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Professional Development Through Virtual Education and Training

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Abstract **– The impact of technology on education is tremendous and is perceptible in different ways.For instance, the paradigm shift in the delivery of instructions is apparent. From the teacher centered paradigm, we have been moving to the learner centered one, whereby the learner is empowered by technology and can learn at his/her own pace and place. We are now progressing towards the technology mediated, learning and training centered paradigm, in which there is greater scope for interactivity during learning and training. Another impact of technology is that it is catalyzing the process of globalization, which in turn is influencing education. Today, the use of some of the technologies is by the masses and consequently the impact of technology is on the society as a whole, as well as on individuals. ICT is the major contemporary factor shaping the global economy and bringing rapid changes in the Education system. There is a need for intelligent use of ICT for learning and teaching and to enhance the new technical skills required for new jobs. In particular, ICT have proven useful for supporting and developing creative, innovative and entrepreneurial attitude and thus helping in professional development. In this paper, I have tried to outline the issues associated with various approaches to ascertaining teacher's performance that might prove productive in developing and detecting more functional and operational teachers.**

Keywords **– Computer Mediated Learning, Educational Technology, Web Based Learning, Virtual Learning, Collaborative Learning, Computer Based Training.**

I. INTRODUCTION

In the current age we live in, technology has become an important component. Since we have moved to the 21st century the whole approach to teaching and learning has increasingly been aided by the constantly evolving technologies. In the last three decades, there has been a major shift in the concept of training and development. As a consequence, the traditional way of first learning in a classroom and then applying such information for the rest of one's professional life is no longer ideal. Today, there is need for a continuous process of up-dating one's knowledge while making use of the existing knowledge. This is the prime requirement of professional development and it has become indispensable due to on-going creation of new information, and the easy flow of this information at a global level. With the advancement in automation in everyday life; office, business and in learning, it has indeed become absolutely necessary that everyone gains adequate skills in computer technology. We are living in a world that has become increasingly challenging hence our approach to learning, especially in schools need to be commensurate to the social, economic and political dynamics witnessed in our global community. The world we are living in today is fast moving towards becoming a more open and smaller global society. This scenario has brought about opportunities for economic development, international partnerships, human freedom/rights and peace. However, this has also brought about creation of new sets of challenges that are related to the changing pattern of multicultural communities, labour and environmental disruptions. Teachers and all learners have to note that knowledge is dynamic since it has become common knowledge that what is reality currently may not necessarily be reality tomorrow hence, what is of value today may become valueless tomorrow.

There is need for people to learn how to deal with the demands of our society. At the same time, learn how to develop the capacity that allows them to change in order to be fully in control. According to Delores (1969), the vision of the coming century is defined as one in which the strive for learning is valued by individual persons and by the authorities all over the world, not only as a means to an end, but also as an end in itself. This is why teachers need to individually develop by equipping themselves with e-learning skills which will improve their level of knowledge and competence in their approach to academic issues.

II. VIRTUAL REALITY

In the process of creating real world like environment through computers, more facilities have been developed for professional development. Such facilities open a new world of experience and make the learning process a lot more real without learners actually having to go to the field. One such device is data-gloves which facilitates maneuvering of three-dimensional objects on computer screen. This has been possible with the help of Virtual Reality(VR). The term Virtual Reality was first used by Jaron Lanier in 1989. According to him a Virtual Reality is a medium where a virtual world (a synthetic 3-D environment in colour and with stereo sound) can be explored and examined continuously from any perspective in real time. There is continuous control of one's movements and what is seen by one is in three-dimensional setting making it appears as a real world. A small movement triggers a change in the three-dimensional appearance of the image and enforces the experience of a real world change. VR has enabled a new learning environment in terms of breadth and space. Now a learner is not an outsider in the events as they unfold in front of his/her eyes but very much in the middle of the events and also controls the events. He/ She feels the sense of touching the real objects in a real world.

III. SIMULATION

Virtual Reality has been at the heart of simulation. Simulators have been very successful in professions, which involve study/operation of intricate mechanism. Therefore, in training with the help of simulators, maintenance engineers have been great beneficiaries. If the job requires to detect malfunctioning part/process of say an engine, an air-conditioner or TV set then simulator makes it a lot easier to train and develop the skills to identify mal-functioning areas. In a machine, VR provides a three-dimensional view of the inter-relationship amongst various parts, safety mechanisms, power points and so forth from different angles. It will not be possible if one chooses a two- dimensional view. It will also not be possible with a real machine until it is open to its tiniest of the part. And once all the parts are open and put aside then the inter-relationship of various parts may not be very clear in the first instance.

IV. MODELLING

Modelling has proved to be one of the most successful learning processes. In simulation the learner is given a model and he/she studies through it whereas in modelling, the learner is the creator of the model. It is very realistic to assume that with successive models a learner keeps improving his/her skill, which become useful in the real world situations like communication and testing skills.

For instance, a model of governance can be developed and tested for its effectiveness or a model to save energy in a university campus may be developed. It is possible that a particular system can be represented by different models. What makes the selection of one model over the other is the objective of the system and also the learning style of the individual. Another factor which contributes to making a particular model is the kind of modelling software package used. There could be an inherent tendency in a package, which favours a particular type of modelling. There are many software packages available for modelling but for powerful packages one needs advanced programming skills to run them. And that is the reason for most of the learners to use spreadsheets since they are convenient to work with than programming languages. Some models may be designed for routine in-service educational programmesas part of the endeavor towards professional development, while some models may be designed to fulfil a sudden emerging need i.e. that are just in time context. The learning through these programmes can be put to use immediately. Models of training may relate to previous experiences, have scope for self-assessment, self-correction, reflection, etc. i.e. it may includes features that promote metacognition.

V. DECISION-MAKING

The process of decision-making is concurrent with the process of teaching and learning. The first big decision is regarding the selection of the best-suited technology to impart training (on the part of trainers/educators) and acceptance of such technology (on the part of learners). The fear of dealing with the technology selected or lack of minimum level of expertise needed to deal with such selected technology itself can pose a serious threat to whole idea of imparting new information. Once the technology has been accepted then a series of activities like testing and validation of the technology and making decisions for the rest of the learning process are then undertaken. The kind of decisions made depend largely on the decision-making situations. The degree of decisions can vary from certainty to great uncertainty.

Each profession has its specific needs, which a trainer/educator keeps in mind while imparting the new information. But broadly speaking, a leader can take judicious decision or find solutions to problems if he/she:

- can think at a higher cognitive level
- has clear understanding of the basic assumptions involved
- has comprehensive and specific knowledge of the field
- receives proper guidance to use data and information
- has framework of appropriate decisions to be taken in various situations.

All these tasks are facilitated by modern technologies like the computer that help in accessing data (over the Internet), processing it and utilizing it for decision making. For instance, data of learners' achievements over the years in a particular area can be stored, processed and utilized for decision making. There are software for collecting,disseminating, and dispatching information on a regular basis. Today, information on Internet-based services is continually updated and hence decision making is based on current data. Tools are also there that train in thinking and decision making in given situations. Such tools may provide viable options and guiding principles for decision making. There are micro world simulations that help in training in dynamic decision making process in artificially created i.e. virtual complex environments.

VI. TECHNOLOGY FOR PROFESSIONAL DEVELOPMENT

The learning process involves acquisition of new information and sequential acquisition of new information leads to efficiency in doing/performing an activity. This makes it very important for a learner to have the means and ways to have easy access to the information. Also, continuous assessment of information is at the core of a successful learning process. Appropriate technology takes care of maintaining the information and makes such information available with the least amount of time wasted or efforts put in. over the period, there has been a steady evolution of technological advancement in finding new ways of storing and having easy access to information.

(A) COMPUTER

The rapid growth in personal computers has facilitated an easy and equal access to information. it has led people to create, store, share and retrieve information at a global level. It has also paved the way for a lot more activities like one-to-one or one-to-many conversation, informal and formal real time meetings, keeping a tab on deadlines and

progress made, simulating situations and so forth. The whole process of communication has become simple so much so that for some people even going to office is not needed. For people dealing with information flow, an office is wherever they can access the information or can create their own comfortable work zones.

It is needless to mention that today computers are the most widely used machines to create, store and retrieve information. They are very much a part of our daily life now. Right from creating a newspaper to banking, managing train schedules, shopping through credit cards, making a blue print of a dream home and planning a holiday, computers help us. Computer comes to help a lot when a learner/professional wants to learn at his/her own convenience at his/her own pace. Compared to face-to-face training, a computer-based training (CBT) takes away the pressure of fear of failure in front of fellow learners and lets one go over the information as many times as one feels the need. The skill to operate the computer and retrieve the stored information is vital in the successful completion of CBT.

(B) INTERNET

Galbreath(1997) defines Internet as a network of networks with a universal addressing scheme allowing real-time, computer-to-computer, local-independent communication and information exchange. Today internet has become a major source of information access.

The key features of Internet can be described in the following way:

- *Information:* There is a huge body of information in the form of text, graphics, sounds, videos, animation, simulations and many other computer programmes, which is available to us with the help of a simple personal computer (PC) to read/see or download on our PC for future reference.
- *Cooperation:* Internet allows us to communicate, learn, produce, cooperate and share the information with many other people.
- *Real Time:* The dynamic feature of Internet is that it is not only a source of stored information but it also makes it possible to interact in real time with real people. It allows people to be at different locations on the globe and yet enable them to work on a project at the same time.

In the context of professional development Internet provides a big canvas to navigate through streams of information and become a discoverer of new horizons. Providing training to learners located in different geographical places is faster and convenient with the help of internet.

(C) TELEMATICS

Historically the term telematics has been used to refer to the combination of telecommunications and informatics. In the beginning this form of combination was used more to enhance the functionality of motor vehicles but gradually it has become a good source of sharing information. It is used mainly for sending, receiving and storing information via telecommunication devices. Interestingly, internet, the important tool for accessing information today, is an example of telematics. Similarly, e-mails, websites and videoconferencing are also some examples of telematics. Today online resources and learning online are common. Information is uploaded, downloaded, stored, processed and retrieved when needed using information and communication technology. Learners can chat or send e-mails with files attached to exchange information with their peers and teachers and also other experts. Video and computer conferencing facilities are revolutioning seminars, conferences and meetings wherein the participants need not be physically present. Countries with highly developed infrastructure needed for Information and Communication Technology (ICT) and networks to support education and training are set to gain from the use of telematics for distance education and training.

VII. TECHNOLOGY AND NEW PROFESSIONS

Norbert Weiner, one of the pioneers of computer sciences and widely acknowledged as the Father of Cybernetics, pointed towards the effect of technology on jobs about 50 years ago. Norbert Weiner observed that the computing machine is so flexible and adaptable to mass production that it will materialize the concept of factory without employees; as for example, the automatic automobile assembly line. Today there is a perceptible change in the ways jobs are performed compared to the age- old traditional ways. The examples are now part of our daily life, like using an ATM machine for banking, shopping through credit card, saving the life of unborn child, getting the railway reservation done and so forth. Computer- based technologies have made a big impact on job market. Such technologies have not only altered the way a job is executed but have also given birth to new kinds of jobs like software engineers, programmers, etc. Gradually the focus is shifting from labour-intensive industry to technology-intensive industry.

The new information dominated age is forcing big corporations to change their style of working. Today the emphasis is on hiring workers with ‘core competence’ supported by temporary or contract workers. People who are specialists in their jobs and are pro-active to any new change form the core team of the organization. Chapman (1996) firmly believes that modern day technology has replaced low and medium skilled workers with higher skilled workers. Obviously it makes a whole lot of people to re-orient towards new profession or keep up with the change in their existing profession. Hence all the more need for professional development. New technologies establish the boundaries of an environment in which various possibilities might present themselves. It is in this spirit that one has to accept new technologies as the catalyst and carrier for a major change in job profiles. There is a growing feeling amongst new age learners that people lose their jobsbecause they are not willing to change according to time. The teachers who lose their jobs will only do so because they could not produce and use new knowledge and learn new skills and that makes them incompetent teachers anyway. The information age, with great technological strides, is opening new opportunities,

which require less manual skills but demand higher cognitive skills and call for the use of ICT.

VIII. CONCLUSION

The need to expand the knowledge base is vital in today's times since so much new information is being generated in almost all the professions. With each new information a new possibility of improving the performance levels of a job seems feasible. Even if there is no direct impact on the performance level, a new dimension about the profession does open up. The improved technologies are the corner stones to have made such information easy to access. Professional development is a continuous process and inspires one to constantly seek out and apply new information in one's job. Any given technology only works as a tool but the real usage of an adopted technology is reflected in the improved methods of performing a job. With the passage of time, the traditional method of professional development, involving primarily the development of isolated skills and strategies for improving one or another aspect of a profession, has changed to the overall development of a profession. As the functionality in performing a job changes, one cannot avoid to train himself/herself for new skills. On a more reflective note the technologies have significantly changed the job market. It is no more sufficient to know how to perform a job but what is needed is how better one can perform. Today computers have become a part of our daily life. Computers are a vital source of creating, storing, and retrieving information. It is so easy to access the latest information on global level with the help of internet. There has been a sea change in the learning process with the help of simulation, modelling and creating synthetic worlds of virtual reality. An added benefit of new technologies has been the decline in the relative cost of training more so in 'open and flexible learning environments'. On a positive note, the emergence of new technologies has opened up new opportunities like robotics, technicians, programmers, process control engineers and so forth. The concept of global village is in practice today with new information available at our convenience to be used in isolation or in collaboration with others. Today the interrelationship in new technologies, new information, new opportunities and development in a profession on a global level is clearer than before.

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