

Digital Transformation in Education Sector

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Abstract: *Pandemics reshape society. And it is COVID-19, still uncertain how our society will reshape. Pandemics have always forced human generations to break with the past and rethink about the world. Education and learning area has seen innovations at a slow pace. Innovation and advancement, especially in digital sphere are taking place across the globe. Educators, students, policymakers and other role players are actively undertaking efforts globally to bring about digital transformation in education sector. This short note is an effort after reviewing recent managerial literature on the impact of COVID-19 pandemic on education sector, a rapid expansion of digital transformation in this area, owing to expanding of distance education and increasing innovation in educational technologies.*

Key Words- *Education sector, Learning, Post COVID era, Digital transformation, EdTech.*

Date of Submission: 01-11-2022

Date of Acceptance: 12-11-2022

I. Introduction

The pandemic Covid-19 has reshaped the society. There has been considerable digital transformation in the education sector of the economy. The students as well as the educators face various problems owing to the pandemic. In a classroom there is diversity among students. The diversity may be due to various reasons such as traditional, instructive approaches. This diversity is in terms of cultural backgrounds, motivation to study, individual personality development rates and readiness to learn. Hence for development of all the students in the classroom there is a need for education which overcomes this diversity through differentiated instruction.

In a classroom where students have such mixed abilities, Differentiated instruction enables the students to achieve their maximum in relation to the specified goals of the curriculum. Differentiated instruction responds to the different learning abilities of the students, thereby reassembling the traditional classroom. Thus, differentiation is an innovative way of teaching.

Differentiation encompasses different techniques, strategies, forms used by the educator. Enhancements in distance education programs, innovative educational technology and ICT tools when used appropriately in teaching practice provide an educator a vast variety of tools to aid differentiation in teaching. ICT tools also provide an opportunity for learning through peer interaction by active interaction.

II. Differentiated Instruction

It is a flexible, organized and constantly modifying approach to respond to heterogeneity of student's needs and performance levels with focus on enhancing the strengths of the students. Innovative educational technology and ICT tools provide the means to educators to differentiate their instruction in content, process and product. By differentiation in content, heterogeneity in concepts, knowledge and skills can be imparted to the students through recorded videos, lectures, audio, texts and ICT. This gives the students the opportunity to choose among the various options of learning available. This differentiation in content can also lead to either extended or contracted timeline of curriculum.

Process consists different ways by which students give meaning to the educational content presented. Differentiation in process involves various methods and strategies with varying complexities such as modifying teaching rates and groups, option tables, web pages that shape the instruction and activities in response to student's giving meaning to the content. This brings out the creativity of the students and enhances their critical thinking which further helps in achieving the objectives of the curriculum.

Product refers to the final outcome given by the student. Thus, differentiation by product is the variation in the display of final outcome by the students as a consequence of differentiation in content and process adopted while teaching. It helps in gauging the understanding ability of the student towards the goal of the curriculum by evaluating their learning and presentation styles. A popular way of evaluating this is by letting the students choose the way they want to be evaluated. Other ways can be by giving students modified assignments and independent projects.

III. Impact of Distance Education

The pandemic has led to an increase in diversity in distance education. The distance education practices had been in place before the pandemic, but the occurrence of pandemic has made it more lucrative for the students. It started in the nineteenth century with the course material being made available in printed form. The second generation of distance education involved a combination of multimedia such as radio, television, cassette tapes and CD-ROMs along with print materials. The third generation of distance education is Internet-based, the emergence of third generation is attributed to the information technology (IT) revolution, i.e. now information and course material is available in online digital format. Today, students can conduct virtual experiments and simulations with educational software applications. Third generation distance education enables two way interaction between educational instructors and students. Third generation distance learning can either be recorded online courses or online interactive sessions. Massive Open Online Course (MOOC) is an expansion of recorded online course. MOOC has various advantages such as students can attend lectures when it suits them and learn at their own pace and further due to global access students can also choose their course levels and instructors. Thus, MOOC makes customized learning possible for students. In short MOOC takes care of the diversity of the students and provides an opportunity for learning according to their differentiated needs. MOOC also offers various courses for skill development and job-oriented training courses. In future people would need to learn new skills while they continue to work, and MOOC would offer them the opportunity to do so. Hence, learning in the form offered by the MOOCs will become standard. Moreover, MOOC is an asynchronous model of education as opposed to synchronous model of education which allows students to complete courses at their own pace as per their convenience. MOOC is a one way method of interaction and but this does not maximize the merits of the third generation of distance education.

IV. Impact of ICT in Education using Differentiated Instruction

Computers and its related technologies provide the students personal, socio-economical and cognitive development opportunities. They increase interactivity and attractiveness towards education. It increases their self confidence and self esteem. The latest technology provide active and collaborative learning which yields positive results qualitatively and quantitatively in terms of student work, academic performance, social interaction and communication.

ICT tools provide various means of shaping educational content, learning activities and processes for achieving goals of the curriculum. Multimedia, the main feature of ICT tools helps in making concepts easier to understand, student's concentration increase which helps them to retain the content for a longer duration. Privacy, collaborative learning, organization and supporting different learning styles are other important features offered by ICT tools which aid in differentiated instruction by differentiation in content, product and process.

Differentiation in content can be achieved by the educators by using World Wide Web where various sources are available such as educational videos, lectures, e-books, animations for illustration and cloud based simulation software. Each source has different level of complexity and the students can choose from them according to their needs and skills. ICT tools promote different learning styles such as auditory using screen reader software and speech to text converters, visual learning through videos, images and eBooks. Kinesthetic learning can be through physical experience using robotics and 3D printing.

ICT tools record the responses of the students, this helps in differentiation by process. This can help the educator in processing and manipulating information in order to modify the teaching according to individual students. But ICT tools can also help in collaborative learning such as by sharing of e-books, online magazines, social networks, forums and all the interactive tools of Web 2.0 which support sharing of information. Differentiation by process is also necessary to be achieved by the educators for the students who pursue their education from distance. ICT tools also facilitate asynchronous e-learning which eliminates the obstacles of availability of time and physical obstacles providing flexibility.

Various ICT tools such as podcasts, blogs, digital posters, digital storytelling and other narrative platforms allow differentiation by product. These various ways in which the student presents the learning should be allowed by the educator and the content presented by the student must be assessed in accordance with the goal of the curriculum. Along with the outcome, the use of ICT tools also hones the skills and strengths of the students while increasing their ability to express themselves and organizing their thoughts.

V. Impact of Educational Technologies (Edtechs)

Modern trends reflect, there have been rapid innovations in Educational Technology. Besides utilizing new IT devices and digitization of textbooks and teaching materials, they do not transform fundamentals of education service. Some EdTechs, such as the learning management systems (LMS) have changed the traditional education industry dramatically by incorporating the differentiated needs of the students. An LMS is a software application that assists with the administration, documentation, tracking, reporting and delivery of educational courses and training, learning and development programs. There are several benefits to introduce

LMS in the education sector such as it improves the efficiency of teaching preparation by facilitating differentiated instruction and communication between instructors and students. In addition to LMS, the usage of social networking service (SNS) function must be promoted with which educational instructors, students and parents can communicate bringing transparency. Furthermore, an educational instructor can get insight into a student's performance, analyze the data on the system and incorporate the changes required in differentiated instruction and provide relevant feedback using SNS. Such efforts will improve the versatility and increase the educational outcome of the student.

VI. Artificial Intelligence (AI) based Educational tools

AI based education tools are regarded as the most innovative among newly developed e-EdTechs. AI tools collect data on a student's level of understanding, analyze it, and then determine the differentiated ways to improve comprehension ability of the students. It is widely understood that an ideal education is a customized education catering to differentiated needs of the students, and AI offers the opportunity to offer tailor-made instructions to students.

VII. Conclusion

New approaches need to be tried to enhance the education outcome. The post pandemic time requires more investment in ICT infrastructure in the education service to enhance educational efforts and outcome of the students. Further, there is need for innovation in the certification of knowledge that assesses student academic performance also the need to change the role of instructors from a knowledge teacher to a learning motivator and progress monitor manager. MOOCs need to be made more attractive to the students. The diversified approach must include students with learning disabilities and different cultural backgrounds to enhance differentiation by product. The use of differentiated instruction by the educator depends on various factors such as class size and its composition, work assigned and training of the educator. It has been observed that the educators use ICT tools in their daily life. LMS can improve the educational services and methodologies incorporating differentiated needs of the students. The same tools can be used for imparting education, however this requires effort in the direction of preparing the content by giving it variation. The customized instructions using AI is expensive and it requires massive investment to bring down the cost, overcome digital divide and provide students an equal opportunity to acquire skills and increase educational outcome. This is a time consuming process requiring huge attention as the content presentation needs to be modified according to student needs. Further there is need for allowing other various presenting methods, which will give flexibility to the students. This will increase the learning of the student manifolds, removing obstacles and helping in achieving the objective of the education.

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Dr. Meeta Rani. "Digital Transformation in Education Sector." *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 12(06), (2022): pp. 32-34.