Embodied Learning: Gateway to the 21st Century

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"We will not solve the problems of today with the same thinking we used to create them." -Albert Einstein-

"If we teach today as we taught yesterday, we rob our students of tomorrom." -John Dewey-

What does it mean to be well educated in the 21st Century?

Arriving with the new millennium, there has been a sweeping global evolution in the hard and soft infrastructure of the social, cultural, and political landscape. Information and technology is being generated at unprecedented rates and can be more easily accessed than ever before, but this saturation can be as distracting and debilitating, as it is liberating and enlightening. While there is agreement around the world that education is broken, there is little consensus on how to accomplish consequential reform. Not long ago a certain level of knowledge and a few discipline specific skills were all that was required to begin and develop a career. The world seemed a more certain place. The development of the scientific method brought with it the promise of cataloguing the known physical world and harnessing its structures and secrets for the betterment of humankind. However, knowledge that was once thought universal and certain, must now be regarded as contingent and probable. Even our view of reality has transformed. We can no longer view reality as a fixed, universally shared experience; we must accept that our collective existence is in fact relational, evolutionary and meta-determinant.

As individual's wrestle with how to create a meaningful life, governments struggle to move beyond national interests in order to frame a more unified global perspective. Until the past few decades, study in a particular profession or discipline could be utilized for the majority of a person's lifetime. However, today's students are likely to have a minimum of three or four careers. The acquisition of knowledge and information is no longer as valuable as is the ability to manipulate, organize, and interpret that information in purposeful, meaningful ways. It would be well to move beyond covering information in classrooms, to uncovering students innate capacity for curiosity and inquiry. As education struggles to keep pace with the rapidly shifting global reality, it appears certain that there is no single solution for revitalizing education. A cultural, systemic change is required if we are to adequately prepare students to meet the challenge of growing global complexity and uncertainty.

"The true sign of intelligence is not knowledge but imagination." -Albert Einstein-

"The imagination liberates us from our immediate circumstances and holds the constant possibility of transforming the present." -Ken Robinson-

Environments that encourage and utilize imagination and creativity must become the norm. Instruction should evolve beyond the compartmentalized process of teaching subjects to creating opportunities for students to grapple with personally relevant, targeted problems.

Arts-Infused programs, Problem and Project Based Learning, Maker Centered Learning, case study approaches, and community based instruction all provide opportunities for students to value the process of learning while gaining discipline specific knowledge. Rather than learning isolated subjects, or memorizing facts and information, students are taught to use knowledge and experience to think scientifically, mathematically, or artistically in relation to an appropriate problem. Attitudes and dispositions develop within these conditions which nurture student maturation and self-expression. Collaborative and communication skills emerge which help students recognize the diverse perspectives needed for complex problem solving. Identifying and defining problems become as relevant as problem solving. Open ended questions applied to interdisciplinary projects, encourage reflection, observation, and expression that enhance social and emotional intelligence. Inquiry based learning encourages student driven learning that regards education as something more than career training. Self-disciplined, intrinsically motivated students realize the type of dispositions that help them create meaningful, empowered lives.

"All human behavior and learning, including feeling, thinking, creating, and deciding, originate in the brain. However, rather than being a hardwired biological system, the brain develops through an active, dynamic process in which a child's social, emotional and cognitive experiences organize his or her brain over time, in accordance with biological constraints and principles." Mary Helen Immordino-Yang and Kurt Fischer

"Intelligence is not disembodied symbol manipulation, it is situated reasoning." -Andy Clark-

Technological advances have allowed researchers to pull back the curtain to better understand the process of how we think and learn. Embodied Cognition is a branch of neuroscience that has produced a wealth of research in the past several decades. Somatic practices, such as dance, have proven a fertile ground for discerning how we acquire and use our abilities to navigate and understand the world. The perspective that framed thinking as a linear, cerebral activity occurring between sensory input and motor output is now recognized as far too limited. We think and learn with the mind, not just the brain. The mind neither emerges from, nor is it housed within the confines of the brain. Mind evolves out of the fluid, ever-unfolding interplay between the body, brain, and environment. Thinking and learning then, are not activities isolated in the brain, they are embodied experiences, and cognition emanates from and within that experience. Learning environments that encourage dispositional thinking help students balance self-interest with the perspectives of others within the context of the given situation. When mental, physical, and emotional capacities are given equal value in education, students are apt to more highly regard the process of their education. As perspectives are clarified and individual perception consciously nurtured, strategies and thought processes develop that allow students to direct and focus their attention so that they might think more flexibly, critically, and creatively at appropriate moments It would be well then for education to engage the whole person in the learning experience. Particularly in public education, curriculum is predominantly directed toward brain proficiency. Instructors cover information, which students memorize and then take tests designed to measure how much information was absorbed. Grades are assigned, which hopefully lead to diplomas. This was all well and good when a diploma or educational certificate would relatively guarantee a life of meaningful work, but this is no longer the case. By interacting and engaging with one another, students experience multiple entry points with the material which supports a broader potential for creative and critical thinking. When students have thinking strategies for evolving information into meaningful knowledge their education transforms into purposeful exploring, creating, and understanding.