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# Dancing to Unleash Creativity

## *The Science Behind Improvisational Dance's Impact on Creativity*

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**I**magine a setting in which creativity roams free, an environment in which any story can be told, and the only limitation is the physical existence of the human body. This creative experience is the foundation of improvisational dance. Enriching creative thinking, dance improvisation tests both the brain's ability to cultivate abstract thoughts, and the body's ability to physically portray a symbolic message.

Creativity is crucial to problem-solving and innovation throughout life. It begins to develop in early childhood with convergent thinking skills, which evaluate possibilities to make decisions, and divergent thinking skills, which generate new problem-solving connections. In the first several years of life, creative experiences quickly accumulate to build one's cognitive foundation. As cognitive science researchers uncover new information about the brain, working memory, creativity, symbolism, and more, it becomes exceedingly clear that strategies for enhancing neural foundations are best implemented in early childhood, when cognitive abilities are especially impressionable. The Dana Project by Laura-Ann Petitto clearly illustrates this fact. A study from the project compared the creative experiences of non-dancers and dancers who had trained since before age seven. Researchers found that dancers had significantly increased accuracy on attentional tasks, selective attention, and improvement in rapid short-term memory stimuli by analyzing behavioral tasks, participant surveys, and functional near infrared spectroscopy imaging (fNIRS) processing, and performance on other creative thinking tasks. Essentially, dancers had stronger creative and critical thinking skills than many non-dancers their age. These early creative experiences that build a child's neural foundation hold immense potential for their lifelong cognitive abilities.

Given that creativity is so crucial to human development, and dance is an inherently creative field, one would imagine that dancing and dance education are used to enrich childhood creativity. Unfortunately, this is not usually the case. Dance education today often involves a teacher-student imitative style of instruction where the students are expected to follow the teacher's exact instruction and are rewarded for correctness, not creativity. This teaching tradition misses out on the opportunity to attend to children's creative instincts. In a 2020 study by Dr. Luca Oppici and colleagues, children's working memory (short-term memory used for cognitive tasks) and motor skills were significantly improved when their dance instruction incorporated a high-cognitive teaching style. This teaching style encouraged dancers to be more mentally active, creative, and adaptable during dance practice than with the more passive, imitation-based teaching style. If dance schools can adopt a high-cognitive teaching style, they can better nurture early childhood creative development. While styles such as ballet and jazz traditionally rely on low-cognitive imitation-based teaching, dance improvisation does the opposite.

Improvisation is the ideal type of dance for teachers to encourage creative cognitive engagement in their students. As a free-form type of dance, improvisation allows the dancer to portray

any symbolic message with their choice of movement vocabulary. This style of dance is unique and important because students must think quickly, trust their technique, and rely on their creativity to generate expressive movement. In a 2017 study, Hansen and Oxoby found that improvisational dance training improved both the nonverbal creativity and the cognitive flexibility of the dancers' creative design fluency. In much of today's dance education, it is uncommon to encourage the exploration of creativity through improvisation. Thus, a dance curriculum incorporating improvisational movement has great potential to enrich childhood development with creative thinking.

While the format of improvisation is ambiguous by nature, many noteworthy figures throughout history have created structures that can guide modern improvisational dance. Isadora Duncan and Florence Fleming Noyes stand among the remarkable dancers who have structured natural, creative, and independent movement learning. Duncan's modern dance technique focuses on children's natural movement pathways, including flowing, oppositional walking, running, and expressive gesturing. Her pedagogy makes movement natural and creative, rather than a perfectionist style of movement. Noyes' development of improvisational dance training builds on Duncan's movement style, while also encouraging dancers to explore the meaning behind their movements. Dancers are guided through exercises in which they draw inspiration from emotions, personal stories, and aspects of nature as metaphors for self-choreographed movement. While these techniques are not necessary for the creative cognitive benefits of improvisation, Duncan and Noyes' teachings can be used to guide dancers through a more effective and explorative improvisational practice.

Research in early childhood dance education and improvisation is still relatively unexplored. Many questions regarding the science and applications of improvisational dance's cognitive benefits are left to be explored. For example, what neurological connections are involved? Are the creative benefits of dance transferable to other learning domains? How do different movements affect creativity? Cognitive science researchers are still contributing to this fertile area of study. For example, a 2012 study by Slepian and Ambady found that fluid arm movement, as opposed to rigidity, enhanced creativity in the domains of idea generation, cognitive flexibility, and remote associations. Further research will be valuable for greater inclusion of dance and creative movement in early education, more diligent accountability for dance educators' teaching methods, and increased awareness for policymakers to understand how and why to support the dance community.

Until then, dance can continue to inspire creative exploration for people of all ages and abilities. An abstract and creative approach to movement makes dance accessible to everyone, even those with no formal dance training. Improvisational dance is non-judgemental, open to interpretation, and an incredibly freeing experience. I hope that as we go on with our daily routines, we can make a little time to turn on our favorite songs, close our eyes, and let our creativity run wild. ● ● ●