

# Use of Technology and Digital Literacy in Science Education for Sustainable Development

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Technological and digital literacy are two of the most important subjects for students in today's schools. Students are already bombarded with digital information from the internet, social media and countless apps on "smart" devices. And they are constantly using different forms of technology, whether making a Skype video call, getting money out of an ATM or playing the latest video game. Although this leads many educators to believe their students are already "digital natives," true technological and digital literacy comprehends far more. Technology provides students with easy-to-access information, accelerated learning, and fun opportunities to practice what they learn. It enables students to explore new subjects and deepen their understanding of difficult concepts.

The abilities to adequately use and do research through digital platforms, judge the validity (and appropriateness) of the information encountered, and communicate and collaborate via digital mediums are necessary for student success in school and in their future careers. They will constantly encounter new technologies because innovation is rapid and exponential. In addition, many technologies can help adapt the content in science classrooms for students with disabilities. If all students understand how to use today's technologies, both software and hardware, they will be better prepared for success in the present as well as adapt more quickly to new technologies in the future. For these reasons, modern graduate programs in Science include appropriate technologies and digital platforms into coursework in science instruction. Gaining fluency both using and instructing in these technologies can assist educators and curriculum designers in ensuring that students are well-prepared for an increasingly technology-saturated world. Teachers must know how to use digital technology for further getting progressive and successful teaching. As Kaur states, "*Our Conventional type of teaching is not enough and able to educate the individuals in accordance with 21st century*" (Kaur 6038)

The Previous Education Policies have not made substantial provision to integrate ICT or Digital platform in Education. But in the New Education Policy 2020 the educational policy makers and Institutions in India believed in technology based Education provides best results. The Government has included special measures for integrating and enhancing ICT in new education system. It formed an Autonomous body, the National Educational Technology Forum (NETF), "to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration, and so on, both for school and higher Education." (NEP2020 p.56)

## What Is Technology?

Simply put, technology is the science of making things. The word is literally derived from the systematic study and treatment of an art or craft. As we think of it, technology is a modern concept. But every invention or development of tools or devices is a technological advancement, from the wheel to the blackboard to the automated oil rig to the automobile.

## What Exactly Does Technology Have to Do With Science Education?

Beyond the fact that technology is both a process and a result of science, technological developments

provide the tools used in many forms of scientific study and experimentation, from centrifuges used for the separation of fluids to computer programs used in the study of substantial physics. In teaching students the scientific process of inquiry and problem-solving, it is necessary to utilize current technologies. Students will need to use field-appropriate technologies to research questions, construct and execute experiments, and analyze results.

Science teachers can use many modern technologies to great effect in the classroom. Computer software and tablet apps have obvious applications in classroom activities, but the technologies inherent in automated cameras, LCDs and experiment monitoring systems can also aid in science education.

### **Technological and Digital Literacy Help Students in college and their life span**

- The science classroom provides a perfect environment to help students develop the technological knowledge and skills they will need for the rest of their lives.
- Learning how to operate machines used for science experiments will help future mechanical engineers in their pursuits.
- A communications major will rely on computer skills learned in the science classroom. An architect will employ modeling software similar to modeling programs used to design scientific experiments.
- And beyond future employment opportunities, these forms of literacy will help students make informed decisions as both consumers and global citizens.

### **Use of Assistive Technologies in Science Education**

Many assistive technologies have been invented and are now used to help students with disabilities in the inclusive classroom.

- A perfect example is the equipment students with physical disabilities use to participate in activities that their disability would otherwise make difficult or impossible. The most obvious example might be a student with paraplegia using a wheelchair to move around the classroom. Or a student with visual impairment might use a text-to-speech program or text enlargement screen readers to read materials.
- Teachers can also use technology to engage and instruct students with learning or mental disabilities. Physical and visual learners can benefit from interactive computer- or tablet-based lessons.
- Auditory learners can benefit from recorded materials or text-to-speech programs, and vice-versainley, voice notation software.

Adding digital tools expands the options and reach of personalized teaching and scaffolding. For example, complementing the power of in-person and online teachers, learning and assessment enhanced with networked digital tools can be very effective. Imagine a classroom infrastructure that includes wireless technologies, remotely accessible switches and routers, and collaboration tools to create an "intelligent" environment for the invention of real-world Internet of Things (IoT) products, services, and experiences by students. Creation takes place in different venues, for example, in the classroom during project-based learning or alongside passionate technology peers via hackathons. Students model the networks they create in a simulator and prototype with cloud-based technology at home. Instructors are empowered with a customizable learning management platform while collaborating with peer instructors across the world. The learning environment is flexible and diverse, offering face-to-face instructor-led courses, online classes rich with video and interactivity, in-person labs, and blended classroom experiences. Such as CISCO Networking, ZPD by using them we can boost the activity that will optimize a student's capability to learn new material, as well as the balance between their current ability and the challenge presented.

Besides being crucial to the science classroom, using current technologies can help all students engage in learning, leading to motivation to study the sciences more in depth. Introducing this love and deep knowledge of science and a fluency with technology is one of the most important thing. Being competent, or better yet, excelling in these areas will help students perform and succeed throughout in their careers and their personal lives. While experts believe that the human psychology behind learning has not changed vastly over time, the external factors affecting how we comprehend, recollect and receive new material are constantly evolving. As the digital revolution accelerates, technology gives us exciting opportunities to shape learning experiences and achieve learning goals. Applying learning science insights to IT education, educators can create a dynamic, digital, and hands-on learning experience that is tailored, flexible, and relevant, developing the talent needed to power the digital economy.

**Conclusion:**

It is collaborative, innovative and deep learning process that help the student, tutors and education system to develop the varied skills to attain more knowledge. Digital adoption should be an important comprehend in influencing the future growth of the Country. It helps and supports teachers and students through the usage of several educational facilities in successful learning. For research technology build the new way to achieve more information. Now we all realize that technology and digital platform is definitely the next big thing in higher education. It is and will keep leading us to rethink the world from the vantage point of a whole set of new technologies. It also has wide lens which can be used in many areas as reading digital study material, data Collection, libraries, research, new inventions etc. Combining the learning sciences with digital innovation, we can leverage the best of what digitally enhanced and human-driven education have to offer, creating learning experiences that keep pace with the digital skills demanded by the market. In turn, affecting individual lives, supporting business and transforming global communities.

**Work Cited:**

- Kaur, Shukaraj. "ICT Integrated Education: Shifting Role of Teachers" Scholarly Research Journal for Humanity, Science and English Language Vol. 4, No 23, 2017.
- National Education Policy 2020, Ministry of Human Resource Development Government of India, 2020
- Education.com: Why Use Technology in the Science Classroom
- Education World: Integrating Technology and Science
- ETC Journal: Technological Literacy: The Key to Education Reform
- Education Week: What Digital Literacy Looks Like in a Classroom



  
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