

Explaining the Situation and the Role of Information and Communication Technology in the teaching-Learning Process Based on the Research Synthesis of Contemporary Studies

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Abstract

The education has been influenced by Information and Communication Technology (ICT) and these technologies have influenced teaching, learning and related researches. The purpose of this research was to provide a systematic study and to present a combination of studies in the field of the situation and the role of information and communication technology in the teaching-learning process. The method was qualitative and was carried out in the form of research synthesis. Relevant research resources were selected, categorized and analysed from year 2000 to 2016 in a systematic manner; then, in a tiny screening stage, 29 researches that have intended criteria were selected. Then, a synthesis of their findings was presented in accordance with the principles of composition, rethinking and rearrangement of data. The findings showed that there are two trends between ICT and the teaching and learning processes: a) Facilitating trend; b) Stream making trend. While these two trends overlap in some cases and it is difficult to draw a clear border between them, they have features which they could be separated from each other and their aspects, features and impacts on teaching-learning processes could be studied. Accordingly, the effects of Facilitating trend on the teaching-learning process be revealed in the short term; these effects are often displayed in hardware and affect the appearance of the components of the teaching-learning process. The stream making trend of ICT in the teaching-learning process involves changes that affect the quality and condition of teaching-learning processes at a deeper and more complex level. These changes can be considered as some form of long-term results of the Facilitating trend which can be appears as software. In fact, the use of technology tools in the short term has changed the form of education, but its consequences in the long-term and in conjunction with other influential factors have led to the emergence of new approaches and trends in education and the general trend of education has undergone fundamental changes.

ICT Components in the Facilitation Process

Component	Features
IT as an information tool	Providing an unlimited range of information; Accessing to databases
IT as a tool for positioning	Provides multisensational learning; Practical experience close to the first-hand experience through simulation and play;
ICT as a communication tool	Increasing the possibility of contact between teacher and a Learner, or a large number of learners with other, learners with theorists and experts in each discipline.
Resolving spatial and temporal constraints	Removing geographical boundaries through the possibility of telecommunications; eliminating time limits through the possibility of asynchronous communications
Tools for Multiple Content Provisioning	Possibility to use several senses, creating live communication, active and exciting communication through multimedia and supersonic capabilities;

Components of the ICT in the stream-making process

Component	Features
IT as a construction tool	Relationship between ICT and constructivist theory; providing the possibility of personal discovery and knowledge recognition based on active learning environments.
Relationship between ICT and the personalization of the teaching-learning Process	Creating learning opportunities fit to learning styles and individual characteristics
ICT serves multiple intelligence	Various media can accommodate educational activities with pupils' intelligence through the use of visual media for spatial intelligence, audio media, musical intelligence, and more.
Relationship between ICT and learning motivation	High flexibility in meeting students' needs and aspirations; helping them get to know faster and gain confidence to engage more with the learning process; creating diversity and interest
Relationship between ICT and student-centered learning	learner-based Center with digital resource support, interaction with teacher and other learners; support for active learning; problem-centered learning; Problem-centered learning and purposeful and meaningful learning; emphasis on ability to generate knowledge;
Improving and Promoting thinking skills	Emphasize critical thinking by providing the ability to compare the massive amount of information; developing creativity by providing simulation capabilities; increasing the depth and quality of learning;
Relationship between ICT and assessment of learning	Providing quick learning outcomes; Providing self-assessment conditions

Conclusions

The findings showed that there are two trends between ICT and the teaching and learning processes: a) Facilitating trend; b) Stream making trend. While these two trends overlap in some cases and it is difficult to draw a clear border between them, they have features which they could be separated from each other and their aspects, features and impacts on teaching-learning processes could be studied. Accordingly, the effects of Facilitating trend on the teaching-learning process be revealed in the short term; these effects are often displayed in hardware and affect the appearance of the components of the teaching-learning process. The stream making trend of ICT in the teaching-learning process involves changes that affect the quality and condition of teaching-learning processes at a deeper and more complex level. These changes can be considered as some form of long-term results of the Facilitating trend which can be appears as software. In fact, the use of technology tools in the short term has changed the form of education, but its consequences in the long-term and in conjunction with other influential factors have led to the emergence of new approaches and trends in education and the general trend of education has undergone fundamental changes.