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Significant New Study Affirms Life-Changing Impact of  
Intensive, Long-term Arts Involvement

Book Review

*Doing WELL and Doing GOOD by Doing ART*

By James S. Catterall

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Since publication of his work on arts involvement and human development as part of *Champions of Change: The Impact of the Arts on Human Development* (1999), James Catterall has been a central figure in the national discussion about the relationship between involvement in the arts and student learning in a range of other areas. Catterall, Chapleau, and Iwanaga looked at children and adolescents in 8<sup>th</sup> through 12<sup>th</sup> grades, using the National Educational Longitudinal Survey (NELS:88), a panel study that at the time of the original analysis had followed more than 25,000 students in American secondary schools for four years.

Based on this analysis, Catterall *et al* made three far-reaching observations. First, children engaged in the arts showed positive academic development, with the comparative gains for arts-involved youth becoming

more pronounced over time. Second, students who reported consistently high levels of involvement in instrumental music over the middle and high school years showed significantly higher levels of mathematics proficiency by grade 12. Third, sustained student involvement in theatre arts was associated with gains in reading proficiency, gains in self-concept and motivation, as well as higher levels of empathy for others. These patterns held for students from all socioeconomic status (SES) backgrounds.

There were, however, limitations to this research in that it did not definitively explain the differences shown. Nor was this study able to attribute student successes unequivocally to the arts. In *Doing WELL*, Catterall both addresses these limitations and also tracks the students who were assessed in his earlier work into early adulthood. The result is a 12-year longitudinal study that follows 12,000 students from high school to age 26, examining comparative achievements and values development for those highly involved in the arts during school versus students with little or no arts engagement. Findings show that intensive involvement in the arts during middle and high school associates with higher levels of achievement and college attainment, and also with indications of pro-social behavior such as volunteerism and political participation.

Of particular interest are the passages that go beyond statistical analysis to provide insight into the mechanisms through which learning in the arts transfers to other disciplines. For example, the following excerpt on

the connection between musical notation and mathematics draws on Catterall and Rauscher's "Unpacking the Effects of Music on Intelligence" (2008).

Rhythm, here defined as a pattern of beats occurring over time, is represented by a series of notes ranging from whole notes (usually 1 beat per measure) to quarter notes (4 beats per measure) to eighth, sixteenth, and even 32<sup>nd</sup> and 64<sup>th</sup> notes. Two fundamental mathematical skills are consistent with understanding the time meaning represented in a note: the ability to count beats, which allows for an understanding of the absolute value of a note in a measure, and general fractional or proportional sense, which allows for an understanding of each note type in relation to others (Catterall, 2009, p. 18).

Music, like mathematics, requires the ability to recognize patterns and relationships. But why should experiencing mathematics through music be more advantageous than simply carrying out mathematical drills? Arguably, playing a musical instrument makes the abstract relationships symbolized by musical notation easier to grasp by making them concrete. Also, the emotional involvement characteristic of the arts helps to focus attention, enhancing memory. In addition, evidence continues to mount that persistent experience tends to rewire the brain; a rewired brain may perform tasks differently and perhaps more effectively or more efficiently.

Of course, one might ask: Is basketball any different? Is it the arts that produce these effects, or could it just be high engagement in a school activity? In a carefully reasoned chapter, Catterall compares the impact of engagement in the arts to the effect of engagement in high school sports. He tightly controls for socioeconomic status (SES) by looking only at schools serving low-SES students. Although sports-engaged students showed a greater likelihood of attending a four-year college than their non-sports-engaged peers, there proved to be far fewer differences between sports-engaged and non-sports-engaged students than between arts-engaged and non-arts-engaged students in regard to a range of indicators of doing well and doing good.

Another intriguing question investigated was: Do very arts-rich schools develop cultures in which assumptions and attitudes about children and learning take on distinct, productive qualities? Studies of modest size done by the Arts Education Partnership (Stevenson & Deasy, 2005) and A+ Schools (Noblit, Corbett, Wilson & McKinney, 2009) have showed that success in the arts could be a revelation for struggling students, demonstrating that they can learn, that learning matters, and that they matter. Catterall took on the challenge of determining whether such findings might be generalized to a much larger sample of very arts-rich schools.

By taking advantage of the 12-year developmental arc provided by the NELS survey and constructing a quantitative conception of arts-infusion that

could be applied to its sample of 10,000 schools, Catterall was able to develop a scale of arts richness based on individual school scores and to the top and bottom 10 percent on this scale. A great many indicators of educational attainment and achievement were significantly higher for the arts-rich school participants. More surprising, even though all off the arts-rich students hailed from the lowest income group, they occasionally matched the all-students group on important outcomes. As Catterall observes:

In the annals of education research, it is hard to find average performance or outcome statistics reported for low-SES students that exceed such measures for the entire population. This would tend to indicate that the low-income group received some sort of advantage as they progressed on their goals -- in fact it would seem assured in this (2009, p. 113).

Even so, these arts-rich schools are not attended exclusively by high-arts students. This raises a new question: Do relatively low-arts-engaged students do better in arts-rich schools than in arts-poor schools? Put somewhat differently, is there a "halo effect" that causes lower-income students to do better in arts-rich schools than in arts-poor schools? Analysis of the NELS data showed that, when compared to those who attended arts-poor high schools, the low-arts students attending arts-rich high schools got further along in postsecondary education, got better grades, and felt more

positively that their college experiences had an impact on their jobs, terms of employment, and future job prospects. This may be because indicators related to teacher and student morale, teacher-student relations, and student behavior were higher for arts-rich schools.

A final comparison looked at how English language learners (ELLs) fared in arts-rich vs. arts-poor schools. Students who spoke a language other than English at home did surprisingly well. Not only did the ELL students from arts-rich schools frequently outscore the average student in NELS, but ELL students from arts-poor schools also did so on a few indicators. For example, 58 percent of arts-rich ELL students earned BA degrees by age 26, surpassing the 33 percent of ELL students from arts-poor schools who attained a BA; while both groups surpassed the 30 percent average BA attainment level for all 12,000 students in the NELS database.

Overall, students in arts-rich schools (including ELLs) progressed in formal education after high school more quickly, earned more degrees by age 26, and felt more positively that their postsecondary experiences had benefited them in the world of work. Do the arts support the development of specific cognitive tools that enable students to flourish in a unique way within the culture of an arts-rich school? In his final chapter, Catterall draws on the work of Vygotsky (1962, 1978), Lave (1988) and Bruner (1960, 1966) to describe two critical ways that children may learn through the arts.

Referred to metaphorically as “conversation and silence”, these varied avenues to understanding are described below.

The inner conversation of artistic creation is a metacognitive activity in which the artist “steps back” to consider thoughts and thinking processes (Bruner, 1960; Bruner, 1966). The interpersonal conversation can prompt creative reflection through a process that could be called *assisted* metacognition. *Silence* in this discussion refers to subconscious brain function and cognitive restructuring – the neurological bridge that may link learning in the arts on the one hand with non-arts related understandings and skills on the other (2009, p. 132).

This important new model for understanding learning in and through the arts holds forth the promise of developing a multi-pronged theory of “the human brain on art.” Catterall invites scholars to venture beyond long-standing controversies about process vs. product, or the inherent vs. the extrinsic value of the arts, to explore the broader implications of artistic experience as the birthplace of awareness. As John Dewey once noted in regard to the dramatic arts: “Through speech a person dramatically identifies himself with potential acts and deeds; he plays many roles, not in successive stages of life but in a contemporaneously enacted drama. Thus mind emerges” (Dewey, 1981, p. 135). Catterall now takes a step beyond

Dewey, suggesting a metaphor for the workings of the mind that integrates contemporary research in neuroscience.

Meticulously researched, yet written in language that is accessible to teachers, school officials, and policy makers, *Doing WELL and Doing GOOD by Doing ART* is a book that will richly reward the thoughtful reader. This ground-breaking new contribution to the arts research literature deserves to be widely read and discussed, even by those who might not normally be attracted to quantitative research. The implications of Catterall's arguments are profound.

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