A Study of e-content through e-learning
Viewpoints of Researchers

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Abstract

The meaning and nature of education is getting new shape and perspective due to developments in the field of Information and Communication Technology. The use of Information and Communication Technology for effective learning in a knowledge-based society has travelled a long distance. E-learning has become the most strong and effective tool for twenty first century in the educational system. It has modernised the entire process of teaching and learning through the use of variety of techniques by designing of e-content in new perspectives. Now-a-days, development of quality e-content and its effect on the learning level of students has become one of the most preferred subjects for researchers to research on. The researchers, in this paper, tried to find out its root by emphasising the investigated steps to peep deeply into the origin of e-learning in India, and analysed the various researchers' works on e-contents through e-learning to visualise the scope for further research to be conducted in this field of investigation.

CONCEPT OF E-LEARNING

According to Cambridge Dictionary (2020), e-learning is defined as "learning done by using computers and courses provided on the internet." Education and teaching today are emerging as media loaded systems. The emergence of e-learning has shifted the paradigm of methods of classroom instruction and communication. E-learning is a general term used to refer computer

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enhanced learning. It supplements conventional teaching and learning, and placed the learner at the center position rather than the educator. It ensures a coherent, planned and progressive curriculum and transmission of core information. It provides the students more flexibility and better control over their learning. It takes into account pedagogical perspectives of teaching-learning. Various cognitive processes, emotional aspects (motivation, engagement, fun and sense of fulfillment), skills and behavioural outcomes of learning process are dealt with e-learning. In the teaching-learning process, the teacher is the protagonist. They are the chief organiser of the learning activities. In fact, in that capacity, they should gradually make efforts to give that place to the students. E-learning helps the teacher to go to the background and give guidance to the students electronically, inspire and direct the students to blossom fully according to their own perception, vision and experiences. In India, the concept of e-learning started to spread its wings in late twentieth century, the history of which is described under the following heading.

e-Learning in India

With the introduction of computer and internet in the late twentieth century, e-learning began its digital journey in India with the establishment of a virtual university named as 'Net Varsity' by NIIT. On 26th May, 1993, University Grant Commission established Consortium for Educational Communication (CEC)—an interuniversity center. It is a nodal agency at national level to address the higher educational needs of the country through production of curriculum and educational material at large and its dissemination through various ICT modes. In the year 1998, National Task Force on IT and Software Development was accepted by Government of India with the aim of equipping all educational institutions from high school upwards with internet connect Personal Computer's (PC) on an appropriate scale. After that, Virtual Campus Initiative (VCI) was started by Indira Gandhi National Open University (IGNOU) in 1999 that takes into account Bachelor of Computer Application and Master of Computer Application. Learning materials were made available to the students in downloadable zip files and Hyper Text Markup Language pages. Assignments were provided to the students for their evaluation. Additional support was also provided to the students through IV-2A teleconference. However, the program was withdrawn due to less number of students. Ministry of Human Resource Development, Information and Broadcasting, the Prasar Bharti and IGNOU in the year 2000 jointly launched a set of educational television channels Gyan Darshan I and II. These exclusive educational channels release programs from

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various Doordarshan Kendras using satellite transmission in different languages. Another milestone in e-learning came in the year 2001 when India's first social science online program was started by IGNOU. It was named Resettlement and Rehabilitation online Programme, and was supported by World Bank. A platform with course content, discussion forum, chat, assignment submission and online quiz was developed internally for the programme. This programme too met the same fate as that of VCI and was withdrawn from online due to less number of students and other problems (Mishra, 2008).

Realising the potential of online learning to reach out to the unreached, IGNOU in October, 2005 initiated the development of a knowledge repository to store, index, preserve, distribute and share the digital learning resources in the country. This repository is called *e-Gyankosh*. MHRD in the year 2006, designed an education portal named 'Sakshat'. It was a pilot project of the Government of India, which was being spearheaded by IGNOU. It was intended to be a one stop portal for students of all levels, teachers, scholars and life-long learners. National Mission on Education through Information and Communication Technology has been envisaged as a centrally sponsored scheme to leverage the potential of ICT in teaching and learning processes for the benefit of all the learners in higher educational institutions in 'anytime anywhere mode'. It was launched on 3rd February, 2009. It plans to focus on appropriate pedagogy of e-learning. It has envisaged content and connectivity as the twin pedals for initiating and accelerating ICT enabled higher education. E-PG Pathshala is another landmark initiative of the MHRD under NME-ICT being executed by UGC. Launched in November, 2015, it hosts educational resources for teachers, students, parents, researchers and educators. It is one portal under which, high quality, curriculum based, e-content is being developed in 77 subjects at post-graduate level (Department of Higher Education, MHRD, Government of India).

The e-learning platforms are bringing a measurable difference in students' engagement and performance. It is reducing gaps in the delivery of educational and giving a new dimension to the educational space with the blossoming of e-content, which proves to be helpful for the teaching-learning process.

E-Content

In the current scenario, e-learning platforms are the only way forward. Moreover, the government has adopted a series of measures to bring a technological revolution to accentuate e-learning. In this process e-content came out as a major breakthrough to make a shift in the Indian educational system. e-content is a subset of e-learning. According to Department of School Education

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and Literacy, MHRD, Govt. of India (2019), "e-content is any form of learning material available digitally which a learner access or interacts with, so as to achieve related learning outcomes". It is integrated synergy of several type of information such as text, audio, video, animation and graphics that leads to effective learning. It is the latest method of instruction that allows the students to actively engage in the teaching-learning process suited to their needs, pace and convenience. According to mission document NME-ICT. "It shall be the endeavour of the mission to continuously work for enriching the repository of e-content of the nation. For the purpose, it shall encourage the academicians, scholars and institutions to contribute to the world of knowledge in cyber space by creating e-knowledge content. The mission shall also evolve a mechanism to rate the quality of the e-content generated before admitting it to the national repository. The mission shall work on the philosophy of encouraging all the scholars and academicians to generate e-content." At present, Consortium for Educational Commission had initiated the production of e-content under NME-ICT on nearly 90 undergraduate subjects.

Nature of e-Content

E-content is interactive and self-directed in nature as it accommodates multiple learning styles to actively engage the learners in the learning process, and allows the learner to choose contents that suits appropriate to their needs, interest, abilities, capabilities and skills. It includes learner-centered approach that enables the learner to learn at his own speed according to their own situations, didactic nature: meaning contents that convey some moral fact or learning. It is based on the pedagogical principles that enable the teacher to act more often as a mentor and less often as a pedagogue. The teacher is expected to perform the role of a facilitator and moderator with different responsibilities in a technology-mediated learning environment. Convenience and flexibility are just other assets of e-content because the learning sessions are available for all 24 hours × 7 days, and the learners are not bound to a specific day or time to physically attend classes.

Forms of e-Content

There are two forms of e-content, they are Short Learning Objects and Module.

(a) Short Learning Objects (SLO)

Short Learning Objects (SLO) is a new way of thinking about learning content. They are much smaller units of learning, typically ranging from two to three minutes. It may be a description about an item, equipment, a concept, a process, an activity, etc.

(b) Module

E-learning modules are larger independent structural experiences,

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containing objectives, learning activities and assessment. In other words, it is a comprehensive package containing a lesson. It contains lecture modules with inbuilt visuals, text, quiz, FAQs, assignments, glossary, case studies, references, discussions and downloads. The output is deployable on the web or CDs. The following Table 1 differentiates between the e-learning and e-content.

Table 1
Difference between e-learning and e-content

e-learning	e-content
Objectives are general and not specified in behavioural terms.	Objectives are specified in behavioural terms.
Various ranges of technologies can be used for delivering the information.	Any one of the technologies can be used to deliver instruction at a time.
The duration of the programme cannot be fixed.	The duration of the programme can be fixed.
Immediate feedback cannot be collected.	Immediate feedback can be collected.
It is process oriented.	It is product oriented.
There will be no control over the situation.	It is carried out under controlled situation.

Significance

E-content in education has served as a primer to initiate a new level of learning. Like any other styles in teaching-learning process, e-content has drawn serious attention of researchers in recent past as it has shown marked influence on classroom transactions, students' behavior and learning outcomes. In the light of various government policies discussed above, it can be taken into account that e-content is boosting the impending growth of e-learning in India. Therefore, the investigators thought it worthwhile to go through the viewpoints of various researchers and explore how the e-content is becoming a new e-learning megatrend.

Statement of the Problem

A study of e-content through e-learning: viewpoints of researchers

Objective of the Study

To study and review the so far research work conducted by the various researchers on e-learning and e-contents.

Viewpoints of Various Researchers on e-Learning and e-Content

The enormous growth of e-learning in education in India and its perceived benefits have drawn researchers eye to study the various aspects of e-learning to enhance students' learning experience. Recent trends and researches have shown the acceptance and usage of different

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modes of e-learning in India over the last decade. A powerpoint based learning package for eleventh standard students in Botany by Rekha in (2007), had been developed to prove its usefulness and carried out a study to compare the effectiveness of it at pre-test and the post-test level which had resulted in that, the powerpoint presentation was found to be more effective tool for teaching the particular topic as compare to that of the traditional chalk and talk method. It also yielded fruitful results in respect of listening curiously and understands the topic easily. The need of an ICT based learning environment for students as well as teachers was highlighted by Merlene and Devanathan in (2008) and concluded that ICT based teaching-learning environment motivates the student for acquisition of knowledge and skills actively, and helps in the professional development of teachers to keep pace with the changing methods of ICT to support classroom teaching and learning. Likewise, Begum (2008) observed that teacher's role has been changing towards observing, intervening, monitoring and supporting learning and technology in its various forms like e-mail, tele-mentoring, online education, teleconferences, and streaming video have enhanced the quality of teaching-learning process, make advances in textual, graphical and computer literacy and develop depth of inquiry in the learners. The relationship between e-learning and achievement in Chemistry among higher secondary students in terms of usage of internet and number of concepts viewed was examined by Jayakumar and Krishnakumar 2014 in accordance with the objective to identify the extent of contribution of the background variables to the post-test scores and the gain scores. The significant findings were emerged out of the research carried out as the contribution of the two variables showed that the online materials were used more effectively.

Realising the potential of digital resources for the twenty first century, e-content in Biology and Tamil subjects was developed and validated by Amutha and Karthikeyan in 2007 for higher secondary school students. The researchers concluded that the e-content was the key instrument of making the teaching-learning process more effective, and it defiantly and significantly enhances the academic achievement of the students in the particular subjects. The effectiveness of e-content in teaching at tertiary level was done independently by Felix (2007); Karthick (2007); and Muthaiyan (2010). The study was conducted on nearly 25–30 students using experimental research method to reveal that e-content in the form of SLO (Short Learning Object) increases the performance of the students as the e-content intrinsically motivates learning and enables teachers to provide students with the experiences of variable difficulty, randomness and simulating nature. E-content on the

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topic 'concept of micro-teaching' was developed by Rastogi and Parashar in 2009 and was found to be effective in enhancing the level of proficiency of teaching skills in the B.Ed, students. Aravindan and Ramaganesh in 2010 investigated the effectiveness of e-content in concretising the concepts of physics among the heterogeneous teacher educators, and the results revealed that the e-content was effective in concretising the concepts.

e-content on teaching method of Tamil at B.Ed. level, and zoology at higher secondary level was developed by Karthikeyan and Shanmugaraja et al., in 2012 and found out the effectiveness of teaching through e-content in terms of active participation, encouragement of vigilance and learner achievement as a result of the unique combination of tutorial, interactive and visual capabilities. Rekha et al., and Albina et al., in 2013 clearly indicated the usefulness of e-content for learning purpose by students' achievement in biology and mathematics in terms of gain score of experimental group taught by using e-content presentation as compared to control group taught by using lecture method. The readiness and needs of 46 polytechnic students towards the development of e-content for engineering courses explored by Subramaniam et al., in 2013 using questionnaire depicted that 87 per cent of the students agreed that online learning materials (e-content) should be created in their courses, and 100 per cent of the students agreed that online learning materials (e-content) should be developed for future learning.

In a similar manner Jebraraj et al., and Digambarrao in (2015), Tripathi et al., and Amutha in 2016 confirmed the effectiveness of e-content than conventional method in making the concepts clearer. The experimental group who learned through developed e-content was found at higher level in their academic achievement, than the students in the control group who learned through conventional method. The distance between the teacher and the taught is becoming nil and we are headed towards a state of virtual reality. Realising this, the unique benefits of technology to instructional programs in the current digital era was focused by Muthukumari and Ramakrishnan in 2017 and Albina in 2018 for IX standard students by developing and validating e-content in history and mathematics subjects, and on the basis of learning outcome they recommended the generation of good e-contents that will be accessible to all. Kumari (2019) studied the effectiveness of e-content in nuclear physics on the academic achievement of higher secondary students and reported that the treatment through the e-content resulted in more gain and retention of the content at the knowledge, understanding and application levels of learning than the conventional method. Priya (2019) in her research paper

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titled "e-content development tools and delivery platforms" described some basic tools, simple delivery platforms and grading tools for developing interactive e-content. The paper gives brief overview of various software for content generation, animations, audio generators and screen casting tools. In addition, the author proposed that e-content is the best methodology for reaping the great benefits of learning owing to limited opportunities and economic disparities. Singh (2019) investigated the effectiveness of e-content on environmental education in terms of learning outcomes of undergraduate students and concluded that learning materials in multimedia format are effective than print materials because of joint presentation of text, picture, graphics and sound to explain the concepts.

The above studies show that e-learning is playing a major role in Indian educational system over the last decade. E-content as a subset of e-learning is changing the current trends of classroom learning and is sure to stay and make a long lasting impact on all the aspects of education.

Conclusion

By realising the fact that e-learning truly is a methodology, this paper attempts to provide the growth trends of e-learning in India. The government is taking proactive measures on this level to develop its potential fully. The key findings from literature review have highlighted the effectiveness of e-content on students' achievement, need for an ICT based learning environment and generation of good quality e-contents. So, it can be concluded that e-content is slowly becoming new e-learning megatrend, and development of quality e-content in more number of teaching subjects at present is the need of the hour to give learners a better experience and benefits that it has to offer now and in the future.

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