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“eLearning and Software for Education”**

New technologies and redesigning learning spaces

Book of Abstracts

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Improving Patient Education and the Transition Process Using Virtual Reality

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Abstract: *For those diagnosed with a chronic condition at an early age, such as Cystic Fibrosis, transition from a paediatric care facility to an adult orientated facility is often inevitable. Patients can feel anxious and nervous as they are unfamiliar with their new surroundings and healthcare team. Research has shown that these symptoms would be reduced if patients were given the opportunity to meet their new healthcare team and become familiar with the new process and surroundings prior to transitioning. This research explores the possibility of using Virtual Reality as a means of complementing the transition process. By allowing patients to explore and learn of their new surroundings and meet their healthcare team virtually prior to transitioning, it is anticipated that their will be an improvement on patient education and experience. A 3D model of the Adult CF Day Unit, Specialist Inpatient Unit, and other common testing labs is created for exploration in the Unreal Engine 4. This 3D environment is then prepared for use in a HTC Vive. The environment also includes interest points, audio, and welcome video introducing the adult CF healthcare team. Throughout the development process this system is tested with five technical researchers. The feedback received from these evaluators primarily focused on the use of a U! and other features such as a bread-crum trail and audio to assist in the educational content at interest points. This feedback has now been implemented in preparation for patient testing. It is anticipated that this will enhance the patients experience and educate them on the transition process.*

Keywords: *Virtual Reality; Transition; Cystic Fibrosis; Patient Education; Patient Experience.*

The Role of an Advanced Computing Environment in Teaching and Learning Mathematics through Problem Posing and Solving

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Abstract: *Problem solving, i.e. the ability to model real life situations in mathematical terms and to solve the problems connected to them, plays an important role in teaching and learning Mathematics to and by students at every level of education and it is one of the basic skills for the education of citizens. By learning problem solving in Mathematics, students acquire ways of thinking, creativity, curiosity,*

collaborative skills and confidence in unfamiliar situations, from which they will benefit also outside the Mathematics class. The use of digital technologies helps in both representing and exploring mathematical tasks. Technologies also provide a range of tools and opportunities to structure and support learning environments in which students continually interact to build knowledge and solve problems. The national PP&S - Problem Posing & Solving - Project of the Italian Ministry of Education aims to enhance the teaching and learning of Mathematics and Informatics using new methodologies and technologies. One of the methodologies is problem solving through the use of an Advanced Computer Environment (ACE). An ACE is a system that allows to perform numerical and symbolic calculation, make graphical representations in 2 and 3 dimensions and create mathematical simulations through interactive components. Moreover, it is able to support students in reasoning processes, in the formulation of exit strategies and in the generalization and re-adaptation of the solution in different contexts. The goal of this paper is to discuss the results of an immersive workshop, entitled "Mathematical Exploration with Problem Posing and Solving", involving 50 secondary school Maths teachers, who were invited to reflect on the role of an ACE in learning and teaching Mathematics through problem posing and solving. During the workshop the problem solving methodology used in the PP&S project and an example of a contextualized problem solved with the use of an ACE were presented. The results emerged from the analysis of the questionnaires (initial and final) completed during the workshop and from the study of the works delivered by the teachers, who were asked to design a problem, its resolution and generalization through the use of an ACE. These results are useful to understand teachers' reflections on the methodologies proposed and on the impact of new technologies on teaching.

Keywords: Advanced Computing Environment; Learning Mathematics; New Technologies; Problem Posing; Problem Solving; Teaching Mathematics.

Student Perception and Learning in On-line Learning Platforms

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Abstract: Previous research showed that information quality, system quality, and service quality affect perceived usefulness and the perceived ease of use for educational platforms [22]; other authors debate on how they adopt and embed technology into their learning activities[13]; students' perceptions regarding the usefulness and easiness of positive use for e-learning platforms is strongly influenced by their intention to effectively use those platforms and by students' cognitive absorption and self-efficacy, as well as by system interactivity and facilitating conditions. Our research is focused on empirical observation that suggests that there is a perceived difference between learners competencies and effectiveness regarding the on-line learning platforms than the regular frequency study programs. To this respect we focused on the same type and content bachelor degree study programme in 2 versions: distance learning using on-line learning platforms (with a small part of face-to-face tutorials) than full-time learning (based on face-to-face study courses and seminars). We were interested in perception and student consciousness on difference between those 2 students groups. The main assumption is that student identity is built around the perception on the learning environment and the perception on effectiveness in bachelor degree programs; so that, the easiness and level of satisfaction on learning on-line tools could be an impediment on understanding and choosing the distance learning programme than full-time learning programme. So, we put the two perception and identity student awareness is different in the 2 bachelor degree programmes; also, we put those identity awareness structures into the light of comparison so that conclusions towards quality perception and educational marketing would be more effective and valuable.

Keywords: learning platforms; student identity; distance learning; full-time learning bachelor degree.

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