

Emerging Technologies for Learning: In Need of a Pro-Active Educational Strategy

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Abstract : This paper is about an explorative research into the use of emerging technologies for teaching and learning in higher engineering education. The assumption is that these technologies and applications, which are not yet widely adopted, will help to improve education and as such actively work on the ability to better deal with the mismatch of skills bothering our industries. Technologies such as 3D printing, the Internet of Things, Virtual Reality, and others, are in a dynamic state of development which makes it difficult to grasp the value for education. Also, the instruments in current educational research seem not appropriate to assess the value of such technologies. This explorative research aims to foster an approach to better deal with this new complexity. The need to find out is urgent, because these technologies will be dominantly present in the near future in all aspects of life, including education. The methodology used in this research comprised an inventory of emerging technologies and tools that potentially give way to innovation and are used or about to be used in technical universities. The inventory was based on both a literature review and a review of reports and web resources like blogs and others and included a series of interviews with stakeholders in engineering education and at representative industries. In addition, a number of small experiments were executed with the aim to analyze the requirements for the use of in this case Virtual Reality and the Internet of Things to better understanding the opportunities and limitations in the day-today learning environment. The major findings indicate that it is rather difficult to decide about the value of these technologies for education due to the dynamic state of change and therefor unpredictability and the lack of a coherent policy at the institutions. Most decisions are being made by teachers on an individual basis, who in their micro-environment are not equipped to select, test and ultimately decide about the use of these technologies. Most experiences are being made in the industry knowing that the skills to handle these technologies are in high demand. The industry though is worried about the inclination and the capability of education to help bridge the skills gap related to the emergence of new technologies. Due to the complexity, the diversity, the speed of development and the decay, education is challenged to develop an approach that can make these technologies work in an integrated fashion. For education to fully profit from the opportunities, these technologies offer it is eminent to develop a pro-active strategy and a sustainable approach to frame the emerging technologies development.

Keywords : emerging technologies, internet of things, pro-active strategy, virtual reality

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