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ICT BASED EDUCATION AT THE SCHOOL LEVEL DURING THE PANDEMIC

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Abstract

All the educational institutions are in the lockdown phase as a precautionary measure to protect against deadly Covid-19 outbreak. To keep the continuity of the education system, the teaching-learning has shifted to virtual mode from conventional face-to-face mode overnight. The paper aims to explore the use of various web-tools in learning and teaching. The study reveals a strong psychological base for integrating web tools in learning and teaching. It also explored quite a few web tools which could be very helpful to the teachers to design their online classes.

Keywords: ICT, online learning-teaching, web-tools, psychological bases, COVID-19.

INTRODUCTION

After declaring COVID-19 as a pandemic disease by World Health Organization, along with other different countries all over the world, Indian Govt. has also shut down all the educational institutions. Special emphasis has been given to the school students to safe guard them

from corona virus attack and therefore they are strictly asked to stay at home. But there was a demand for continuing education from parents and teachers had to take the challenge of conducting virtual classes for their students (Shenoy, Mahendra & Vijay, 2020). It was only possible to maintain physical distancing and

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keep the school education get going at the same time, by using ICT in education (Brown, 2020). The world in which we live is rapidly changing. The advancement in technology has changed the classroom drastically. Amidst this unprecedented crisis, educational technology, more precisely ICT is being used in education system from pre-primary to higher education. The World Bank is supporting many countries to utilize proper technologies in education and thereby helping their ministries of education. ICT in education is not a new thing. In India ICT in education was first launched in 2004 and further revised in 2010 by MHRD to make sure that secondary school students get acquainted with ICT skills so that they become accustomed to learn through it. ICT is an umbrella term and in this paper the researchers mainly focused on various e-learning-teaching web-tools. These e-tools have already proved to dissolve the physical distance between its users which is the need of this time, during this COVID-19 pandemic. But the questions that keep on flashing on the mind of the educationists and psychologists are: Is this use of web-tools in education psychologically sound? Do the learning theories support learning through this web-tool? Do this web-tools help in better acquisition, transmission and retention of the knowledge? Therefore, the researchers intend to find out the psychological bases of using various web-tools in learning-teaching, giving special emphasis on school students. In this connection few web-tools are also being explored.

OBJECTIVES OF THE STUDY

The primary objectives of this paper are:

- To analyse the psychological bases of integrating web-tools in learning and teaching; and
- To explore the use of various web-tools in learning and teaching.

METHODOLOGY

For development of the paper researchers have undertaken a descriptive-analytical method. Various e-contents like e-books, e-journals, e-articles etc. were thoroughly reviewed and analysed as secondary source of data in this respect.

ICT IN EDUCATION

ICT or information and communication technology is a sub-part of information technology (IT) that comprises of tele-communication, internet, computer technology, various software, audio-visual medium and storage system to enable the users to access, store, transmit and manipulate information. To explain the importance of ICT in education, UNESCO stated that it “can complement, enrich and transform education for the better.” It also mentioned that ICT can play a multi-dimensional role for upliftment of educational quality. Ubiquitous access to education, bridging the learning divides, developmental support to the teachers, enhancing the quality and relevance of learning, supporting inclusion, strengthening educational administration and management are important ones.

PSYCHOLOGICAL BASES OF INTEGRATING WEB-TOOLS IN LEARNING AND TEACHING

- **Based on Constructivism:** The perception of psychological foundation of e-learning has evolved from behaviourism to cognitivism to social constructivism and at the same time the knowledge transmission approach converted to knowledge harvesting approach (Nawaz & Kundi, 2010). Constructivist educators believe that learners construct their knowledge while making sense of the world by reflecting on their respective experiences. According to cognitive constructivism (Piaget, 1971) learning becomes active when learners are able to link the new information with his previous knowledge. Whereas according to social constructivism (Vygotsky, 1978) learning needs a social environment in which language plays a vital role. Others help to bring new perspectives to that reality (Gebremeskel, Kebede, & Chai, 2016). These reflect that constructive learning theories completely fit with the concept of ICT in education that gives stress on acquisition and construction of knowledge by students involving social interaction (Hadjerrouit, 2009). Constructivism advocates for independent learning, self-regulated learning, student-centred learning, hands on activities and problem-solving. The various web-tools give ample scope for this type of learning styles through blog writing, content developing, social interaction. The images, audios, videos, texts provide wide range of experiences to the learners to construct their knowledge.
- **Based on Cognitive Learning:** Cognitive learning theories advocate brain-based

learning giving special emphasis on how human memory functions to facilitate better learning. In that respect ICT has a great impact on cognitive learning of the students (Gebremeskel, Kebede, & Chai, 2016). One of the important theories of cognitive learning is information processing model. According to the model, the information travels through three levels of memory viz. sensory memory, short term memory and long term memory. In sensory memory people perceives through their sensory organs. While using various web-tools the sensory memory gets multi-sensory inputs through audio, visual contents. When the information from sensory memory gets attention of the subject it comes to the short term memory (STM). The audio-visual impacts, colourful presentation, attractive graphics, animated contents of web-tools create interest and attention among the school students and it helps to pass the information in STM. Through drill and repetition information goes from STM to long term memory (LTM). The web learning tools give ample scope to the students to exercise their lesson and hence support this process. Therefore, by using ICT enabled web-tools, students can process and store information more effectively and efficiently for a longer period of time.

- **Supports Four Pillars of Education:** The Delor report (1996) spoke for the four pillars of learning, which are learning to know, learning to do, learning to be and learning to live together. This implies that people learn to acquire knowledge, learn various occupational skills along with skills to deal with any situation, learn to develop personality, autonomy, judgment and last-

ly learn to develop understanding of other people and to work with others collaboratively. ICT supported instruction satisfies the four pillars of learning (Šimonová, Poullová, Sokolová & Bílek, 2013). Various web tools for learning and teaching strengthen all these four pillars of learning. It provides an ocean of information; students get technological skills, social skills, thereby helps them to innovate and to be creative; it provides scopes for individual development and social interaction; and also train them to deal in different situations (Woolley & Booker, 2001).

- **Scope for Interaction, Communication and Collaboration:** Interaction and communication is the main target of ICT enabled web-tools of learning and teaching. An effective classroom is measured by the interaction between learners and teachers. The social networking sites like facebook, instagram, whatsapp etc. have opened the door of the classroom to the outside world. With the use of various web platforms of communication like Zoom, Webex, Google meet etc., the interaction between peers and student-teacher have increased immensely. Effective communication is another aspect of classroom transaction. The text messaging, voice call, video call facilities have opened up new channels of communication between student-teacher and peers. One of the new avenues of teaching-learning is collaborative teaching-learning. Collaborative learning means a learning situation two or more people/group/pair/class/community/society learn something together in face-to-face or elec-

tronic mode (Dillenbourg, 2007). Through these web platforms students and teachers from any part of the world can collaborate and work together. So today people can think locally and work globally using these technologies.

USE OF DIFFERENT WEB-TOOLS IN CLASSROOM TEACHING-LEARNING

MHRD have taken a great initiative to promote digital learning, especially during lockdown phase. Some of the e-learning portals are DIKSHA, e-PATHSHALA, National Repository of Open Educational Resources (NROER) at school level. There are various collaborative web-platforms like Google meet, Zoom, Cisco WebEx, Skype etc. through which regular school classes are being conducted virtually. There are few other impactful web-tools for teaching and learning, some significant ones are discussed below:

- **Edmodo:** This is free learning management system which is offering communication, teaching-learning and collaboration under a single online platform. Teachers can share learning contents, quizzes, assignments with the students. Parents get notified about all the class updates. The use of Edmodo in teaching and learning of school students has found to be very effective and advantageous (Alzahrany & Mejlal, 2018; Mohamed, 2017). Students and teachers should be given training on how to use Edmodo more efficiently (Almoewater, 2019). This tool is found to create a conducive learning environment that promotes active student participation (Siagian, Sinambela & Wau, 2020).

- **Google Classroom:** This is a free web platform for teachers and students that enables the teachers to create, share and grade assignments online. A study in West Bengal revealed that during COVID-19 percentage of usage of google classroom as/in platforms for online classes, materials sharing, and evaluation are 33.4, 31.8 and 24.9 respectively at graduate and post graduate level (Kapasia, et.al. 2020). Another survey reveals that about 25% students are using Google classroom for their learning purpose (Radha, Mahalakshmi, Kumar & Saravanakumar, 2020). Beside various features, incorporating Google classroom as a learning medium will increase student's ability to socialise in pursuit of knowledge (Ni, 2020).
- **Byju's:** This is a learning application, made in India. It is providing teaching content for Grade 1 to 12, giving special emphasis on mathematics and science. Byju's has contributed a lot in Indian school education by providing constructive teaching and learning methods which are self-paced, effective and interactive (Sruthi & Mukherjee, 2020).
- **Discovery Education:** Discovery Education is a self-directed web forum that provides digital contents to both teachers and students. Currently they are developing contents regarding COVID-19, its outbreaks for different grade levels (UNESCO, 2020). Teacher can make worksheets, learning designs, different educational games and puzzles with this tool and can use them in classroom teaching. One of the interesting offerings of the forum is virtual field trips.
- **Kahoot:** It is a game based learning web

tool that can be used in formative assessment. Study reveals using Kahoot has positive effect on student's learning, motivation, concentration and interaction, it reduces anxiety related to asking questions and hence improves student's participation (Wang & Tahir, 2020). It is recommended for developing pronunciation skill at any educational level (Yuruk, 2020).

CONCLUSION

Under COVID-19 threat, online learning and teaching is the best option to maintain social distancing and to continue teaching and learning at the same time. The use of ICT in school education seems to have strong psychological foundation that promotes construction, processing and retention of knowledge. These ICT enabled web-tools for learning and teaching are great platform for communication and collaboration as well. Along with various online educational portals developed by Govt. of India, there are other online learning web-tools that have already proved to be very effective, interactive, engaging and motivating with respect to the school students. Schools should use them more often. Massive use of ICT in education can lead the young students to online abuse or cyber bullying. Keeping that in mind NCERT has collaborated with UNESCO and releases a handbook, called 'Safe Online Learning in Times of Covid-19' (Telengana Today, 2020, July 4). The impact of COVID-19 will be there for quite some time. Therefore, learning from home could be the new norm of the system. The positive aspect is that India is getting well prepared with online teaching-learning mode involving ICT.

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