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IDENTIFY THE FACTORS AND COMPONENT OF TECHNOLOGY DEVELOPMENT AND SUPPORT CREATIVITY IN LEARNING

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ABSTRACT

The overall goal of this research is to identify technology and support development of creativity virtual education .The growth of human knowledge and technology to develop the present era, a new form of teaching, as a virtual education. in the importance of the overall purpose of this research, this research tries to overview- analytical method utilizes the library to study, to investigate the identification of aspects, components and indicators should be relevant to the development of creativity in e-learning. Studies and findings of the research led to the identify and delivery of components and indicators of aspects of IT Support affecting the growth and development of creativity in virtual education, which consists of four factors (architectural, technological, technical capabilities, support for research, advocacy and support offices) and 22 index is related to these components.

Keywords: Virtual Education, Creativity, Components, Indicators, Quality

INTRODUCTION

One important feature of the present era, dramatic acceleration of scientific developments, technological, social and all-round development of information technology and communications. In such circumstances, today's society needs to flexibility, dynamism and creativity and these needs and the educational system must go through provide the appropriate opportunities for innovation, interaction, thinking, problem solving According to the current world issues and complex problems (Ebrahimzadeh, 2004). In this regard, one of the approaches that can be useful in order to meet the needs and demands of the educational systems, is expanding the use of ICT in educational systems The same applies, has caused a new education system as a virtual training With the aim of improving the quality of education Planning and utilization of knowledge, technology and e-learning facilities in order to divide financial resources and educational contexts, eliminate or minimize the gap and the impact of poverty on the quality of learning and ultimately development of students' talents and creativity (Poor town and Benny, 2004). Although the emergence of e-learning is not a lot of time, but in this short time, this type of training has a very good position in the education system in the world And cause Important achievements, such as provide the appropriate student spirit training and scholarship of education, Terms of exchange of ideas, thoughts, and replacing of bi-directional data transfer method instead of a one-way transfer of information and knowledge and change the role of educators as facilitator and guide as teaching and learning process.

In such a way that learners can, creator of knowledge and information and obtain the terms and the opportunity to update and the emergence of creativity in teaching to earn such platform. Considering what has been said, this is an important question as the issue will be raised that virtual training, how this type of training could causes of growth and nurturing the creativity of learners , That is the issue, the studies and research has been aimed at identifying how to create quality and growth and fostering creativity in virtual education in general education and in particular, That One of these researches can be conducted by New rouse (2002) in relation to taking advantage the use of ICT in increasing the level of virtual education process   that The impact of the use of ICT confirmed to enhance learning activities and properly assessment and evaluation, motivate, strengthen and deepen high-level thinking, increased autonomy and learner engagement and active participation of learners. Or that Braak *et al.,* (2007) in their

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research, listed the benefits of using ICT in the teaching and learning process, academic motivation, self-confidence, independent learning and development branch expansion initiative and creativity as learners. Also Tondeur (2007) has been approved the impact of available e-Learning to the learners in high-level thinking (meta-cognition) and problem solving skills in their studies Morris in his book with title" Freedom and beyond "States open and distance learning goal increase of knowledge, freedom of thought, creative thinking, responsibility and self-creation (Najafi, 1391). Faraj *et al.,* (2010) the e-learning quality factors and the symptoms of the individual items, called such as meaningful interaction, education, sharing of experiences by learners, flexible design and clear lessons.In studies conducted by The Wall (2005) directed by structural relationships and manage knowledge with learning creativity in primary school teachers for the city of Liverpool, is a direct positive correlation variable knowledge management has been verified with the creativity and innovation. Mirkamali and Khorshidi (2008) in designing the pattern of fostering creativity, factors such as content, culture and social relations, teacher, learning environment, learners dedication, and learners desire and motivation, teaching methods, and have put the family in mind According to what is stated and on the basis of the results of the studies, seem to be effective use of ICT in the process of training and working in a virtual environment, requires attention and taking advantage of the infrastructure, the dimensions of the various components will be effective on virtual education.

So that creates the context of the development of creativity and innovation of the learners. Therefore, pay attention to the dimensions and components of the highly influential in the creation and development a key issue will be unavoidable of creativity in virtual education environments. The same applies to the researcher; that in the present paper aims to identify and support the development of education and introducing innovative technology and components of virtual education, utilizes the methods of analytical research questions, to answer the following research questions:

What are the most Components and indicators of technology and effective support in the development of creativity in the virtual education?

The Concept of Creativity

Different look at the issue and reach a new solution is what is commonly interpreted to creativity. But creativity is not a concept that can be defined and explained in one sentence. In the area of Humanities that subject is the human being, words are Complex and ambiguous and perhaps can called is hardly definable and experts express in the various definitions of a word that creativity of these terms are complex, ambiguous and multidimensional. Although creativity is defined by numerous interpretations (Rezaeaian and Pourezzat, 2009). With this expression, provide an accurate and comprehensive definition of creativity which includes all aspects of its actions it is very difficult, if not impossible. According to Sternberg, Creativity combines the power of initiative, flexibility and sensitivity to the views that enables individual to think about the useful result of personal satisfaction and pleasure of others. Amiably believe that, creativity is the result of an intrinsic motivation, Knowledge and ability-related context and skills related to the subject. To Guildford view, creativity involves the use of a particular type of thinking which is called divergent thinking. Shelly said, creativity as a process of rational thinking and that requires cognitive effort and the potential outcome of this process, is creative behavior (Samii, 2001). According to the proposed definitions in the field of creativity; creativity is:

Creation and production of new idea, novel and that as a result of the mental process of thinking and with the benefit of previous experiences and knowledge that will lead to the construction of the status (the author, 2014).

Creativity in e-learning

E-learning, providing many opportunities for the realization of the major goals of education through the provision of appropriate training, with regard to the resolution of the time and location limitation, the opportunity of training and more attention on the quality of training is made with emphasis on creative educational patterns researcher (Hai and Baker, 2008). Accordingly, it must be acknowledged that the development of creativity in virtual training as traditional customary education, will be requires use of the conditions and necessary fields associated with multiple factors and components of virtual education That

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seems to be the quality of factors and criteria for topics related to training and e-learning, will be provided e-learning effectiveness models and frameworks which in turn growth and creativity in the field of virtual education , which must take into consideration.

Botchr in relation to these factors, it is believed that in any virtual and structured education experience, the learner at the center of it (Botchr, 2007).

Chickering and Gamson According to their study expressed, principles such as the relationship between students and teachers, develop mutual relations and cooperation among students, encourage active learning, prompt quick feedback, respect to the talents, and diverse ways of learning is effective in e-learning (Chickering and Gamson, 2003).

Illinois Institute of Technology professionals know essential in the e-learning that Motivate students, reduce the feeling of isolation and create a sense of presence in the community of learning assessment and teaching materials (Institute of Illinois, 2007).

The Sloan-c Framework has classified At least The Quality of e-learning at the institution, for effective learning to learners under seven title: Interaction and interaction with instructors, Classmates and mediator, Using the media to promote learning, Emphasis on communication and create groups or communities of learning, Opportunities for all learners to achieve the learning environment at any time, Providing multiple opportunities for learning, Opportunity to share experiences, information and Actions by teachers, To provide appropriate services (Counseling, registration, access to course content) (Allen, 2010).

According to Nichols, The main factors affecting the quality of e-learning are: Individual, Meaningful interaction, Shared experience, designs Flexible and light courses, Learner feedback, the Quality of information (Farajollahi *et al.,* 2009).

Khan also has been divided the factors affecting e-learning educational factors into eight categories; technology, interface design, management, support, assessment, institutional and human factors (Khan, 2004).

Chow and his colleagues have provided a framework for understanding the quality of e-learning. Based on this framework, the quality of e-learning is a function of the six elements are interdependent and interrelated: Curriculum design, instructional design, web design, teaching and facilitating the learning process, learning experience, offering courses (Chow, 2006).

According to Chow and colleagues framework that offer for understanding the quality of e-learning courses ,the pedagogical curriculum design is the first decisions that must be made in accordance with the characteristics and capabilities of technological environments. Then the decision of this stage, Influenced instructional design strategies.

Curriculum design decisions will be affected on how to Guidance, and the relationship between the teacher and the learner and this action will be affected on the learning experience of learners and their Satisfaction of the course Also the instructional design decisions on strategy, web design And the application of technology, influence and affect the quality of course content (Coon *et al.,* 2009).

About the impact of the Web on creativity in our current study, Found that web, develop strengthen and the willingness to risk, Commitment to work, Curiosity, experience, having extensive interests, Initiative, Creativity imagination, inspiration, trend of modernization and innovation and complex tasks, Artistic ability, metaphorical thinking, Fact -finding, views interpretation that Found on the most creative people. There also many approaches that in a traditional classroom Employed to Creative production and management and also have use in web environment (Zaree and Safavid, 2010).

According to the views and opinions of the attributes and the Quality of e-learning standards, In conclusion, following it is recommended to improve the quality of e-learning. Following it is recommended to improve the quality of e-learning.

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Table 1: Criteria for Quality in E-learning

Author or Authors	quality of Standards in e-learning	Set of principles derived from theories for effective e-learning
Chickering and Lever (1996)	Student interaction - teacher , cooperation , active learning , feedback , high expectations, given the different talents , different ways of learning	* Reduce feelings of isolation and a sense of presence among the learners
Illinois Institute of Technology (2007)	Support for quality teaching and learning, avoid ambiguity in the clear expectations, motivate remote students, reducing the sense of isolation and create a sense of community participation, evaluation of learning and teaching materials	* Centered learning and interaction * Clear statement of goals and expectations of learners
The Sloan-c Framework(2010)	Interaction, appropriate media, communication and create groups or communities, different ways of teaching, learner-centered, feedback, flexibility	* Due to individual differences in learning
Policy Institute for Higher Education Institutions (2000)	Students interact with teachers and other students, feedback, appropriate ways of teaching, authentic assessment, appropriate technology, support of student	* Continuous evaluation and immediate feedback (diagnostic and formative)
Quality Control Agency for Higher Education (1999)	System design, program design, presentation, development and support of students, and provide student relationship, assessment of student	* Final Evaluation * Encourage active learning and creative
University of Massachusetts Lowell (2003)	Course and program selection, development, support and encourage teachers, infrastructure and technology, redesigned student services, and evaluation of programs	* Evaluation of the effectiveness of educational materials
Nichols (2002)	individual ,Making meaningful interaction, shared experience, design a flexible and clear lessons, learner feedback, the quality of the information	* Motivate students * Flexibility
Bvtchar (2007)	Learner-centered, active learning, interaction, learning context, attention to individual variants, preparation of learner, cognitive learning levels, spend more time on learning	* Appropriate Technology
Khan (2005)	Education Factors , technology, interface design, management, support resources, human factors, organizational factors, evaluation	

While the views expressed in relation to the factors and criteria of quality of education and e-learning with principles derived from theories also provided In Table 1 as the quality of Standards in e-learning.
1. Learner -centered: learner should be at center of learning environment and curriculum development must be coordinated with their features and needs.

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2. Interactions: The key to effective learning; is Interaction between students Faculty and students, Students, content and participation in learning.

3. Flexibility: Optimal design of the electronic learning environment should be the learning environment is independent of time and place and help to the learner help learners to achieve their learning resources.

4. Encourage active learning and creative: Instead of presenting information to students, should actively and creatively engage in high levels of cognitive learning activities such as discussion, problem solving, and analysis and combined.

5. Due to individual differences: design of e-learning activities must be in accordance to the students' learning styles and a variety of learning activities and interactive learning resources with multiple presentation methods designed in order to adapt with different learning styles.

6. The use of ICT for online and offline capabilities.

7. Evaluation at all stages of the teaching - learning (Zarif, 2010).

Conclusion

By studying the approaches and resources in the field of creativity and innovation and creativity and summing them we find that Creativity is multidimensional and complex issue.Inevitably for a rigorous understanding of the concept of creativity and innovation should have broad and deep insight into the multifaceted approaches and take advantage to unify the various theoretical approaches and findings from a series of other facilities. This point of view is that we have a clear and realistic approach designed to provide a framework and a model for the development of creativity in virtual education.

Although several studies In relation to ICT-based training have been conducted in Several issues such as need, importance, benefits, requirements, infrastructure and process of training courses and e-learning (virtual) Being new to this type of training, Specific studies is paid on the subject of creativity and the development of virtual education, are less Access and abundant that The same applies to the researcher has to collecting and studying the writings, Research topics and content with close proximity to the theme of creativity in virtual training in areas such as; Factors and criteria of quality and effectiveness of e-learning courses, to deduce the conclusion and to provide the framework and dimensions of creativity in learning, including action that can be used to evaluate e-learning model 6 d (helm) offered by the Institute of Informatics of the University of the Middle East, Turkey (2009), International e-learning quality model agency in Sweden (2008), European Foundation for Quality Management Model of Learning (2008),a comprehensive evaluation model for e-learning Bedrol Khan-learning consultant and professor at the Federal University of Washington Educational Technology (2005), The next five factors of quality and effectiveness of e-learning Sloan Consortium (2010), Standards of quality and effectiveness of e-learning in Higher Education Policy Institute (2001),Three-stage model of e-learning quality of Saketi (2006) Anari and Safavie-learning model (2009) With close orientations in quality of e-learning courses On Due to factors such as Including systems quality, Quality of service, content, support for learners and teachers, learning materials, technology.On this basis, the researcher tries to identify and collect the most appropriate existing models and theories related to the topic of creativity, components and elements in identifying and providing a framework for the development and support of IT components markers of creativity in learning to use innovative methods, so that, in the following, described and offered each of these components and indicators.

*Component and indicators of Technology and Support the development of creativity in Virtual education:

E-learning Courses (Virtual)

Technology platform is designed to provide e-learning courses. E-learning should be using some of the tools and features and graphical interfaces available to the learners to provide Accessibility of people to training. Technology is one of the most important aspects of the development of creativity in virtual education which according to Components and indicators relevant to this post can significantly influence Expression and provided creativity in the field of virtual education. It consists of the following components and indicators:

A) The components of the technological architecture of e-learning courses:

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The component In the present model are considered With indicators Designing concept map And information studies (Askvbndy and skill categories), Providing lessons Based on Virtual standards (set goals for each lesson, content, self-examination questions for each topic, summary and conclusion, the evaluation of the end of each lesson) Facilitate the design of systems (LMS learning management and learning content management LCMS), design attractive desktop on web pages (user-friendly graphical interface).

Table 2: Components and Indicators of Technology and Support the development of creativity in virtual education (Author, 2014)

Dimension	Components	Indicators
E-learning courses (virtual):	Technological architecture of e-learning courses Capability of Technical e- Learning	Providing lessons as A concept map and information (Askvbndy and skill categories) , Providing lessons Based on Virtual standards (set goals for each lesson, content, self-examination questions for each topic, summary and conclusion, the evaluation of the end of each lesson) Facilitate the design of systems (LMS learning management and learning content management LCMS), design attractive desktop on web pages (user-friendly graphical interface). Indicators of access to software applications in teaching-learning, capability of synchronous and asynchronous learning without limits of time and place, capability of create multiple network interfaces, Updating functionality and design appropriate learning activities, capability of holding seminars Infrastructure, conferences, chat and video, capability of easily search for information on web pages through different browsers
The components of the support of e-learning courses:	The component of research support projects	The opportunity and the time required for reflection and contemplation, the ease of access to resources and unlimited and rich study cases, ease of access to help at any time and place, easy transactions and extensive research on the forum and chat, provide Framework for teacher education and research design, active participation of the learner in the process of teaching and learning in the process of studies and research, the use of the virtual library, Ability to various fields of study (simulations, labs, workshops, etc.).
	The components of urinary support	The ease and speed of the registration process and unit selection, fast and accurate update of information to the learner, the learning speed and accuracy in handling requests for learners, provide appropriate Consulting Services.

B) the components of e-learning technical capability:
Indicators of access to software applications in teaching-learning, capability of synchronous and asynchronous learning without limits of time and place, capability of create multiple network interfaces, Updating functionality and design appropriate learning activities, capability of holding seminars Infrastructure, conferences, chat and video, capability of easily search for information on web pages through different browsers.
2. The components of the support of e-learning courses:

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Support of the participants in the virtual training courses including topics that if not properly done will affect greatly on the quality and the effectiveness of the course. Therefore, the successful and effective implementation of e-learning courses, involves having timely support and protection in various fields that this support in the present study, have been introduced in two categories of fellowships and research support and as well as administrative support components in the following e-learning courses.

A) The component of research support projects:

Supporting studies and research in virtual training as a field and facilitator of the correct implementation of the educational dimensions of e-learning courses that the emergence of creative learners will have a significant role in the learning process. These components include the index as follows:

The opportunity and the time required for reflection and contemplation, the ease of access to resources and unlimited and rich study cases, ease of access to help at any time and place, easy transactions and extensive research on the forum and chat, provide Framework for teacher education and research design, active participation of the learner in the process of teaching and learning in the process of studies and research, the use of the virtual library,

Ability to various fields of study (simulations, labs, workshops, etc.).

B) The components of urinary support:

This component includes the following indicators: the ease and speed of the registration process and unit selection, fast and accurate update of information to the learner, the learning speed and accuracy in handling requests for learners, provide appropriate Consulting Services.

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