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The key characteristics of the Open Schooling approach

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Editorial by Dr. Sofoklis A. Sotiriou

The key characteristics of the Open Schooling approach

Schools are **educational ecosystems** encapsulating a wide set of co-existing actors and elements, including school headmasters, teachers, students, parents, school infrastructure as well as external entities from both public and private sector to improve their services. The overall ecosystem's performance, therefore, is affected not only by the individual contribution of each of these actors and elements but also from the way these are intertwined and inter-related. Therefore, to promote an open culture at school to support 21st century learners, an **equally ecosystemic standpoint** should be taken from the side of the remedying initiatives. More specifically, the latter should aim to capture the profiles, needs, contributions and relationships of all these school-related actors and elements towards a **sustainable innovation ecosystem** that will operate under a **holistic framework** of organizational learning and promotion of educational innovations.

For a culture of transformative innovation to flourish, it needs to be allied with, or develop from, challenges or ideas that are central to the **core values and goals of a school, its community and the people within it**. With the initiative and drive coming from within a school itself or a network of schools, external support is recast as an aid to innovation and the innovation is supported by the momentum of the organisation.

The changes in the world today are characterized by new levels of complexity and contradiction. These changes generate tensions for which education systems are expected to prepare individuals and communities by giving them the capability to adapt and to respond. Overcoming the complex societal challenges of today will require all citizens to have a better understanding of science and technology if they are to participate actively and responsibly in science-informed decision-making and knowledge-based innovation.

On the other hand, there is growing concern, among the world's "developed" countries, about levels of student engagement in science learning at school. This manifests itself most obviously in dropout rates, in poor levels of achievement, and in disengagement with what many perceive as a boring and irrelevant experience. However, focusing on students who drop out from school masks a bigger issue, because it only takes account of the visibly disengaged. There is a much larger group of students who do reasonably well in school but do not become self-motivated, self-directed learners: they may appear to succeed in exams but struggle when left to their own devices at university, or at work. Schools and businesses are becoming increasingly conscious of "disengaged achievers": students who are adept at achieving high marks, but not at dealing with the more complex challenges that they will face as 21st century workers and citizens. Additionally, many disengaged achievers decide that the way learning is "delivered" in school education is not for them and, even though they have the requisite qualifications, decide to end their formal education upon leaving school. Arising from this came the obvious questions: What design features might we need to incorporate into learning activities to see more students deeply engaged? How can we support teachers to design such activities? How can we create effective environments for the realization of such activities?

Open Schooling approach aims to develop a pedagogical framework that builds on the essential features of creative learning including exploration, dynamics of discovery, student-led activity, engagement in scientifically oriented questions, priority to evidence in responding to questions, formulations of evidence-based explanations, connection of explanations to scientific

knowledge, and communication and justification of explanations. These elements support creativity as a generic element in the processual and communicative aspects of the pedagogy and proposing innovative teaching strategies that will offer students high participation and enable them to generate highly imaginative possibilities. At the same time the Open Schooling approach is based on the main principles of Responsible Research and Innovation process: learners' engagement, unlock of their full potential, sharing results and provide access to scientific archives, designing innovative activities for all. Based on that, Open Schooling promotes a series of educational activities in the form of real-life projects that will utilize innovative ideas and creativity and empowers students to actively engage themselves in the learning process and improve their conceptual understanding in various scientific topics. It is therefore intended that the educational practices and strategies presented will allow science educators and specifically late primary and early secondary school teachers to identify creative activities for teaching science. Furthermore, the Open Schooling approach aims to enable teachers to either create new creative activities or to properly assemble parts of different educational activities into interdisciplinary learning scenarios. Such activities must have the following four characteristics. They must be:

- **Placed:** The activity is located, either physically or virtually, in a world that the student recognizes and is seeking to understand.
- **Purposeful:** The activity feels authentic, it absorbs the student in actions of practical and intellectual value and fosters a sense of agency.
- **Passion-led:** The activity enlists the outside passions of both students and teachers, enhancing engagement by encouraging students to choose areas of interest which *matter* to them.
- **Pervasive:** The activity enables the student to continue learning outside the classroom, drawing on family members, peers, local experts, and online references as sources of research and critique.

These four criteria can provide a useful checklist for teachers formulating their learning designs, but also suggest what a science classroom and a school as an organization needs to offer to become more engaging in itself: **a place-based curriculum, purposeful projects, passion-led teaching and learning, and pervasive opportunities for research and constructive challenge.**

In this issue, we are presenting students work from Greece and Turkey. Themes are focusing on the role of the school garden in the open schooling environment, the chemical composition of the toothpastes and the effect of play on social and linguistic skills of children with autism spectrum disorder.

Nice reading and warm wishes for the New Year!