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Integrating Innovative Neuro-Educational Technologies (I-Net) into K-12 Science Classrooms

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Abstract: With the U.S. facing a decline in science, math and engineering skills, there is a need for educators in these fields to team with engineers and cognitive scientists to pioneer novel approaches to science education. There is a strong need for the incorporation problem solving and emerging neuroscience technologies into mainstream classrooms, and for students and teachers to experience what it means at a very personal level, to engage in and struggle with solving difficult science problems. An innovating and engaging way of doing this is by making the problem solving process visible through the use of real-time electroencephalography cognitive metrics. There are educational, task, and measurement challenges that must be addressed to accomplish this goal. In this paper we detail some of these challenges, and possible solutions, to develop a framework for a new set of Interactive Neuro-Educational Technologies (I-Net).

Keywords: EEG, Problem solving, Skill Acquisition, Cognitive Workload