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New Tendencies in Education: E-Learning

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Abstract: The purpose of this study is to analyze the electronic education from country, institution and individual aspects within the framework of learning tendencies. The study focuses on being a reference point to mass community. Mostly known learning tendencies are; psycho-motor, cognitive and kinesthetic. And there is the emerging tendency of transformative learning. There are the methods of electronic education which are; Computer Based Education (CBE), Computer Supported Education (CSE), Web Based Education (WBE), Video Tele-Conference Systems (VTC), Video Education, Video-Television Closed Circuit Systems. In an organization where there are significant number amount of employees more than one method can be used together.

Key words: Electronic education · Learning tendencies · Transformative learning · Electronic education methods · knowledge managament

INTRODUCTION

The main subject of this study is "Electronic Education". It is aimed to analyze the contributions to electronic education by scrutinizing the subjects from country, institution and individual points of view. Electronic education which shortens the time spent in classroom education activities enables the problems to be solved in less time with the minimum cost ever. 21st century, considered as the "information era", has made it self evident to catch up with the "era" by way of education only.

Everchanging technology provides people with the opportunities to catch up with the modern level of life whereas restrains it from the aspects of time and phisical conditions. Therefore it becomes difficult to claim that technology offers all the opportunities fairly to the developed and developing communities. On the other hand the "time" factor plies against developing communities.

The study focuses on being a reference point to mass community. Considering electronic education, mass community consists of electronic and computer engineers who are not even directly related to the subject; the education related people and the broadcasters.

Learning Tendencies: Either in electronic education or within the process of general education the fundamental of success lies in the realization of educational tendencies degree and which tools to use. Today's modern technology has made it possible to apply these modules without the phisical existance of a tutor or without bringing all the students together. For this reason it becomes significant to identify te learning objectives and purposes clearly.

Mostly known learning tendencies are; psycho-motor, cognitive and kinesthetic.

Psycho-motor Learning Tendencies: This field consists of learning activities based on phisical actions. It is aimed to establish a coordination between education taken in the psycho-motor field and neurological and muscular systems. Talking educations, technical courses, phisical training and machine practicing educations are the main subjects of this field. At first glance it can be inferred from the things stated above that this field has nothing to do with distant education. However, today's computer technologies has brought this field out of the classrooms by use of simulator educations. It is still possible that one can learn by simulators, without help of a teacher, in the fields varies from machine operator to plane using. This education can be conducted by CDs and internet.

Cognitive Learning Tendencies: This field consists of six stages which are related in sequence. Cognitive approach is easy to use in classical and distant education models. The mentioned six stages are as follows:

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- Knowledge is the pursuit of obtaining trial methods through definite realities (such as; trends, methodologies, principles and theories) and the reminding of structures, practicies and transformations. Knowledge consists of defining realities and remindings.
- Apprehension is the lowest level of understanding. It consists of, when necessary, knowledge translation, interpretation and anticipation through simple extrapolation from the knowledge.
- Practicing is the third stage and solid knowledge and abstractions are obtained through this stage. These generalisations and abstractions consist of principles, theories and ideas that are available for practicing.
- Analysis is the stage of dividing the obtained knowledge to logical pieces and correlating them with each other and the whole.
- Sythesis is the stage where divided knowledge is reorganized to form a new whole.
- Evaluation is the determination of benefit through reaching a definite objective and qualitative and quantitative judgement of obtained knowledge. It can be done through internal and external criterias. Internal criterias are straining of knowledge out of coherence. External criterias are the comparison of a knowledge to the others.

Kinesthetic Educational Tendencies: Kinesthetic Educational Tendencies are the most difficult kind to define for students' area of interests, emotions, velocity of perception and the incination to obtain or refuse to take knowledge. Students' behaviours in this field consist of aspects that are ranging from attention paid to the subject to his/her conciousness. In distant education methods the aptitudes of the students at the field is coordinated between teaching materials and students' sense organs with the help of multi media Technologies such as; video/audio records, interactive texts or graphs etc.

Sub categories of kinesthetic educational field are as follows:

- Perception stage is student's comprehension of materials offered to him/her.
- Evaluation stage can be measured by student'staking in the development within the education process and his/her spontaneous contribution to this process.
- Stage of internalisation with value judgement is the adaptation of these judgements with what is expected from the student [1].

The Emerging Tendency: Transformative Learning: Personalisation of knowledge is also named as *transformative learning*. Transformative learning is the most important learning style inespecially distant and electronic education fields. Transformative learning can be defined as interpretation of experiences, ideas and assumptions obtained from preceding education. The purpose of transformative education is to try to apprehend the meaning of educational process in order to overcome difficulties and restrains they are facing in apprehending the life. Another important piece of this process is to let students address the same questions to themselves.

Therefore transformative learning doesn't end with the course's and education's finishing. Education obtained in ideal conditions is the beginning of lifelong learning process [2].

Education: Education can be defined as bringing in students with fresh knowledge and talents or with talents for definite purpose of using the knowledge or promoting the students to a defined level in a determined period of time within teaching process. Here there are four main elements within the definition of education [3].

A-Intention: An intention of developing the talents of the students or employees into a definite direction and aiming to get rid of the pitholes caused by general needs.

B-Designation: This conists of aapting the educational strategies to students' needs and structures and the efforts to measure the effectiveness of the education.

C-Tools and Enviroment: This defines the classroom or electronic devices, independent studies or a combination of all.

D-Evaluation: The stage in which the level of the students' achievements are demonstrated.

Technological advances have effected education from different aspects throughout the history. After the invention of printery by Johann Gutenberg in 1436, 2000-year handwritings were extirpated from the education history and mass community have had the opportunity to obtain knowledge through boks and newspapers. The progress has started to take place within shorter period of time after Gutenberg's time. Morse code, phone, radio and films were invented between 1850-1900 and it facilitated for mass community to reach to the knowledge. In 1940 invention of TV brought a revolution like innovation

portioned toy he preceding ones. Since 1990 internet has overshaded the TVs.

In latter stages TVs and videotapes has taken place of education films. TV's easiness in broadcasting and videotapes' easiness in repeating the items has made them be regarded as *revolution* in the field of education. Therefore in most university campuses in the USA wide cable networks have established [3].

Computer Based Education has emerged to meet the need of mutual interaction between students and tutors since 1970's.

Electronic Education: Electronic education can be defined as the transfer of knowledge and solutions that enriches the performance by way of internet technology [3].

It is a network system that gives the opportunity to deliver, keep and renew the knowledge. Electronic education, contrary to classical education, handles the education in the broadest meaning. In this sense there are no restrictions in terms of field and time.

In the light of these basic charasteristics the advantages of electronic education are as follows:

- It is possible to reduce the education costs by electronic education.
- It is possible to enrich the flow of knowledge and mutual interactions between business life and electronic education.
- It is possible to arrange the contents of electronic education for definite needs of a student or agroup of students. This characteristic depends on refreshing the contents of the education from one single center.
- It is then most suitable education method for transformative learning.
- There is no time limit in electronic education. The individual who wants to have this education can take it 24 hours a day within 365 days in a year.
- Since it is applied in accompliance with internet protocoles and browsers, it is possible to obtain a knowledge within the same way in any part of the world.
- It is possible for people to form a group in order to share their experiences with each other.

With the word "electronic" in education field, the tools used to deliver the education material is meant. These tools can extend from video cassettes and CDs to internet enviroment. The tools to be used are determined by more than one criteria depending organizational benefit expected from education, financial opportunities and level of students.

Computer Based Education (CBE): This education defines the method in which the educational materials come up with discs and CDs for use in PCs. The ideal method is to provide the student with educational CDs of necessary materials and to be in service whenever he/she wants it be coppied to the hard disc. The main advantage of this education is to give student the opportunity to adjust the speed of education in accordance with his/her talents and perceptions.

The more sense organs are used the faster the knowledge will be called up. Therefore, in the supply of the content audio, video, hypertext and animations should be used.

Computer Supported Education (CSE): It is very like the CBE. The main difference is that it is designed to asist the classroom education methods. Students should be taking classical classroom education in order to use CSE. This kind of education is important from the aspect of enriching the knowledge obtained from classical classroom education.

In this kind of education tutors have more flexibility in classroom education an d they can spare more time for the students who learn slowly.

From the institutional point of view, the prime advantage is that it gives the opportunity of cutting down on the education expenses.

Web Based Education (WBE): The basic delivery tool in WBE is internet or intranet. This can be arranged in two models. In the first model education is assumed to be made use o for transfering knowledge just as in CSE. In the second model, it totally replaces classical classroom education. This way, one can have education whereever he is and whenever he wants.

The main advantage of WBE is that it gives the opportunity for students to interact with each other and with teachers. Some peculiar characteristics of WBE are stated below:

- Asynshronnized electronic education is a student's getting educated by himself and by the assistance of the teacher simultaneously.
- Synchronized electronic education is the realization of the eduction by teacher's and student's getting

together by way of communication technologies while they are at different places.

- Synchronized team study and decision making process from students' points of view is beneficial from the aspects of forming a group, conducting "brainstorming sessions" and finding solutions to the technical problems [4].
- Even in case of classical education, it can be prospered by web opportunities. Also in this education method one can make use of all the tools provided by internet technologies.

Video Tele-Conference Systems (VTC): VTC is a synchronized educational method in which all sides (namely teachers, students etc.) can establish a visual connection with each other within the same session. This can be managed in three ways; video, audio and data transfer. It can be arranged on large scales or as desktop. They are mostly expensive to build. Systems building and maintenance as well as specialists and large "saloons" are also required. In desktop VTC building costs are relatively lower.

In this system all sides can establish a connection on face to face basis. Communication opportunities are extremely effective.

Video Education: Video education is one of the oldest applications in distant education. In this system education is one sided and communication opportunities are relatively low. Updating the knowledge in video cassettes is extremely difficult and expensive For this reason it is mostly used to assist the lessons in the boks rather than being a single tool for education.

Video-Television Closed Circuit System: This system can be thought to be the mixture of VTC and video education. In this system an educational TV programme is prepared by a tutor and broadcasted on TV. Students are encouraged to ask questions by phone. It is used in multi-campus universities in the USA.

Comparison of Electronic Education Systems: The advantages and disadvantages of electronic education systems from the aspects of students, tutors and institutions are as seen on Table 1 below:

As seen on the table, each method has its advantages and disadvantages. It is undoubted that some disadvantages should be done with in accordance with the expected outcomes. One common characteristic of electronic education systems is that they all are expensive to build. Investment costs are relatively high when compared to classical eucation methods. In case the updatings are done for lower prices, WBE becomes the most applicable one. On the other hand, if the delivery of everlasting knowledge is in question then CBE or CSE could be more favourable.

Tele conference systems call attention to their high cost infrastructure. Today, the effectiveness of the video education has relatively gone down. VTC systems are extremely expensive to build. None the less, in an organization where there are significant number amount of employees more than one method can be used together.

Benefits Expected From Transformative Learning In Electronic Education Enviroment: The benefits expected from transformative learning differ in many ways. Students' finding new ways to express their ideas, their enriching those ideas with different aspects or their original explanation on how this education contribute to knowledge are some of the benefits expected from transformative learning. The main difference between classical and transformative learning are the mentioned

Table 1: Summary of Educational Technologies

Characteristics	CBE	CSE	WBE	TC (wide)	TC (desktop)	Videotape	VTC
Ease of Use	Y	O-Y	O	O	O	O	O
Ease of Revision	D	O	Y	Y	O	O	O
Executive Costs	Y	Y	O-Y	Y	O-Y	Y	Y
Maintanance Costs	O	O	D	Y	O	Y	Y
Geographic Independence	Y	O	Y	D	Y	Y	D
Synchronisation	A	A/S	A/S	S	S	S	S
Mutual Interaction							
Student:Tutor	D	O	O	Y	Y	O	O
Student:Student	D	O	O	Y	O	O	O
Student:Content	Y	Y	O	D	O	D	D

H: High, O: Medium, D: Low, A: Asencronize, S: Sencronize Source: Belanger and Jordan 2000: S. 88

CBE: Computer Based Education CSE:ComputerSupportedEducation WTE: Web Based Education

TC: Tele Conference VTC: Video-Tele Conference

tendencies. As a result of sharing knowledge and experiences with each other in this enviroment, students may gain depth and prevailance in any subject they are taught.

The changes expected in the attitude and behaviour of students from transformative learning aspect are; implementing what they learn, optimized thinking to obtain more profound and analitic findings and gaining the talent of crativeness [2].

Knowledge Management Systems: As easily could be inferred from the opportunities that the electronic education has brought about, education cannot be defined as a simple data (knowledge) transfer anymore. The point in question from now on is "knowledge management". It defines the conceiving of knowledge, experiences and prospects of the people who have the similar interests within the institution or the group and the the reaching and sharing of them[3].

There are four categories of knowledge mentioned above. The first one is "open knowledge" which is open to everyone and can be put into a document easily. The second category is "wordless knowledge" which is almost impossible to explain and to put into document. It is, just like leadership talents, buried inside of person's experiences and impossible to put into words. In the third category there is the "personal knowledge" which is the total sum of person's education and he has got and experiences. The forth and the most important category from the electronic education aspect is "institutional knowledge" which is compiled within more than a man's lifetime.

Knowledge management is designed to ply as a "virtual memory". It is put into practice in four stages. Those stages are:

- Document management is the first and the simplest stage of the knowledge management which consists of gathering necessary documents and preserving them.
- Comprising, sharing and the management of the knowledge is the stage where non existing knowledge is created or obtained from external sources.
- Building organizational intelligence is the creation of know-how about the organization and injecting this talent in the system.
- One of the most important components in knowledge management systems is the systems assistance. With those support systems could it be possible for an organization to survive and sustain. Thus, the integration between education and business could be managed.

Electronic performance support tools (EPST), are distributed as independent softwares. electronic performance support systems (EPSS) on the other hand, are rather wide-reaching and can easily comply with organization's computers. In any way, the common purpose of those systems is to give the opportunity to obtain knowledge whatever and whenever tha users want with the minimum effort. This performance is divided into three main types which are extrinsic support systems, intrinsic support systems and external support systems.

External support systems consist of the documents needed, help desks and call centers. The main characteristic of those systems is being obliged to drop the job during the support.

Today all the softwares are distributed with guidance and assistance systems for the people who have not used the software yet and with the extrinsic support systems such as "wizards" and online support tools. In use of those support tools dropping the job is not necessary. Nevertheless, the user must decide on which subject he/she will receive the support for. The "search engines" within web browsers can set a good example of this kind of support.

The most significant characteristic of intrinsic support systems is to adapt themselves in accordance with the user's needs. Worldwide Microsoft 2000 can set a good example of that.

DISCUSSION

Updating the contents of educational materials are easier in electronic education compared to the classical classroom education. In many organizations it is of vital importance to work in the light of the up to date knowledge. Even if it is possible to update the knowledge, electronic education still has an indisputable advantage on knowledge propagation velocity issue. Whatever the subject is, many organizations perform the works substantially with the help of the computers. So, it is possible to conduct educational activities significantly by making use of this capacity. Although the execution of these activities generally depends on computer-based infrastructure, it is probable to make it eligible for electronic education with low-cost supplements.

In classical classroom education activities are arranged in accordance with the development level of an avarage student. In this arrangements, students whose development level is above or below the class avarage may suffer dilemmas. Avarage education level hinders the use of potential educational velocity of successful students by making them unsatisfied. Those students mostly lose their motivation for the education in time.

On the other hand, unless a special attention is shown it doesn't seem possible to increase the educational velocity of the students who are below the avarage. Electronic education can be solution for these two dilemmas. In this method the hindrances in front of the successful students can be eleminated whereas the students below the avarage can easily be encouraged to promote their level with the help of the visual and audio tools.

One of the most important problems confronted in classical classroom education and in-family-education is the people's being reluctant to help their nearest individual's personal development. It has discovered that human being in general tend to help the people less known rather than the ones he knows well in terms of personal development. The main reason for this is the fear caused by the belief that he/she will be outranked by the acquaintance helped [5]. It is considered, at least in the beginning stage, that electronic education may conceal this negative effect or postpone it.

On the other hand, electronic education can give great opportunites within the extracurricular fields from the aspect of personal development. It is possible for the people who have completed classical classroom education to update and promote their knowledge level. It is also possible that the people who haven't gotten vocational education may acquire a profession with this method. Electronic education gives a great opportunity especially for the people who are working and thus cannot attend normal classroom education from the aspect of personal development.

One of the most important dilemmas faced in developing countries with classical education methods is that personal achievements are mostly drained of strength by the community or close people. A study on this subject has revealed that people have strong feelings about the others on not being successful in developing countries. Besides, according to the findings of that study, it is found that they feel disturbed with the successes of the people from near enviroment and find themselves as unsuccessful accordingly[6]. Therefore, electronic education gives the opportunity to solve these dilemmas in devloping countries from the personal affairs point of view.

Despite all benefits obtained from electronic education, it can still be impossible to perform necessary activities for a variety of reasons. To be more spesific, those reasons can be classified under three main titles; country, organizations and individual reasons. Electronic education can not be applied with the same easiness in every country. Those difficulties can be technical, economical and social.

One of the main characteristics of developing countries is the "dual structure" they have. In that kind of country there are those modern organizations as well as conservative ones[7]. Consedered as one of the modern organizations, universities should be encouraged to participate in electronic education activities regarding the opportunities provided in terms of academicians and technological opportunities.

CONCLUSION

Even though there are intense demands for electronic education, the realization of this education mostly depends on technological opportunities and the development of them. The most important of those opportunities in a country is widespread and low cost access to internet. Providing this opportunity requires investment to internet service suppliers and communication organizations as well as network systems. To obtain benefit effectively from the networks, all the schools at any level should be equipped with computers. This infrastructure should be supported with instructors who are specially educated for that purpose. The mentioned expenses can reach up to a remarkable sum, however it can be reearned productively with the help of the education.

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