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Role of Digitalization in Teacher Education

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Abstract

Role of Digital technologies has altering the existing teaching performance and creating more learning approaches that produce new opportunities as well as problems themselves. By using digital technologies into educational processes, schools can boost instructional performance and improve student results using the detail mode. Digital transformation in education promotes personalized learning experiences, adaptive training, and collaborative learning opportunities. To deliver interesting and personalized courses, educators can make use of digital tools. The impact of digitalization in education that too in teacher education is clearly discussed in this article.

Keywords: digital transformation, technologies, personalized learning, digital tools, learning, teacher education

Introduction

Digital transformation signifies a substantial shift in the way educational institutions operate and engage with students, going beyond just utilizing new resources. Online learning platforms digital transformation empowers schools, colleges, and institutions to deliver more modified, effectual, and available learning experiences. As technology improves, education must also familiarize, ordering developments in both the student knowledge and the organizations. In this article digitalization, digitization, digital transformation in education, the impact of digital transformation in teacher education is clearly dealt.

Review of Related Studies

The shift to digital schooling include the digital gap that worsens educational disparities, the requirement for professional development for educators, and the necessary technology infrastructure (Joseph & Uzondu, 2024d). According to Quaicoe, Ogunyemi, and Bauters (2023), for an effective digital transition, adopting regulations that guarantee fair access to digital resources, investing in technology infrastructure and giving educators continual training are all necessary.

Ongoing professional development programmes can assist teachers in keeping up with the most recent developments in technology and pedagogy, which will increase their effectiveness as teachers and improve student learning outcomes (Veckalne & Tambovceva, 2022).

However, the extent of the impact of digital technologies in education depends on various factors, including the quality of the technological

infrastructure, the effectiveness of the teaching strategies, and the level of support provided to educators and students (Yildiz, 2021). Warner and Wäger (2019) highlight digital literacy as a key success factor, stressing the importance of cultivating a culture that encourages experimentation, creativity and ongoing learning within institutions.

Digitization

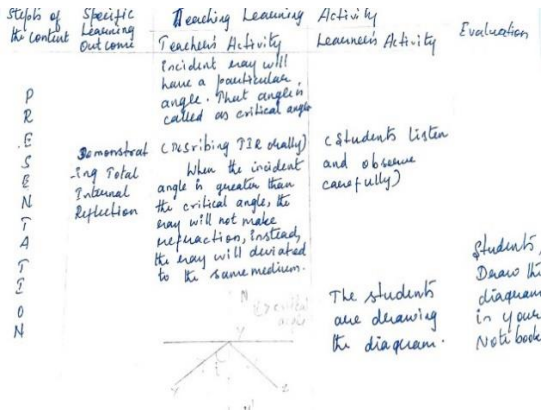
Converting analog statistics into a digital illustration is known as digitization. This may entail digitizing textbooks, scanning hard copy documents, or creating online versions of paper-based tests.

Examples in the Field of Education

- Creating a computerized database from handwritten student records. In teacher education some of the records or model lesson plans are given in the form of pdfs.
- Uploading lecture notes online rather than providing printed versions and that too circulated through social media whats app groups.

Effect

- Improves storage effectiveness and accessibility. Whenever they need wherever they go they can get the accessibility and utilize these study materials.
- Since these e-learning materials reduces the amount of paper and physical space required it is very much placed in the minds of digital natives like present student teachers.



LESSON PLAN

Name of the Student Teacher:
Name of the Guide Teacher: Dr. S. Jerslin
Subject: Science
Standard: VIII
Topic:Electric Current (Fundamental quantities)
Date: 11.7.23
Duration:45 Minutes

General Instructional Objectives:

Students will be able to

- Gain the knowledge of fundamental quantities
- Understand the concept of electric current
- Apply the formula of electric current
- Acquire the skill of drawing electric current

Specific Instructional Objectives

The student will be able to

- Recall the previous knowledge
- Define electric current
- Write the unit of electric current
- Point out the use of ammeter
- List the components of electric circuit
- Sketch the diagram of electric circuit
- Write the formula of electric current

Instructional Aids

Ammeter, thermometer, electric circuit(working model), measuring tape, clock, ammeter(real model), matching board(for evaluation)

Steps and contents	Specifications of Learning Outcomes	Learning Activity		Evaluation
		Teacher's Activity	Student's Activity	
Motivation	Recalls the Previous Knowledge	Good Morning Students All of you recall the fundamental quantities that we learned in previous class.	Good Morning Mam Length Mass Time Electric Current Temperature Amt of substance Luminous intensity	The studen responses a agreed by t teacher.
		Very good. Yes, so we have discussed fundamental quantities so far. To day we are going to discuss about one of the fundamental quantities(the teacher showed the	The students told that it is used to measure length.	

Digitalization

Digitalization – Enhancing processes utilizing digital technology. It is also defined as using digital technologies to enhance and program current procedures is known as "digitalization." It increases a system's efficiency without changing its fundamental functioning.

Examples in the Field of Education

Utilizing Learning Management Systems (LMS) like Moodle to manage course content and track student progress. In teacher education institutions nowadays as per NEP 2020 the student teachers and teacher educators are asked to undergo any one of the MOOC courses provided by SWAYAM or any other MOOC provider in the world.


CERTIFICATE

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Organizer

- Bio metric technology is used to track the attendance of the student teachers and staff.
- Directing online quizzes with instant grading instead of old pen-and-paper tests.

Effect

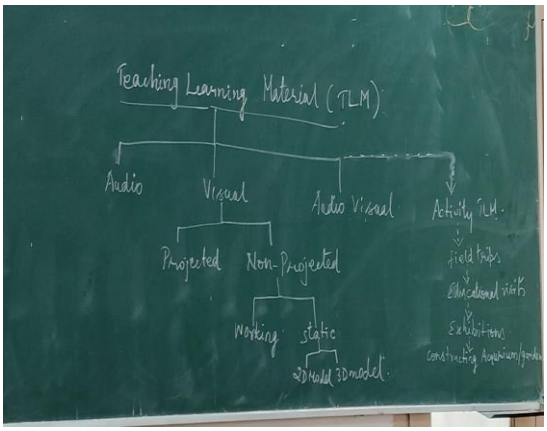
- Increases productivity by automating repetitive processes.
- Speeds up procedures and reduces human mistake.

Digital Transformation

Digital transformation is a tactical makeover that integrates digital technology into all aspects of a business, leading to significant adjustments in how it functions and provides value. Unlike digitization and digitalization, digital transformation redefines procedures, commercial models, and involvements using machinery.

Examples in the Field of Education

- Making the switch from old-fashioned classrooms to blended learning models, which blend online and off line training. Power point presentations are more helpful tools in on line classes. During the time of Pandamic both the teachers and students mostly use this strategy to teach and learn concepts in their subjects.



- Making use of AI-driven individualized learning systems that address each student's particular requirements.
- Making use of data analytics to improve curriculum creation and predict student achievement.

Effects

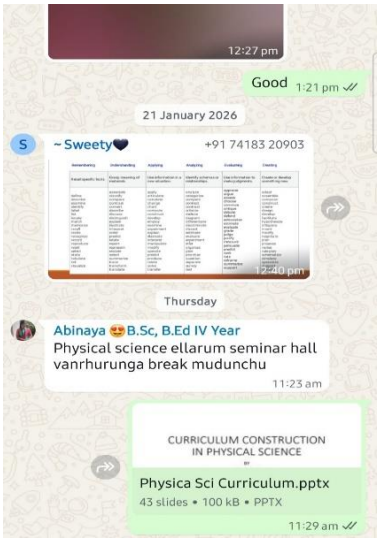
- Enables individualized instruction based on each student's needs.
- Promotes cooperation between parents, teachers, and students.
- Encourages creativity and prepares students for a world dominated by technology.

Digital Transformation in Education

Digital transition permits educational organizations to halt pertinent and prepare student teachers for success in an increasingly digital culture. Institutions can improve learning outcomes, expedite and create a more dynamic and engaging atmosphere by integrating digital technologies into the educational arena. Educational institutions may cultivate a digital culture that stimulates creativity and collaboration among student teachers and ensures they have the skills required for the future by accepting the process of digital transformation. Digital change in education aids in the administration of student admissions and other administrative duties. It offers:

1. Better access to education for individuals worldwide, with the ability to learn from any device at any time through cell phones and their

social media network. Through this both the student teachers and educators can exchange their ideas, clarify doubts, send materials etc.,



2. An interesting and dynamic educational experience and better learning.
3. A smooth administration procedure at schools, colleges, and universities.

Important Aspects of Education's Digital Transformation

Globally, investment in technology has increased. This growth replicates a growing trust in the sector's aptitude to influence the upcoming of schooling, as machinery becomes an ever extra vital module in enlightening knowledge experiences and increase admission to education around the world.

The Following Technologies are Shaping and Reshaping The Sector

- Artificial Intelligence (AI) and Machine Learning: AI tutors for individualized learning, automated grading, and adaptive learning platforms. The teacher educators/ teachers are teaching the student teachers/students through AI Videos and ppts inside the classes.

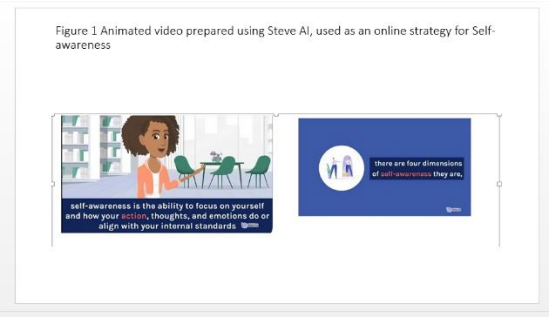
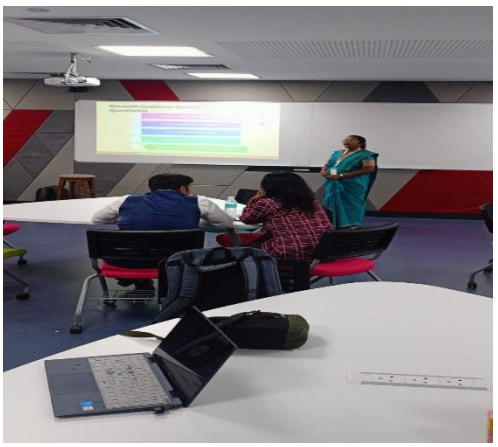


Figure 1 Animated video prepared using Steve AI, used as an online strategy for Self-awareness

- Cloud computing: Collaborative tools, storage options, and remote learning that make educational resources easily accessible
- Big Data & Analytics: Predictive analytics to detect at-risk pupils, performance monitoring, and customized learning routes
- Virtual reality (VR) and augmented reality (AR): interactive, virtual field trips, and practical learning opportunities across a range of areas
- Learning Management Systems (LMS): These are centralized systems used in digital education to manage classes, materials, tests, and correspondence.
- Internet of Things (IoT) — Smart schoolrooms with associated gadgets, real-time following of student involvement, and automatic education surroundings.



Conclusion

Digital transformation in education include professional development opportunities, skills training, and digital support aimed at improving teachers 'digital competencies, thereby enabling effective integration of technology in classroom instructions. Digital integration is a multidimensional concept that needs a planned and complete approach, directing not only on accessibility of machinery but also on the ability of educators to influence these tools for enhancing education and knowledge experiences. Hence the training of teachers/ mentors/ teacher educators in the field of digital education is the need of the hour before going to digitalize the classroom with digitalization of education.

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