Online Training Tools Evaluation: "Internet Technologies in Economics" Teaching Case

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Abstract: This work discusses the problem of Information and communication technologies (ICT) and E-learning means evaluation and their influence on students' achievements. For that purpose, the actions of 98 students, who learned the discipline "Internet Technologies in Economics" were documented in log files and analyzed. Evaluations highlighted some of the key issues that are emerging as a result of ITC implementation: ICT are so widely spread in all the sides of life that it is impossibly to dissociate ITC impact and computer literacy of a student; In the frame of Public Access to Information and Communication Technologies, Computer literacy of a student neutralizes educational benefits of E-leaming and Information and communication technologies means; Public Computer literacy causes unimportance of a way of learning information receiving.

Literature Review

ICT impact on education is manifested in enhancing teaching and learning process, the quality and accessibility of education, learning Environment, learning motivation and scholastic performance. The literature on this topic is still, mainly, descriptive; scientists depict only the general tendencies; besides, there were no found available empirical data on E-learning and Internet means impact on students' achievement. Absence of relevant means to evaluate impact of e-learning tools efficiency is still an actual problem. E-learning and ICT means increase students' motivation, teacher-student interaction, engagement, but the positive impact of ICT use in education has not been proven [Trucano, Michael. 2005] mainly because of lack of relevant evaluation methods and experimental data. This makes impossible quantitative evaluation of their influence on students' achievement. Besides, ICT are so widely spread in all sides of life that it is impossibly to dissociate ITC impact and general erudition of a student. Study, provided by Kozma et al., 2004; Light et al., 2008; Linden et al., 2003; 2008 showed differ approaches for advanced and developing countries. They proposed only descriptive indicators of ITC impact like national and international assessments, customized program-or project-specific assessments, student's quotations.

Methodology

Education Data Mining (EDM) as a method of students' activity analyzing derived from commercial field. The first few publications on EDM appeared in 2006, and they involved researchers from the fields of computer science, information systems, and education (Hung & Zhang, 2008; Winters, 2006). Galit Ben-Zadok, Moshe Leiba, Rafi Nachmias, Romero and Ventura, 2007 proposed log-file analyze to fix student activity and evaluate programs, sites, etc. the student explored.

This article discusses the problem of Information and communication technologies and E-learning means evaluation and its influence on students' achievements. Besides it presents a comparison of students' perception and usage of different learning activity types (tutorials, social nets/blogging and video) and its influence on students' achievement (academic score).

For that purpose, the actions of 98 students, who learned the discipline on "Internet Technology in Economics" were documented in log files and analyzed. The research questions were follows: (a) Is there any statistically significant relation between students' achievements (academic score) and types of ICT and/or E-learning means they used? (b) Is there any relation between total time spend on subject preparation and students' achievements (academic score)? (c) What type of activity (if any) is crucial for achievement level? (d) Is the most preferable activity crucial for achievement level?. Results show significant differences in students' behavior with respect to activities they preferred and most widely used to complete labs and tests.

Log files information was converted to structured files by parser programs (Analog, Webalizer, Webtrends, NetPromoter, WebAnalizer, etc.). The parser program performed syntactic analysis of the structured text by follow parameters: ID of a student, total duration of activity (social nets and blogging, tutorials, video and videoconference, report preparing, etc.).

Results

Conducted study showed low relation between analyzed factors and students achievements, and factors influences were not significant. Besides, preparation time increasing did not cause academic score increasing. Values of preparation times were not essentially differ for all students.

As far as, no clear relation between students achievement and means they used was defined, we can conclude, that way of information transferring is not crucial factor in educational process. However, this statement relates only "computer" subjects and for computer literal students.

Results show that all the students complete all the activities, but they used each activity irregular: the students used mostly tutorials in their preparation contrary to "videos and video-conferences" was their most preferable activity. Social net and blogging activity is still perceived by respondents as entertainments, but not as a serious mean in preparation.

We conclude that best achievements results are obtained for cases of the most preferable and the most used activity coincidence. The way of information obtaining is not a crucial factor in educational process. However, this statement relates only "computer" subjects and for computer literal students.

Discussion

The evaluation of students' achievement depend on different activities that relies solely on data stored in log files has many advantages, such as being a non-intrusive and an objective method of research in a large population of students, but it also has its limitations.

First, the lack of interaction with the students does not facilitate obtaining more in-depth information, such as personal characteristics and attitudes.

Second, our evaluation relied only on variables that relate to the extent of content consumed, the effort to complete the activity, and the response time required to prepare on testing, labs performing, reports completing, etc. We limited analyzed activities only by tutorial real reading, video and blogging. However, we are aware that many factors may influence the students' achievements like the behavioral aspects, such as prior knowledge, existing skills, and online learning experience. Therefore these issues still require further investigation that examines how ways of information obtaining are realized while learning through different ITC and E-learning means.

Besides, ICT are so widely spread in all the sides of life that it is impossibly to dissociate ITC impact and computer literacy of a student. It means that in the frame of Public Access to Information and Communication Technologies, Computer literacy of a student neutralizes educational benefits of E-learning and Information and communication technologies means. Public Computer literacy causes unimportance of a way of learning information obtaining.

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