


# Chapter 10

## Emerging Technological Impact and Significance in STEAM Education

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### ABSTRACT

*The importance of technology in STEAM education comes from the reality that almost all jobs in the modern workforce require some level of technological proficiency. Science, technology, engineering, arts, and mathematics, STEAM, education aims to highlight these subjects while highlighting their value for building transferable skills and their practical use in the workplace. Technology is essential in today's society because it permeates every aspect of our lives, powers entire industries, and maintains our connections. After all, technology is a subject that can be taught independently of science, math, engineering, and the arts. We call this technology education. It can also be applied to assist in these areas. Furthermore, educational technology, or EdTech as it is frequently referred to, has developed into a vital tool for both teachers and students. The chapter introduces the need for innovative ap-*

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*proaches of the STEM education model. Further, it talks about the transition from STEM to STEAM, approaches of STEAM education with the inclusion of emerging trends of technology.*

## **INTRODUCTION**

The body of research on STEAM education is expanding quickly. It's challenging to access and stay current with this massive amount of information because new discoveries are being published in a variety of places. An overview of the current body of research on the application of emerging technologies in STEAM education is given by this systematic review. Technology plays a major role in modern life, therefore individuals need to understand how to use it, manufacture it, and fix it when anything goes wrong. Technology-based courses are an essential component of a strong academic program because they give students transferable skills and are reasonably simple to incorporate into the other core STEAM education topics of science, engineering, maths, and the arts. In spite of this, technology education is less well defined than many other academic areas, which continues to be problematic for educators and make technology arguably the most abstract of the STEAM fields.

### **The Need for Innovative Approaches: The Development of the STEM Education Model**

The Fourth Industrial Revolution has begun, and it will forever alter how people live and work. AI, big data, robotics, the Internet of Things (IoT), and other cutting-edge technologies offer the potential for technological applications and processes to become more intelligent and to provide greater benefits to society. Global society has entered this new era of technological advancement. Disruptive technologies are already all around us. Examples include self-driving cars, automated parking systems, digital assistants like Siri and Alexa on smartphones, smart sensors that help take perfect photos, and search engines and tech companies like Amazon and Facebook that customise users' online experiences. The way that these technologies are affecting every part of life will probably have a big effect on labour, changing the face of nearly every industry and automating a lot of tasks. Many of the current vocations will probably become obsolete as a result of this shift, and their place will probably be taken by new or modified professions that require the right knowledge and abilities. In order to manage the flow of big data, these professions will need data literacy skills, as well as transversal skills like creativity, social and emotional intelligence, communication, collaboration, and critical thinking (Wahyuningsih et al., 2020; Bhutani et al., 2024). These professions will also require a solid under-

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