

How to use new technologies in teaching/learning sustainability

Sustainability is an increasingly important issue today. As human activities cause environmental problems around the world, awareness concerning the potential of sustainability is growing and education about this topic is becoming more important. The rapid development of technology is changing the tools and methods used in education and offers different options to improve the learning process, especially with regard to sustainability. This paper will provide suggestions on how new technologies can be used in the learning process with reference to sustainability. The use of digital tools in the classroom has been on the rise over the past two decades, with increased adoption in both developed and emerging economies. This trend only grew more prominent both during and in the immediate aftermath of the COVID-19 pandemic, which accelerated an already notable shift in how teachers and students use technology in education and pushed most institutions to invest heavily in their ICT systems. There are several ways to use technology in teaching, these include platforms, smart boards, video games, videos, apps etc. By definition, education ICT involves the use of information and communication technologies (ICTs) for educational purposes. Examples of education ICT include the use of video conferencing cameras, video meeting apps, learning management platforms, gaming apps, digital whiteboards, communication boards/discussion tools, laptops, tablets, and projectors, communication apps, research platforms, presentation and design software, and other interactive online tools for both students and teachers.

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For example, video games can be made about using resources wisely, creating a platform with information about air pollution etc. In addition, the use of technology in education has made great strides, especially in recent years. Tools such as smart boards, video games, videos, apps, virtual reality and many other options can be used to enhance the learning process of the student. Also, the process of learning about sustainability can be enriched through the use of technology to provide easy access to information and make the learning process fun. Video games can be used to inform students about the use of sustainable resources and also to make the learning process fun. In addition, creating a platform that provides information about air pollution can also make it easier for students to learn about sustainability. Some of the benefits of technology in the learning process are that it helps students to learn about sustainability, it enables students to actively participate in the learning process, it makes the learning process fun and it facilitates this process.

Digital teaching tools can be divided into passive and active. Smart boards are passive tools with which teachers can make presentations to their students. However, video games are active tools that can be used by students to actively participate in the learning process. For example, a video game can be created to teach sustainability in order to ensure that students gain knowledge about sustainability. One particular video game might allow students to learn about the use of sustainable resources. In addition, a classroom platform can be created to ensure the active participation of the student in the learning process. This platform allows students to share their ideas about sustainability and to read about the ideas of other students.

Online learning platforms

These platforms allow students to learn and interact online about sustainability topics. These platforms offer different resources to help students to learn and allow them to complete assignments and participate in discussions. For example, platforms such as EarthEcho International,





Discovery Education, and Green Schools Alliance provide students with online resources and learning materials with which to learn about sustainability topics.

Augmented reality

Augmented reality enriches learning experiences by using virtual elements added to a real-world environment. For example, students can learn about the flora and fauna in a particular region. Furthermore, augmented reality can provide 3D models and other visual tools to help students better understand complex topics. Therefore, augmented reality can be used to help students understand sustainability issues.

Mobile apps

Mobile apps can help students to learn about sustainability issues while also helping them to develop environmentally friendly habits. For example, the JouleBug app offers a series of tasks to help users save energy. With this app, students can monitor their energy consumption at home, practice energy-saving habits and also compete against each other.

<u>Carbon Footprint</u>: This app provides users with a tool for calculating the carbon footprint of their activities in their daily lives. Users can calculate their personal carbon footprint by selecting factors such as transportation, food, shopping and energy consumption. This app can be used to help students to keep track of their carbon footprint and encourage them to avoid environmentally harmful behaviours.

<u>Good Guide</u>: This app helps users to research the environmental, social and health impacts of many products. Users can use the app to search for, categorize and compare products. It helps students to learn about sustainable products and it also helps them to develop e co-friendly consumption habits.

<u>Eco Race</u>: This app is a game where users compete to protect the environment. Users complete a series of tasks that include topics such as energy conservation, water conservation, recycling and the preservation of natural resources. This app can be applied to help students to learn about sustainability issues and demonstrate environmentally friendly behaviours.

<u>Eco Challenge app</u>: is an app used to help students to practice environmentally friendly behaviour in their daily lives. This app is a game that helps users to adopt environmentally friendly habits and keep track of their practices. Users complete a series of tasks involving topics such as energy conservation, water conservation, waste reduction, and natural resource conservation, they earn points for completing these tasks. This app can be used to help students to learn about sustainability issues and practice environmentally friendly behaviours

3D printers

3D printers can be used to make sustainability issues more understandable by giving students the opportunity to visually demonstrate them in a tangible way. For example, students can use 3D printers to produce objects made from recycled plastic to better understand how plastic waste can be recycled.

Virtual reality

Virtual reality can also be used to provide students with a deeper understanding of sustainability. For example, through virtual reality technology, students can navigate around a virtual world and better understand the impact of issues such as environmental pollution or climate change.







<u>WWF Free Rivers</u>: This app helps students to understand the ecosystems of rivers and sustainability. Students learn about life forms in rivers, the general importance of rivers and also explore their impact on the environment.

EcoVerse: This app helps students to explore the life of a forest and understand how natural cycles work. Students discover the animals, plants and other creatures that live in forests and learn about natural processes.

<u>HoloLAB Champions</u>: This app helps students to develop their laboratory skills and understand issues related to sustainability. Students focus on sustainability concepts while working with liquids, gases and other substances. The app recommendation in this case is the app called "<u>JigSpace"</u>. This app offers students an interactive and three-dimensional learning experience in many subjects. It offers a lot of content, with a special emphasis on sustainability. It can be used to help students to learn about environmentally friendly practices, renewable energy sources, carbon footprint, and other sustainability topics in a more in-depth fashion.

Social media platforms

Social media platforms can be used as a tool for sustainability learning and engagement for young people in general and young workers in particular. For example, by following the sustainability hashtags on Instagram, they can share and discuss sustainability-related content. Furthermore, competitions or events can be organized on social media platforms to raise awareness of sustainability.

Artificial intelligence (AI)

Al is another technology that can be used in the sustainability teaching/learning process. Al can be used to understand the learning styles of students and to deliver customized learning materials accordingly. Furthermore, AI can analyse large data sets related to sustainability and provide students with a better understanding of the relevant concepts.

Online collaboration tools

OCT can help students to better understand sustainability issues by encouraging them to work together. However, there are some points to be considered when using these technologies. For example, it is important to design sustainability-related learning materials appropriately and to analyse the data accurately. Also, it should be borne in mind that such technologies can lead to misunderstandings and the reinforcement of misinformation rather than ensuring that students receive the appropriate information concerning sustainability issues. In conclusion, the use of new technologies in the sustainability teaching/learning process can enable students to participate more actively within the field of sustainability issues. However, it is important that these technologies are designed and applied correctly.



