ABSTRACT

The objectives of this research study were: 1) to identify and validate a set of ICT skills required for university nursing students; 2) to develop a performance and task based e-assessment system (e-ASYS) by a) design which utilizes the identified skills and allows the nursing student to solve realistic tasks, b) use the e-ASYS effectively within the nursing department of the Cyprus University of Technology and c) compare the achievement of traditional class and an experimental class that used the e-ASYS, and 3) to recommend a scheme for assessment of ICT skills of Cyprus’ university nursing students.

The population of the study were 755 university students 317 of which participated in two surveys that aimed to identify the ICT skills in which they face difficulty and the frequency of use of the spreadsheets and databases skills respectively. The ICT skills in these two domains were mapped to an international standard (ECDL) and were validated by a subject matter expert group of academics. The e-ASYS was developed by integrating the Rapid Application Development Methodology and the Seven Step Model and was used in a real university ICT skills course setting as part of a quasi-experimental design that aimed to assess its effectiveness.

The findings of the study were: 1) nursing students indicated that they face big to very big difficulty in three major categories (content creation, university e-resources and web services) of ICT related topics with the web services category to pose the highest level of difficulty to students. The subject matter expert group of academics suggest most spreadsheets skills as required and connect the database skills with the use of electronic health record and suggest about half of the skills as required. 2) The use of e-ASYS in the quasi-experimental design indicated that the performance of the students in the experimental group was significantly higher than the performance of the students in the control group, this was demonstrated by comparison of the results of post-tests in the two domains. The significance level of post-test scores comparisons was 0.000 for both ICT skills domains which can be interpreted as significantly different. Thus, the difference in the performance of the experimental and control groups was attributed to the use of e-ASYS by the experimental group and it was concluded that the use of e-ASYS had a positive effect on the performance of the students in the experimental class compared to the traditional class. 3) It is recommended that university nursing departments align their curricula with the ICT skills domains in which students face difficulty and establish a common set of assessment principles that can be founded on the exploitation and enhancement of e-ASYS by implementing task and performance based assessments.

Keywords: e-Assessment Systems, ICT skills, Nursing Students, Performance-based Assessment (PBA), Task-based Assessment (TBA), Quasi-experimental Design, Rapid Application Development (RAD), 7-Step Model.