





PROCEEDINGS

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Effective Learning in an Age of Increasing Speed, Complexity and **Uncertainty**

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Insights on Creativity

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Abstract

Everyone will acknowledge the importance of creative thinking skills, but only few truly understand the process of creative thinking. Creativity is not merely an act of genius or luck, but is a process that can be learnt and the catalysts for creativity can be identified. This article presents the conclusions of the roundtable on Mind, Thinking & Creativity, conducted by WAAS and WUC at Dubrovnik in November 2017. Mind is the principal tool that we use to seek knowledge. Tapping into the mind's fullest potential will unleash creativity and innovation. A greater understanding of the nature of mind and its faculties helps us recognize the limits to thinking and rationality. Transcending the limitations of mind allows us to formulate comprehensive solutions to the problems and challenges faced by humanity.

According to the 2016 Workforce-Skills Preparedness Report by PayScale Inc., 60% of employers complained that the college graduates they hire are not ready for the workplace, as they lack critical thinking and problem solving skills. A recent article in the Wall Street Journal points out that average college graduates show no improvement in critical thinking skills after four years of college. A vital skill that marks the employability of a person is not taught in school, as the concept of creativity remains a mystery to many. The inherent capacity of mind is to view reality from only one perspective. Creative thinking is the process of connecting, reconciling and unifying unconnected ideas by taking a wider perspective. Genius has the capacity to discover the truth in opposite viewpoints and to reconcile ideas that appear to be contradictions.

Mind's characteristic mode of functioning is division and aggregation. Mind has the tendency to divide and subdivide reality into smaller parts that result in fragmentation of knowledge. Aggregation, the complementary nature of mind, assembles the parts to construct the whole. But the essence of reality is lost as mind falsely assumes each of the parts as the whole or the sum of the parts as the undivided whole. Integration and Unification are acts of creativity that surpass this analytic function of mind and develop a holistic approach to understand the world in its complexity and totality.

Mind mistakes symbolic abstraction for the reality it represents. All concepts, theories and models are symbols that represent reality to a certain capacity. Verbal and written forms of communication condense and transform the personal insights and experiences of an individual into symbols which are passed on to others. Such abstraction, association and generalization tend to objectify knowledge and remove the context of life. Education is the communication of the collective wisdom, gained from centuries of experience, to the future generations. The accumulated knowledge of past generations that is organized in an abridged form is fruitful to the individual only when he can see its relevance to his life.

The rules of logic and reasoning are developed to go beyond the sense data to refine our thought processes. Rational thinking is to take all the facts that we know and see if they are consistent within all our observations. The value of a thought lies in the consistency of all the known facts. To expand knowledge is to expand and widen the sphere of consistency. Creativity is the capacity to think beyond the limits of an existing conceptual system. Mind is limited by its own assumptions and draws conclusions predetermined by its own premises. Creativity arises from embracing ambiguity and discovering reason in the irrational.

The Roundtable concluded with a core set of recommendations on how these insights can be applied in classrooms. The findings were presented and discussed at the 2nd International Conference on Future Education in Rome on Nov 16-18, 2017.

1. Active, Student-centered Learning

Creativity of mind occurs in an atmosphere of freedom, engagement and interaction. Activities in the classroom should be structured around the students, rather than subjects, giving them freedom to raise questions, voice their ideas and interact with one another in pursuit of knowledge. This will develop students' capacity to see beyond what exists and open their minds to new ideas. An interactive classroom fosters active, experiential learning, whereas the current system of education encourages rote memorization and regurgitation of facts. Teaching strategies should develop and exercise the students' mental faculties for conceptualization, judgment, analysis, discrimination, organization, problem-solving, value-based decision-making, integration of knowledge and imagination. The focus should be on learning how to learn by learning about the validity of different ways of thinking and viewing reality.

2. Understanding Complexity, Reconciling and Integrating Differences

It is difficult for mind to perceive relations of cause and effect when the causes are complex. Creativity is needed to integrate knowledge of complex phenomena and to evolve effective solutions that embrace all contributing factors, avenues and opportunities. From early childhood, the emphasis should be to develop in the child an understanding of the complex interrelationships and interconnections that govern the way the world works and to look for underlying principles and factors that relate and unite things that appear unconnected, opposite or even contradictory.

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3. Seeing the Whole Picture in Context

The key to comprehending complexity is to view phenomena in context rather than merely understand them in abstraction. Specialization divides, focuses, narrows and limits understanding to its individual component parts, fragmenting knowledge in the process and separating it from the contextual reality to which it applies. Discovering how to derive abstract generalizations from myriad diverse facts should be balanced by the capacity to apply abstract principles appropriately to fit the complexity of the real world, rather than reducing action to simplistic formulas. Transdisciplinary education helps us become aware of the limitations and traps of compartmentalized knowledge.

4. Independent Thinking

Real creativity requires the capacity to question established beliefs, prevailing theories and conventional wisdom. Learning is a social activity which is too often constrained by the authority of those who teach and the social acceptance of that which has already been discovered. At its heart science is a process of endless discovery of greater knowledge, rather than a set of orthodox truths to be passed on and accepted religiously. Students should be encouraged to question, explore, challenge, debate and rediscover for themselves rather than to memorize, accept, repeat and regurgitate what they are taught. Students must develop the capacity to acquire skills that can be applied to many fields and be flexible. The ultimate aim of education is not transfer of knowledge but rather development of an independent mind and individual personality capable of making conscious value-judgments and acting on deeper convictions. Rather than merely a means to a job, education is the process of learning how to live successfully, happily and harmoniously as an individual and responsible contributor to the progress of society.

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