

Learning08: Methodologies and Practices for Approaching Learning as a Social Phenomenon Inside and Outside of School

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Learning Science as a Collaborative and Social Accomplishment

The existing educational system was created nearly a century ago, with the best intentions to prepare young people for work in an industrial age. Following directions, providing standardized responses to repetitive tasks and learning rote information were all skills that were needed for mass manufacturing. This era is now rapidly vanishing. There is a need to find new methods to replace the educational system. Technological developments are now available to make this change possible, and they can help us to create the needed change in education.

The current process of rethinking the goals of science and technology education can - and should - draw on the growing research and demonstration projects about the nature of multiple intelligences, the role of projects as a context for integrating multiple kinds of knowledge and skills, new concepts of the role of teaching, and the importance of the fundamental social and cultural aspects of learning.

Today Sciences should be thought in formal and informal setting in order to generate students' experience, knowledge and know-how based on Project Based Learning and Inquiry Based Science Education combined with "hands-on" activities to groups of students who are supporting each other. Work at laboratories and the fields, and especially the analysis of results by the entire group, under the supervision of researchers, could contribute each student much more than individual learning. A new innovative didactic concept for science teaching, whereby establishing closer links between the students (and their families), teachers and the scientists (as role models), using special approach to learn through experimental work in groups and using the Internet for data analysis and communication, must be developed.

The connection between the cultural heritages of a specific region with the modern local scientific activities will lead to more involvement of the students and a shift in their approach to learn sciences. The continuation of the process through formal teaching at schools, with computer distance learning, will be combined to a practical "hands-on" science teaching methodology where students are working to a common goal.

It is important to understand that the immediacy of feedback and communications from scientists and peers from around the globe that is provided by the Internet environment, coupled with a revised pedagogy, which focuses on learning how to do science, rather than learning about science, creates an entirely new basis for lifelong education, both socially and organizationally.

Initial work already experienced in several schools and Science Centres have demonstrated the high potential of this approach to science education. These experiments have especially highlighted how this approach can stimulate the interest and active involvement of students in many subjects. The concept of this kind of integrated, active approach to collaborative exploration and study in such interdisciplinary science environment now needs to be further analyzed, developed and expanded, in order to make it a real tool for teachers as an everyday classroom activity.