Keynote presentation

Orchestrating integrated learning scenarios

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Higher education institutions have mostly experimented with two approaches to eLearning: distance and blended. Blended learning refers to the juxtaposition of face-to-face and computer-mediated activities, while distance education only includes the latter. The approaches that consider e-learning environments as stand-alone products failed to have a strong impact on pedagogical practices in higher education. Meanwhile, researchers have developed scenarios for integrated learning. We define integrated learning by reference to four characteristics.

Integrated learning refers to the organic interleaving of computerized activities (e.g. simulations, forums, exercises) with the diverse activities that occur in 'on-campus' courses (e.g. lectures, exercises, practical work, or even field trips). These activities are integrated from a pedagogical viewpoint, as they constitute a consistent scenario or script. They are also integrated from a computational viewpoint as they are related by some kind of workflow environment (e.g. results of teamwork with the simulation are synthesized for a subsequent class-wide argumentation seminar).

A scenario includes multiple activities, occurring at various social levels: individual activities (e.g. reading, writing summary), group activities (solving problems with a peer; conducting a project with other students, …) and class-wide activities (lecturing, debriefing, discussion, …). For too long, learning technology research has opposed the individualistic focus of instructional engineering with the social focus of computer-supported collaborative learning (CSCL). Integrated learning sidesteps this dichotomy and combines any activity form that is relevant for the learning objectives.

In these scenarios, the teacher is not in the background, as in many eLearning environments. Instead the teacher is the conductor: he/she orchestrates the sequence of activities and may change the scenario in real time. If it is true that technical constraints reduce the teacher's freedom to adapt his or her plan on the fly, we have to change the technology… not the teacher's freedom.

These scenarios do not occur in a virtual world ('virtual learning environment', ' virtual campus',…) but in specific physical spaces (classroom, labs, field, home,…). Integrated learning addresses the relationship between learning activities and their physical environment, for instance by using mobile technologies (e.g. location-based applications) or embedding technologies into furniture, buildings or artefacts. Computer science has shifted towards more physical kinds of interaction, through concepts such as 'tangibles', 'the disappearing computing', 'ubiquitous computing', 'wearables' or 'roomware'. The affordances of these emergent technologies for educational goals are still being discovered.

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