that some subjects have wider, even if not necessarily deeper, relevance for other disciplines. "Thinner" subject domains, for example, have less difficulty in demonstrating their application to other fields than "thicker" subjects (Geertz, 1976; Goodman, 1974). The thinnest subjects of all are mathematics and written language. Mathematics is based on a universally applicable system of notation. The rational syntax and tautological semantics of mathematical notation is so transparent that it transcends cultural boundaries. Written language systems share common notational structures too, but unlike mathematics their systems have different notational conventions. Because of their semantic thinness mathematics and written languages can be used by other fields without imposing separate meanings upon their specialized concepts and ideas. This means that the wider application of math and written languages in education is assured. However, it does not mean that mathematical calculation, reading, and writing are general skills. The skills of counting and spelling, for example are very narrow skills. It is merely that the subject domains in which they can be applied are very wide (McPeck, 1992).

On the other hand, the thickest, densest, and most notationally inflexible subjects are the arts (Geertz, 1976; Goodman, 1976). The arts trade in singular outcomes and original solutions that, while valuable in themselves, are not so easily bent into use by other fields. In other words, the notational systems of the arts have more dedicated uses. The arts lack the wider application of the semantically thinner and more notationally articulate subjects. For example, there is little use for the second movement of Brahms *Symphony Number Four* other than in the playing, appreciating, and understanding of it. The same could be said of the meanings which artworks and performances represent. Artistic subject matter is largely self-referential or fictional. While the arts rehearse significant personal and cultural values, these values are satisfied in idiosyncratic ways through images and stories, rather than as general claims about reality and truth. Correspondingly the arts benefit less from the precise forms of explanation that notational languages provide.[1]

Steiner (1981) points out that for the reasons set out above the arts fit within the distinctive category of qualitative as opposed to quantitative knowing. Darby and Catterall (1994) cite work by the *Galef Institute*, which is dedicated to testing the effectiveness of the arts when used by "at risk" students as a way of coming to learn about social studies. It is not clear, however, that the *Galef* project appreciates the holistic and interpretive potential of the arts as a way of engaging with the world. In this

1 Extremists argue that this hyper-singularity of the arts, in particular the visual arts, makes them resistant to teaching because it isolates them from the tutorial advantages provided by linguistic knowledge. Teaching programs are inefficient in the arts by comparison with other disciplines, it is suggested, because the resources of written knowledge offer few guarantees of producing artistically valuable outcomes (Brook, 1999).

project the arts are used in the simple illustration of social issues rather than for their potential as a distinctively qualitative way of investigating social concepts.

The marginal position of the arts in education is thus as much an implication of the kind of knowledge they represent as anything else. The search for evidence of transferability in supporting claims of educational value in the arts is motivated by the realization that, one way or another, the arts are more obliged than other subjects to spell out their wider educational relevance. The political use of transfer to redress the marginalization of the arts is usually accompanied, therefore, by strong attempts to redefine and broaden their knowledge structure. Even the *National Standards for the Arts Project*, uses the commonalities of shared standards between the arts and other disciplines to promote the significance of the arts (Smith, 1995). Different ways of valuing the arts emphasize different aspects of their knowledge structure by highlighting either their cognitive uniqueness or their generalizability. Thus the facts of the transferability of knowledge and skills between the arts and other domains make little sense outside their interpretation within frameworks of artistic value.

Three Perspectives on Transfer

The Transfer of Knowledge in the Arts as a Domain of Inherent Value

Those who consider art to be inherently valuable usually take an isolationist point of view about the generalizability of its skills and competencies. Eisner (1992, 1994), for example, agrees that aesthetic perception in the arts may very well exercise deep faculties of mind in common with other subjects. Nevertheless, the value of the arts, he says, does not reside in their subconscious linkages with enhanced skills in numeracy and literacy. The transferable benefits of the arts need to be demonstrated more directly for the educational gaps in the curriculum they fill. Specifically the arts are absorbed in characterizing the world whereas most other subjects are bent on breaking it up into analytical pieces. Best (1996) agrees that the arts share with other subjects a foundation based on defensible reasoning. But according to Best, it is feeling, rather than knowledge, that constitutes their primary referent.

Even if it were possible to explain how artistic perception enhanced performance in other domains, and Eisner insists the experimental challenges in such a demonstration makes it unlikely, these explanations miss the point of the arts as a distinctive domain of knowing (Burton, Horowitz, & Abeles, 2000; Eisner, 1998). It is not in the interest of those who support his inherentist position to promote the educational transferability of knowledge and skills in the arts. Quite the opposite.

Neither is the educational value of the arts merely reducible to what is left over after their generalizability is taken out. Whether skills in the arts are verifiably transferable to other fields or not is incidental to their position (Brown & Haynes, 1990). The value in studying the arts depends upon arguments that show first the value of the niche they fill, and second that the educational experiences they provide are unavailable

through any other fields of study. The arts "promote the child's ability to develop his or her mind through the experience that the creation or perception of expressive form makes possible... and skills are developed to give form and feeling" (Eisner, 2001, p. 35). To this end the arts drive cognition. Eisner (1998) warns that if the place of the arts in education is defended as a way of enhancing achievement in other disciplines, then the advent of more efficient forms of enhancement will inevitably lead to the redundancy of the arts and their abandonment within education.

The Transfer of Knowledge in the Arts as a Domain of Instrumental Value

Given that the arts are marginalized in the curriculum by the aesthetic density of their knowledge, to some extent, the deepest inroads into their marginalization has been made by reconception of their cognitive structure. This reconception, eloquently supervised by the North American structuralists, reposition the arts alongside other disciplines as a symbolic system of thought (Arnheim, 1974; Gardner, 1973; Goodman, 1976; Langer, 1952). This reconception focuses the instrumentalist proposition that the arts serve cognition proscribed, for example, in the universalist credo of visual literacy. Since the 1980s, however, universalist psycholinguistic models of thinking have been progressively eroded. The distinguishing features of artistic thinking and thinking in other fields is thrown into relief by the structural differences, rather than similarities, between domains of knowledge and by the challenges they pose for representational thought.[2]

Cognitive Reconstruction. A feature of recent cognitive theory is its return to the intuition, first set out by Franz Brentano (1973) in the 19th century, that when a person thinks, he or she must be thinking *about* something. From Brentano's point of view the "intentional" processes of thinking are indivisibly united with the structure of the content being thought about. As a result, cognitive theorists have begun to revisit the content of subject fields in order to survey the vast array of physical and mental performances, or "intelligences," involved in their mental representation (Gardner, 1983; Harré, 1983; Keil, 1989; Perner, 1991). The abstractions in which intelligence is couched make little sense, therefore, until expressed within their concrete modes of knowledge practice, for instance, in the fields of physics, psychology, or the arts. What emerges from this review of knowledge practices is an inventory of more or less discrete and parallel cognitive domains. For example, when children reflect upon and speculate about other people's motives it is figured that they are engaged in a vernacular kind of psychological reasoning. This "folk" psychology takes on a separate identify as a new domain of thought (Bruner, 1990; Wellman, 1990). The search for these domains within cognitive science has helped to restructure the traditional fields of knowledge from which they are drawn.

Cognitive Reconstruction in the Arts. Needless to say, the arts are far from a discrete domain. Cognitivists argue that the arts are divided by

[2]In poststructural epistemology critical reasoning is enacted as a function of the causal relations between the network of agencies which make up the knower's extension of a relevant concept, for example, in their concept of art (Searle, 1996). In structuralist epistemology critical reasoning is conceived of as the pragmatic rehearsal of entrenched rules embedded within conventional codes (Goodman, 1976).

their spatial, temporal, and kinesthetic modalities of expression. This diversity is matched by the view that all of the arts, despite their modular diversity, are unified in the mind of the knower by powerful intentional nets or concepts of one kind or another (Boyd, 1988; Gardner, 1982, 1983; McClelland & Rumelhart, 1986).

These systems serve to do two things. First they invest each modality with representational content. When drawing, for example, children call upon mental resources to solve spatial problems in the graphic representation of real objects and imaginative ideas (Freeman, 1997; Freeman & Brown, 1998). Under this representational aegis, drawing is perceived as a domain of spatial reasoning backed up by a repertoire of graphic notational strategies (Willats, 1997). Many of these notational devices in drawing are conventional; some are innate, and others are worked out creatively on site in order to satisfy the localized needs of a particular drawing task. Some eventually emerge as a mature personal style. Music has a rigorous notational convention supporting native intuitions within the temporal domain, such as an ear for melody and tempo (Catan, 1989). Dance has its own repertoire of kinesthetic notations, and so on for language and the other arts.

Second, with maturity, children begin to expand their understanding of art beyond the horizon of technical control to reflect upon the contribution of cultural agencies "hidden" within artistic production. They begin to pose questions, examine evidence, hypothesize answers, evaluate possible outcomes, and debate the merits of what it means more generally to function as an artist. Thus, in tandem with a growing mastery of notational and technical skills in specific domains, children begin to understand what it is to use these skills in ways consistent with a concept of practice in the arts (Freeman & Sanger, 1995).

Metacognitive Transfer. Cognitive analysis of the arts has consequently opened up a way of understanding how children come to grasp the relationships between different expressive modalities in the arts. These linkages only make practical sense if they can be understood against a solid background of experience within the traditional modes of artistic expression. Even in musical theater, the cinema, and multimedia, where multiple artforms are commonly synthesized, it is knowledge of the differentiated routines of the arts that enables their synthesized production. The reverse is not true, however, insofar as management techniques and higher order concepts in the arts are not able, in return, to generate conventional skills in particular domains. In general, then, it is from high levels of accomplishment in the specific skills of the arts that a more abstract and reflective conception of their artistic function emerges.

Karmiloff-Smith (1991) refers to this reflective ability as "representational redescription." Until automaticity is acquired in a skill, children's attention is too self-consciously distracted by the complexity of the task to conceive of the skill as a whole and thus of the uses to which it can be put (Staines, 1999). Perkins and Salomon (1989) refer to representational

redescription as the "low road" - "high road" mechanism of transferability. Skills tacitly mastered in context, the "low road", are committed to memory where they are clumped into the "high road" of a generalized principle. For example, when confronted with a new but seemingly relevant context where a student is alerted to a different musical interpretation by the teacher, the child is able to conceive of ways of redeploying their skills. It is with growth in this increasingly reflective or "metacognitive" ability, under relevant conditions, that the most fertile possibilities for transfer are to be found both in the arts and in education.

Constraints on Metacognitive Transfer. Thus there are a number of conditions attached to metacognitive transfer both among the arts themselves and between the arts and other domains. First, the direction of transfer is unidirectional. A fairly high level of artistic skill in playing the clarinet, or in reading a musical score, for example, is necessary before such abilities are ready for metacognitive redescription and thus available for transfer to other domains. Second, the meta-descriptive mode in which automated levels of mastery are transferred is broadly theoretical. As Karmiloff-Smith states, children "go about their task as true scientists do, building theories about the physical, social and linguistic worlds, rather than reasoning as inductive logicians" (1988, p. 193). The transport of specialized skills into other domains by children is effectively described as a kind of theoretical speculation. This is born out in surveys of research into the instrumental impact of the arts on educational outcomes (Staines, 1999; Tunks, 1992; Wolff, 1978). For example, Hamblen (1993) reports that the instrumental benefits of transfer are almost exclusively described in the literature at the level of higher order cognition. She cites research that reports that study in the arts results in the enhancement of conceptual development; that arts-based knowledge embraces a wider base of cognitive skills; that artworks present qualitative and imaginative material to children that engages them at higher levels of relational, philosophically conjectural, as well as expressive ways of thinking.

Insofar as the arts "increase[s] vocabulary skills, critical thinking, and writing skills" in these studies, the arts appear to be exercising transfer at higher order conceptual levels rather than at the level of domain specific skills (Hamblen, 1993, p. 193). These observations reinforce Karmiloff-Smith's (1991) view that the processes of mental redescription become increasingly domain general with each descriptive level, thus rendering specific skills more amenable to inter-domain transfer (Burton & Horowitz, 1999; Fogarty, Perkins, & Barrell, 1992).

The Design and Analysis of Studies into Transfer in the Arts. Winner and Cooper (2000) conjecture that, apart from the brevity of most investigations, the reason why experimental studies fail to demonstrate that the arts lead to academic improvement is largely due to their universal adoption of low inference measures in the scoring of achievement. Thus most studies are unable to register the deep reflective levels at which children engage in the arts, the divergent quality of artistic outcomes, and "think-

ing outside the box" implicit within the performative process of the arts. However, Winner and Cooper are not clear as to whether they consider experimental difficulties in these studies are confined to the quality of the measures, or whether the difficulties extend to underlying categorical errors in their assumptions about knowing in the arts, an issue taken up in this section.

A number of studies have been conducted into the enhancing effects of drawing upon children's reading achievement (Langan, 1997; *The Economist*, 1996). Many of these studies are conducted with school children in grades two and three (Hamblen, 1993). The quality of analysis used in some of these studies is simplistic (Eisner, 1998; Winner & Hetland, 2000). There is a categorical difference, for example, between the performances of vernacular drawing and reading. This difference is often concealed within experiments that cite positive but unexplained correlations between these two outcomes. Speaking in a given language is even quite unlike reading, let alone drawing. When reading, the child has to treat a given passage as a cognitive object, isolated from its immediate setting. Speaking, on the other hand, is full of communicative innuendo. Speaking entails the production of meanings which have to be judged relative to their immediate context (Flavell, 1987). Unlike drawing, both speaking and reading are restricted to the manipulation of fixed relations between sounds, words, and their given meanings (van Sommers, 1984). In speaking a given language children are not able to change the relation between conventional sounds and the things in the world to which those sounds are dedicated to refer.

The vernacular process of drawing, on the other hand, is partly mimetic and more dependent for its meanings upon the final shape the drawing takes (Schier, 1986). Unlike things spoken or written about, the things to which drawings refer are actively involved in directing the way drawings are made, in solving the representational problems drawings pose, and in determining their final appearance (van Sommers, 1984). For this reason drawing is ruled out entirely from some expressive uses.

Unlike drawing, language, with its abstract relational structure, is freed from its representational dependence upon the structure of the objects it represents, enabling it to be used in subtle forms of hypothetical reasoning. How could, for instance, a drawing efficiently express the simple intention, "I doubt that my mother will be able to help my sister attend church on Sunday," without laborious caricature and repetition (Harrison, 1991)? Freeman and Adi-Japha (2000) elegantly demonstrate dramatic modular differences between the mental accession of the same graphic act when executed as a drawing, that of drawing two circles as scuttles on a ship, as opposed to writing, that of penciling in two circles as letters in the word "look."

Nevertheless, the constraints on pictorial representation do not preclude the role of mental imagery in reasoning and other non-graphic processes (Whitaker & Markovits, 1992). Non-verbal mental models play

an important role in the making of autonomous inferences such as the ability to reason from counterfactual or false premises (Johnson-Laird, 1996). Reasoning, usually presented in the verbal mode, is located in the right hemisphere and can be enacted as imagery without the accompanying need for the verbal comprehension of premises. Imagery also appears to be enacted through the same mechanisms and located in the same centers as perception. There is strong evidence that perception of reality is thus forearmed by imagination. This suggests that perception is a kind of representational dialogue conducted between sensory information and imagination (Kosslyn & Sussman, 1996). The linkage between perception and reasoning implies that the mental mechanisms involved in the efficient processing of different subject matter in the curriculum, entail executive forms of redirection and overlap that are far more subtle than the bald modal divisions among school subjects imply. For instance, just because the visual arts nominate a visual mode doesn't mean that an accomplished artistic performer doesn't recruit complex layers of reflective mental processing (Zeki, 1999).

Van Sommers (1984) is also keen to draw a distinction between the vernacular and artistic purposes of drawing. Artistically directed drawing is respectful of hidden practical conventions. These conventions originate outside the drawing context somewhere within the history of art. The values underlying the concept of "abstraction," for example, run counter to young children's search for graphic verisimilitude. The notion of abstraction is counter intuitive within vernacular drawing and therefore opaque within the drawing process. In other words, although children are quite able to learn how to make "abstract ink drawings," and may stumble across them in the process of drawing spontaneously, children are unlikely to register the importance of their "discoveries" without [in]tuition. The message here is that the arts cannot claim a mandate on innate abilities such as spatial and temporal reasoning, since what the arts bring as complex content to children doesn't fit neatly into the boundaries of native intuition. Thus studies into the enhancing effects on general educational achievement, through exposure to "the arts," may suffer from taking insufficient account of the complex theoretical and historical relationship that art forms share with their various expressive modalities (Letts, 1999).

There is little evidence that explains how skills originating at sub-automated levels in music generalize into other disciplines, let alone from instrument to instrument within music itself (Staines, 1999; Wolff, 1978). Even though mathematics and music share abstract notational systems Staines, citing recent studies by Rauscher et al., sees little grounds for accepting claims that ordinary levels of musical experience correlate with enhanced logical reasoning. Weinberger (1998) argues, however, that there are good biological reasons why musical cognition has at least the potential to transfer across disciplines. The musical instinct is deeply embedded, he says. Even animals demonstrate primitive musical awareness. Musical aptitude crosses cultural boundaries.[3] Weinberger claims that the "functional architecture of the brain honors music as much as it

[3]Studies conducted in early childhood reveal the innate ability of infants to "chunk" melodies into smaller phrases and to recognize rhythms. At neonatal levels the mental faculties responsible for the discrimination of musical pitch are shared with those that underpin the phonemic stage in learning to read (Lamb & Gregory, 1993).

honors language" (1998, p. 37). Nonetheless, he all but concedes that transfer is as yet only a musical hypothesis of neuroscience. After all, the reciprocal advantages reading offers for the enhancement of musical understanding are enormous but for some reason barely rate a mention outside the literature of music education. This point is not lost on Burton et al. (2000) who reflect on the difficulty of sorting analytically among those "indicators of learning [which] are situated within the arts alone and which are more generally implicated" (pp. 230-231).

More significantly, Catterall's (1998; Catterall & Darby, 1996) claim that children's exposure to educational experiences in music correlates with enhanced performances in unrelated fields is, in contrast to the research by Freeman and Karmiloff-Smith, based on experiments in which the reflective involvement of the children participating is largely set aside (Boston, 1996; Weinberger, 1998). The degree to which abstract reasoning can build a bridge of understanding between different levels of skill in the arts governs the extent to which children are able to *reflectively* transfer artistic abilities to domains in other fields of study. Thus far it is accomplished virtuosity, rather than the simple practice of domain specific skills in piano playing, reading music, keyboard skills, drawing, and theatrical role playing, that appears to influence children's ability to metarepresent and thus transfer these skills among other fields. In this respect the specialized skills of the arts do not have a monopoly on transfer.

Skills in the arts become transferable at higher levels of reasoning in which the cognitive character of artistic involvement more closely resembles higher levels of reasoning in other fields. At these higher levels the emphasis shifts to the interdisciplinary transfer of *content* through teaching (Erickson, 1998). Therefore, what is cognitively differentiated about the arts—their domain specific skill—have little to offer other subject domains. However, what is cognitively shared by the arts and academic subject domains, ironically, those other domains already possess. Global trends towards the increasing importance of imagery within cognitive transactions, for instance, will test the authenticity of instumentalists' commitment to furthering other academic skills as a good way of promoting art.

Transfer Conceived as a Claim of Unified Knowledge in the Arts

When they are considered as a collective domain of knowing, the "arts" carry quite different implications for the transfer of educational skills. The umbrella concepts of "creativity," "the aesthetic," and the "cultural," the latter used in its wider sociological sense, have a salutary impact upon the particular ways in which the arts are understood, valued, and performed. These unifying concepts are nearly always applied as positively marked terms. That is, their use in reference to the arts attaches an implicitly high level of value. Umbrella concepts lend value to education in the arts because it is believed they foster the feelings, originality, judgment, and cultural identity of the children who participate. This is because it is assumed that children possess intuitive mental traits that share the same creative, aesthetic, and cultural identity (Csikszentmihalyi,

1971). The origin of these traits is thought to be both social and psychological. Creative dispositions such as the intense absorption in listening, observing or doing; intense animation and physical involvement; the use of analogies in speech; bodily involvement of an intense nature in writing or drawing; the tendency to challenge ideas of authorities; and the habit of checking many sources are notions as easily transported across and into different academic subjects, as they are transported into the varied disciplines of the arts (Torrance, 1969, p. 36). Even scientists idealize scientific investigation as a process of origination rather than discovery. Not so widely distributed, but nonetheless critically valued in all disciplines, is the trait of aesthetic sensitivity (Cunliffe, 1994). It is difficult to imagine how effective decisions relating to the preservation of the natural environment, the architectural heritage, the design of industrial and commercial products could be made without making aesthetic judgments.

Nevertheless, whereas most academic subjects respect but put to one side creative freedom in their syllabi, the "creative" arts make it a priority and thereby claim something of a mandate on the creative and the aesthetic in education. Their mandate is entrenched in the popular belief that education in the arts plays a special role in the generation of imaginative ideas, in developing a respect for the idiosyncratic responses of participants, in being considerate of feelings, and in the toleration of a diversity of critical points of view (Boston, 1996; Broudy, 1972).

Unifying constructs in the arts have a tendency to favor art appreciation over performance in education. Generic approaches thrive best in their vernacular form within the elementary school, in general education, the community arts, and under their application within the ready-made imagery of digital technology (DeNardo, 1997). In these settings participation in the arts is shielded from the specialized rigors of technical competency and from the deeper conceptual understanding required of the actor, dancer, musician, visual artist, and art historian. With steady increases in the demand for specialized knowledge in secondary school, the arts in education are forced to shed their generality and reaffirm their separate identities.[4] By contrast, mathematics and writing, for example, manifest no comparable generic levels of spontaneous expression. Although learning to write depends on memory and other intuitive mental resources, literacy itself is a conventional routine that is only acquired through deliberate instruction. Literacy continues to elude many millions of people in possession of otherwise rich artistic traditions.

As the arts return to their disciplines in the later years of schooling, the spontaneous contribution of the aesthetic, the creative, and the cultural in the arts is reduced to an increasingly emblematic role within education where they survive as critical ideals. With the demand for greater specialization, the native support they lend to children's spontaneous artistic activity diminishes correspondingly. More challenging to the validity of umbrella concepts in the arts are the flawed psychological assumptions that underpin them, an issue taken up in the following section.

[4]Hargreaves describes this transition in music as "The distinction between generalist and specialist music education" (1996, p. 167). The distinction has led to tension within the music teaching profession. Music education is polarized on the one hand by children's normative or native access to musical explanation, and by their access to specialist explanations on the other. Normative versus specialist sides of musical knowledge are accompanied by their own parallel vernacular and specialist theories of developmental reasoning as well.

Generic Concepts of the Arts and Postmodernity. In the last 40 years challenges to the validity of universal concepts in the humanities have resulted in greater contextualization of knowledge in the arts. Actions, events, and facts in the visual arts, for example, are invariably contextualized in relation to the beliefs of particular times and places. Cognitive theories have been compelled to respect these changes and to find ways of accommodating the historical embeddedness of knowledge. The notion of intelligence as a kind of generalized mental disposition embraces obsolete psychology (Chomsky, 1976; Piaget, 1970) that fails to portray intellect as a meaningful interpretation of content (Neisser, 1976). Since the early 1970s, the notion of intelligence has been described as competency in the use of different systems of meaning. It is accepted that the knowledge represented within these systems, although securely anchored within specific domains, is constantly being reshaped. Consequently reference to the aesthetic and the creative as stable, discrete mental abilities is unlikely to be found in contemporary art theory nor in the literature of cognitive psychology (Danto, 1964; Gardner, 1983; Goodman, 1976).[5]

Once conceived as autonomous acts of imagination, creative and aesthetic abilities in music, the visual arts, drama and dance are now described as forms of domain specific abilities, that are acted out within the practices of particular artistic, musical, and dramatic traditions (Fodor, 1975; Perkins, 1994). These artistic traditions are subject to unpredictable and catastrophic change. Nevertheless, it is the way in which children represent these traditions within their actions, and the way that changes in these traditions redescribe the representational demands upon children's' performances that defines the flux of knowing in the arts (Koroscik, Short, Stavropoulos, & Fortin, 1992). Gardner and Nemirovsky (1992) go so far as to admit that the influences shaping the world's most outstandingly creative achievements are so embedded within their historical contexts that their causes cannot be confined to the intentions of their creators. Vygotsky (1978) and his contemporary disciples such as Rogoff (1982), see intellect as so profoundly bound up with the problems arising out of knowledge at hand, that local constraints upon knowing as much shape mental abilities as are shaped by them. The generic stories of creativity and the aesthetic in the arts are thus being retold as small intertextual narratives (Burgin, 1986). Local narratives provide the basis on which children and adults of different cultural origins are able to conceptualize what it is to function within the arts (Pariser, 1997). They are what children use to give artistic meaning to what they make and see.

The doctrinaire cultural relativism of the 1980s has given ground as well. Cultural authenticity is accepted as a more reflective appropriation of sources that "insist upon the mixed and displaced character of modern selves and cultures" (Thomas, 1999, p. 16). It allows indigenous cultures to participate in the art educational process, at individual levels, in ways

[5] Michael de Certeau (1997) attacks the monolithic compartmentalization of creative activity. Compartmentalization disconnects creative activity from cultural practice. It is the diversity of everyday social practices, he says, that invest creative activity with meaning. Creativity without context disabuses creativity from a place within intentional thought thereby relegating it to a marginal role within cognition.

that enable them to take from the modern experience of the Western arts yet retain their "radically different ground" (p. 17).

Others are less generous in their attitude to generic concepts. Best (1995) heads the list of philosophers who question the genus of the collective "arts" themselves, the grandest of all the umbrella narratives. He states bluntly that "(f)or example, the activities of playing the clarinet, composing poetry, creating a sculpture, performing or choreographing dance" are not in the least similar, but nevertheless "some defenders of the theory resort to the unintelligibly occult in postulating purely private 'inner,' subjective mental processes" (p. 37). Grand assumptions unifying the arts are not only logically flawed, he insists, they are dangerous. According to Best, they suggest that the

> distinct art forms can somehow be adequately learned in an exclusively combined/integrated context. Small wonder that such a contention is so dangerously popular with politicians and administrators. It would save money, but so far as one could make sense of it at all, it would lead to an arts ghetto, where nothing substantial is achieved in any of the arts. (1995, p. 38)

Best is careful not to denigrate integrated work among the arts but such ventures, he says, derive from "an adequate education in independent disciplines (1995, p. 38)." In placing this caveat on integration in the arts Best falls into line with Perkins and Salomon's (1989) and Karmiloff-Smith's (1991) approach to transfer.

The cultural tide has begun to ebb on the concept of "talent" as a creative predisposition in the arts.[6] Many markers of "artistic ability" in the visual arts including, for instance, a sense of color, an extrovert personality, precocious draftsmanship, and so on, are left stranded (Korzenik, 1995)[7] In sum, there are no thoroughly culture independent measures of mental ability in the arts. While there are mental skills such as 'critical thinking' and 'problem solving' that some educationalists believe continue to generalize across the subject matter of different fields, many arts educationists believe skills of this sort remain abstractions that possess little meaning outside the cultural details of artistic performance (Tunks, 1992; Brown, 1994; Parsons, 1987).

The Practices of Cognitive Transfer in Arts Educational Policy

Bourdieu (1998) has criticized the scholastic arrogance of demythologizing the logic of socially valued practices on the basis of "rationally superior" evidence. Social rules are based upon the shared understanding that entities and events referred to in social transactions signify deeper symbolic meaning. Social transactions are by necessity, therefore, susceptible to "misrecognition" of the facts. Misrecognition is the tactful turning of a blind eye to material truths underlying social exchanges. Misrecognition is tacitly employed in social practices when evidence is felt to be destructive of useful social institutions if taken at face value.

Inherentist Policy on Transfer

Inherentists are unconvinced by the value of cognitive transfer in the arts, even when presented with indisputable truth of its possibility.

6 Whereas, for example, tertiary institutions in the visual arts once believed drawing to be the universal predictor of giftedness, drawing has been replaced by tertiary entrance rankings as the basis for selection into programs of art and design (College of Fine Arts 2000, The University of New South Wales).

7 Music education has long accepted that musical giftedness is indivisibly linked with accelerated opportunities in musical training. This view is evidenced through its continuing support for conservatorium schools. However, musical giftedness only makes sense as it is differentiated within the localized and changing practices of musical performance. This is not to overlook the fact that within the biology of music there is convincing evidence, at neonatal levels, of mental faculties responsible for the discrimination of musical pitch (Lamb & Gregory, 1993).

Protagonists of inherent value are critical of cognitive transfer insofar as its claims are currently unsupported by the evidence. Nevertheless their critique of the evidence is largely fortuitous. Inherentists' concern with the validity of transfer is not evidential but ethical. For inherentists such as Eisner (1998, 2001) the value of the arts is axiomatic and being axiomatic their value cannot be overturned empirically. Any instrumentalities attributed to the arts are confined to their causal impact upon the aesthetic experience of the beholder. For the connoisseur collector, the arts and their artifacts neither benefit nor suffer from the instrumental spin-offs that participation in them affords, including their potential for cognitive transfer. However, in representing themselves as stewards of artistic integrity, inherentists can be easily boxed into a conservative corner on arts educational policy. Thus in their opposition to instrumentalism in arts education, inherentists may be obliged to misrecognize contemporary developments in cognitive transfer, that in other social contexts they are more willing to acknowledge openly.

Instrumentalist Policy on Transfer

Instrumentalists, embracing the cognitive value of the arts, are finding that shifts in cognitive theory over the last 10 years, supported by recent evidence from neurophysiology, have reconstructed our understanding of knowing in the arts. Domain specificity has delivered a blow to structural metaphors which conceive of the arts as kinds of universal symbolic language, a once unifying call by the arts to other school subjects. The evidence for modal differentiation in the arts has become more firmly attached to the localized practices within which each mode is enacted. Localization has focused cognitive research on the constraints imposed by particular spatial or temporal domains on the knower.

Matters are complicated for the instrumentalists insofar as arts practices are currently subject to dramatic cultural, political, and technological change. These changes are repositioning subject content in the arts in relation to their underlying mental modularities. For instance, in the visual arts the growing status of imagery as a primary mode of communication is poised to capture center educational stage on its own merits. However, instrumentalist policy in arts education may reflect a need to misrecognize the educational utility of these developments. In the face of the new cognitive evidence, instrumentalists may still cling to arguments based on transfer in the, nonetheless, sound belief that arguments based on transfer are more persuasive of political authorities who hold conservative opinions about the arts.

Genericist Policy on Transfer

Generic traits in the arts have been attacked by post-structuralists as falsely normalizing cultural practices. These traits are also out of step with current notions of domain specificity in cognitive theory. Furthermore, the genericist rhetoric of immediacy and the vernacular is inconsistent with the growing theorization and textual informality of contemporary arts practices (Fuller, 1988; Manning & Cullum-Swan, 1994). Nevertheless, generic concepts continue to attract popularity outside of

the arts. They link the arts into more centrally valued educational traits and provide "poor man's" evidence of cognitive transfer, especially *among* the different arts.

Thus there are still sound political reasons why educational administrators continue to misrecognize the growing cognitive evidence against unifying discourses in the arts. Generic approaches represent romantic ideals in which many institutions and individuals continue to invest. Notions of creative autonomy, aesthetic immediacy and the artistic personality have entered into the popular educational folk law, particularly among the lay community. As popular beliefs they represent the root metaphors on which the arts have been and are still currently admitted into government funded programs. The weight of their popularity provides independent evidence of their own social reality.[8] The community is not ready to let go of generic concepts in the arts. Thus, it is wise to treat the popular mythology of the arts with respect inasmuch as there may be very good practical reasons for not disenchanting the public in this regard.

[8]Entire university faculties, for example, identify themselves as the "creative arts." In Australia the Department of Education, Training and Youth Affairs has commissioned reports into the "creative arts," and K-12 school syllabi are united under the category of the Creative and Performing Arts (Strand, 1998).

Conclusion

Arguments in favor of cognitive transfer, as well as arguments against, commit a logical error insofar as they seek to naturalize the basis of their claims in the facts. As kinds of institutional practice the arts import evidence into their discourse on the grounds of its value to their fields. As I have shown the evidence of cognitive transfer means different things to practitioners in the arts and education. Although practice must be informed by an accurate scientific understanding of the world, the bald truth of the evidence does nothing to challenge these differences. Once it is understood that the same evidence may satisfy quite different academic and political purposes in arts educational practice, educators can more readily grasp the meaning that issues of relatively narrow scientific interest, such as cognitive transfer in the arts, have for their field.

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