

# Role of E-content in teaching and Learning at Higher Secondary Level Schools : A study

Sweta Raj \*

Dr. Reshma Sultana \*\*

*E-content has changed higher secondary education by providing flexible, personalized, and engaging learning experiences. It uses multimedia, interactive simulations, and is easily accessible online. It changes the emphasis from teaching led by the teacher to learning that focuses on the student. This encourages independence and allows students to learn at their own speed. Studies show that using digital content helps students stay interested and perform better in school, making it simpler to understand difficult ideas. It also encourages new teaching methods, such as combining online and in-person learning and using games to boost motivation. The teacher's job changes from just delivering information to guiding students. They use digital tools to offer personalized help and access to a variety of educational resources. This approach can help close the learning gaps between students.*

**Aspects of e-content in this context include:** Enables access to educational resources at any time and place, Uses multimedia tools (videos, simulations, games) for better understanding, Supports self-paced learning catering to individual needs, Fosters 21st-century digital literacy skills, Helps educators to act as facilitators, with tools to easily update and share material.

**Keywords:** E-content, Higher Secondary Education, e-Learning, Pedagogical Tools, Digital Literacy, Student-Centered Learning.

## Introduction :

E-content (electronic content) has transformed from a simple supplementary tool into a core component of the educational ecosystem. At the higher secondary level (typically classes 11 and 12), students are at a critical transition point-preparing for rigorous higher education, vocational training, or entering the workforce. E-content plays a vital role in bridging the gap between foundational schooling and advanced, independent learning.

Here is a breakdown of the primary roles e-content plays in teaching and learning at the higher secondary level:

### Breaking Down Complex Concepts<sup>1</sup>

Higher secondary curricula heavily feature abstract and complex subjects, particularly in STEM (Science, Technology, Engineering, and Mathematics).

) **Interactive Simulations:** E-content allows students to manipulate variables in a virtual physics lab or observe chemical reactions safely.

) **3D Visualizations:** Complex biological systems, like the human anatomy or DNA replication, can be explored in three dimensions, making them significantly easier to comprehend than static textbook images.

**Catering to Diverse Learning Styles :** Traditional classrooms often rely heavily on auditory (lectures) and reading/writing learning styles. E-content democratizes learning by addressing a broader spectrum of needs:<sup>2</sup>

) **Visual Learners:** Benefit from info graphics, videos, and animations.

) **Auditory Learners:** Benefit from podcasts, recorded lectures, and audio books.

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\* Research Scholar, Dept. of Education, B.R.A. Bihar University, Muzaffarpur

\*\* Supervisor, Dept. of Philosophy, Vaishali Mahila College, Hajipur (Bihar)

- ) **Paced Learning:** Students can pause, rewind, and re-watch video lectures or reread digital modules until they fully grasp the material, which reduces the anxiety of falling behind in a fast-paced classroom.

### **Fostering Self-Directed Learning**

A primary goal of higher secondary education is to create independent learners.<sup>3</sup>

- ) E-content encourages students to research beyond the syllabus, exploring MOOCs (Massive Open Online Courses), digital libraries, and educational portals.
- ) It builds essential digital literacy and research skills that are mandatory for university-level coursework and modern careers.

### **Empowering Educators and Evolving Pedagogy**

E-content shifts the teacher's role from a "sage on the stage" to a "guide on the side."<sup>4</sup>

- ) **The Flipped Classroom:** Teachers can assign e-content (like a video lecture) for homework. Classroom time is then repurposed for high-value activities: collaborative problem-solving, debates, and addressing specific student doubts.
- ) **Up-to-Date Resources:** Unlike printed textbooks, which can become quickly outdated, e-content can be updated in real-time to reflect the latest scientific discoveries or historical contexts.
- ) **Automated Assessment:** Digital quizzes and interactive modules can provide immediate feedback to students while giving teachers instant data on where the class is struggling.

### **Overcoming Geographical and Time Barriers**

E-content provides 24/7 access to high-quality educational materials. This is particularly crucial for students in remote or underserved areas who might not have access to specialized teachers, allowing them to learn from experts worldwide.<sup>5</sup>

### **A Grounded Perspective: The Challenges**

While the benefits are vast, it is important to acknowledge the reality of implementing e-content:

- ) **The Digital Divide:** The effectiveness of e-content relies entirely on access to reliable internet and capable devices. Without this, e-content can inadvertently widen the educational inequality gap.
- ) **Digital Distractions:** Unmonitored use of devices can lead to lower attention spans and reduced academic performance.
- ) **Teacher Training:** Educators must be adequately trained not just to *use* the technology, but to effectively integrate it into their pedagogical strategies.

Digitalization isn't just a trend anymore; it is the foundational infrastructure of the modern world. Whether we are talking about global economics, daily communication, or institutional knowledge, digital material is the lifeblood keeping it all moving.<sup>6</sup>

The usage of digital material has become so absolutely crucial:

#### **1.The Democratization of Information**

Historically, knowledge and educational materials were locked behind physical borders, expensive institutions, or limited print runs. Today, digital material—from open-source code and research papers to online courses—allows anyone with an internet connection to learn, upskill, and innovate.

#### **2. The Backbone of the Global Economy**

Businesses no longer operate purely on physical inventory. Digital assets are driving value across every sector:

- ) **Data as Currency:** Customer data, market analytics, and logistical algorithms are often a company's most valuable assets.
- ) **Decentralized Work:** Cloud-based digital materials allow teams to collaborate in real-time across different continents, which kept the global economy afloat during recent global disruptions.
- ) **Digital Goods:** Software, digital art, media streaming, and virtual services represent massive, rapidly growing sectors of the economy that require zero physical manufacturing.

### **3. Resilience and Preservation**

Physical materials degrade, burn, or get lost. Digitizing historical archives, government records, and cultural artifacts ensures they are preserved for future generations. Furthermore, cloud storage and decentralized networks mean that even if a physical server is destroyed, the digital material survives.<sup>7</sup>

### **4. AI and Automation Fuel**

Artificial Intelligence-Relies entirely on massive datasets of digital material to learn, recognize patterns, and generate new solutions. Without digitized text, images, and data, the current boom in AI technology would be impossible.<sup>8</sup>

### **The Flip Side: The Digital Divide**

While digital material is crucial, it's also important to acknowledge reality: this shift creates vulnerabilities. Cyber security threats, data privacy issues, and the digital divide- the gap between those who have reliable access to the internet and modern devices and those who do not-are some of the biggest challenges we face right now.

E-content means digital materials that can be created, developed, reused, and shared. E-content is any electronic material that includes text, images, graphics, animations, audio, and video. Thanks to advancements in technology and new digital devices, we can now access almost everything right from our hands. The growth of E-content has gone up.<sup>9</sup> Digital information is a powerful tool used in many areas, including advertising, marketing, education, and training. Digital technology is spreading all over the world, and using digital content is more important than it has ever been. E-learning makes teaching and learning better, creating a more enjoyable experience. It provides easy access to training materials and helps students reach their learning goals. We will discuss several topics, including learning objectives, design and development, and various types of digital resources that can support teaching and learning.<sup>10</sup>

A new way to use computers in teaching and learning is through e-content. Today, e-content is mainly seen as a way to keep and share cultural and historical traditions. It helps spread information about lifestyles, science, education, and business in digital formats. Additionally, it offers interactive services for users. E-content refers to any material that is available in a digital format. An E-content Learning Material is a collection of information. It can be in the form of a PowerPoint presentation, online journals, and other formats. Here is the rewritten text: "for teaching purposes." E-content refers to digital information that is shared through electronic devices connected to a network. Sure! Please provide the text you'd like me to paraphrase. Symbols can be used and understood by people when they communicate.<sup>11</sup> These symbols help them share ideas and can change what others know, believe, or how they act.

Traditional teaching methods are finding it harder to keep the attention of kids who have grown up playing video games and watching MTV. Many teachers think that using multimedia technology can give students a chance to learn through multiple senses. This

technology brings together computers, voice, moving images, music, words, and databases, along with easy-to-use systems for teachers to create content.<sup>12</sup> More of this technology is being used alongside advanced expert systems. These systems give teachers and students the chance to create strategies or verify their ideas using a set of rules made by knowledgeable teachers or education specialists. The Kothari Commission states that the future of the country is shaped within the classroom. To achieve this goal, classrooms need to be more effective. The main reason for good teaching and learning is the quality of academic input. The effectiveness of teaching and learning relies on the digital content provided by both teachers and students in high school.

E-content is special because it includes high-quality features, audio-visual recordings, and provides instant feedback. It can be easily used to share well-designed information with different special effects. Therefore, considering all these points, the researchers conducted an experiment to examine how effective e-content is for teaching and learning in higher secondary schools.

#### **Conclusion :**

E-content in higher secondary education benefits students and teachers by offering flexible, engaging, and interactive learning, resulting in improved academic achievement, increased motivation, and enhanced understanding of complex subjects. It supports personalized learning, allowing learners to control their pace and access diverse, high-quality digital resources. E-content is a transformative tool at the higher secondary level, directly benefiting both learners and educators by providing flexible, high-quality resources that enhance engagement and academic success. While it requires careful development and equitable access, its potential to foster active learning and personalize education makes it indispensable for modernizing teaching and learning in the 21st century.

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