cMinds: Teaching Prorgamming towards the Development of Early Analytical Structural and Critical Minds

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Analytical thinking is a transversal learning skill that can help an individual develop experience and excel in wide areas, academic, social, civic, and professional. It facilitates skilled reading, writing, reasoning independently of the

The cMinds Learning Suite

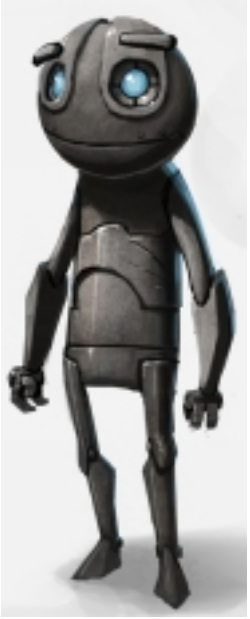
thematic area, problem solving, evaluation of values, and informed decision-making. It helps individuals set goals, develop alternatives, and identify sound courses of implementation.

Despite the applicability of analytical thinking throughout an individual's lifetime, development of the skill in early life in the context of school curricula in primary schools is not representative of its importance. Current teaching avenues mainly deploy math, which provides a general theoretical background. However, the interest of children in math education may lag behind other subjects as children do not see direct links to everyday life. Interestingly enough analytical thinking is missing from early formal technology education. This is predominantly a result of teaching approaches that follow dry presentations and exercises. Current teaching practices fail to leverage the inherent link between technology education and creativity, which emerges when children are encouraged to find innovative solutions through brainstorming and problem solving sessions.

Information technology provides a new medium for developing analytical thinking through

programming concepts: it is precise, structured, step-wise, and requires the setting of goals, exploration of alternatives, and evaluation of implementation approaches in a typical problem solving, project-based methodological structure. Learning activities that explore programming concepts may serve as complementary tools for developing critical thinking in the context of science education curricula. Finally, the technology offers additional advantages, such as the option of visual solutions that can be tailored to inspire children's curiosity, promote creativity, and increase motivation.

cMinds aims to use programming teaching as a tool for developing analytical, structural, and critical thinking among young children. The project runs from December 2010 to November 2012.



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