

## Teaching and learning: focus on innovative technologies and methodologies for student engagement

Ivano Eberini<sup>a</sup>

<sup>a</sup>*Dipartimento di scienze farmacologiche e biomolecolari "Rodolfo Paoletti",*

*Università degli studi di Milano*

*e-mail: [Ivano.eberini@unimi.it](mailto:Ivano.eberini@unimi.it)*

New teaching and learning technologies and methodologies are at the basis of teaching innovation, but some resistances are present in introducing them practically, because of the necessarily reorganization of the classical frontal lesson/practical workshop paradigm, the initially steep learning curve of some digital learning environments and tools, and the growing attention towards relational and social aspects.

Biochemistry is an almost ubiquitous discipline in the academic life science and biomedical area and laboratory activities are strongly recommended to enhance and develop specific skills to be merged with knowledge to generate high quality competencies. In person laboratories cannot be replaced by multimedia, but virtual environments can strongly enhance the learning process, integrating the workshop experience of the students with highly immersive, asynchronous activities that are continuously monitored for performance and progress.

Older teaching paradigms, such as the constructivist, are progressively replaced by interactionist and enactivist ones, leading to the reduction of frontal lesson as the only teaching approach, and increasing different student-centered activities. Some digital interactive engagement tools can be exploited to increase the synchronous participation of students and to support asynchronous activities for review and reinforcement of learning through feedback.

Evidence suggests also that a positive and healthy classroom atmosphere can help achieve the teaching and learning goals of both teachers and students. Social and emotional learning approaches can also be fruitfully applied to university students, having a positive impact on the classroom environment and encouraging debates and discussions, essential for the development of a critical sense towards the subject studied.