Changing assessment leading to improving learning using e-portfolios

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The research proposal aims to transform the summative evaluation in education and training using e-portfolios. It is intended to be applied to a course devoted to the study and analysis of professional topics. The possibility of extending the approach to other higher education and VET areas is also considered after analysis of the pilot results.

About two-thirds of the engineering students will have jobs in the area where professional competences are required. The pilot envisaged to test the innovative approaches is a course that uses the Moodle learning platforms since 2004/5. These have been used especially as the repository of supporting documents, as forum of communication between teacher and students and as a means of evaluation.

The motivation of this proposal intends to monitor the learning and the skills acquired throughout the attendance of the discipline along the entire semester. This monitoring is based on the preparation by each student of an e-portfolio with range of two or three weeks. These e-portfolio documents will be registered in the library of competences acquired with percentage of the respective quantification and with presentation of relevant evidences.

The list of reference competences in the discipline are those attributed and approved by the academic bodies given to the course. Monitoring the progress of acquisition of competences by the teacher will allow to detect anomalies in accordance with the anticipated learning. This continuous evaluation will allow the teacher to define measures.

The following up of each student route will allow the teacher to personalize the learning needs of each student and to act during the semester along with the course implementation. It is planned to have a closer follow-up of each student studying and especially learning. This close and timely monitoring will allow improvement of teaching, of effective learning and of motivating students through reflection and self-awareness.

The use of e-portfolios shared between each student and teacher about what is beneficial for the learning, in terms of competences qualification, will probably ensure a better mode of assessing and of grading each student performance. This maybe a way of assessing each student progression and of providing insights about the teaching flaws.

One of the aims of this research proposal is to evaluate the effects and impact of applying this type of assessment in learning of students and verify the required needs of engineering graduates to comply

with employers. The set of competences presented as the goal of the course are a combination of academic and professional requisites.

Another aspect considered in this proposal is the creation of materials online, dynamic and attractive to students that may entice the awareness of the competences of the discipline. For that purpose, it is considered the possibility of employing innovative tools like those related with virtual, augmented or immersive reality (VR, AR, IR).

For active professionals, at the department conducting the pilot, there have been ongoing research and testing of using virtual environment tools for the safety construction training. The work done in construction safety arises from the rapid development of tools and software assisting professionals in improving construction safety. Planned recognition of construction risks using AR, VR and IR BIM requires an understanding of the safety risks in virtual environments.

The methodology adopted in these complementary works consisted of combining and analyzing the state of the art topics related safety in the construction site. The training with these tools allows acquisition and verification of competences in construction safety for engineers and workers.

 That acquired experience in the department can be used to provide students possibilities of testing the prospective professional competences. The e-portfolios provide an overview and detailed at the same time about the development of the learning process of the student and it may foster students´ constant reflection about what they can do in a professional context.

The virtual environments of AR, VR and IR may help students to fulfill gaps in the set of targeted competences in a safe and repetitive environment. Using e-portfolios as evaluation instruments will ensure that these allow the teacher an efficient management of resources and time.

Evaluating the achievements of this process of pedagogical use of e-portfolios may allow checking the effects, the impact and the success in this pilot attempt. It is intended to collect data about students and teachers ' satisfaction with the approach, consider the impact and effects of the use of this method in the learning achievements of students, realize the lack of acquisition of required skills by employers.

The experience will be monitored by the Laboratory of Teaching and Learning of the college to allow dedicated support and advice and also to provide insights to other engineering departments and other faculties.