

## Chapter 25

# Technology–Enhanced Classroom to Enhance Critical Thinking Skills: Teachers’ Perspectives

Alice Omariba

*Kenyatta University, Kenya*

### ABSTRACT

*This chapter describes how the impact of digital technology can now be felt in all spheres of life leading to global competition especially in education. The vision for technology-enhanced classrooms is one in which student groups work on long-term, multidisciplinary projects involving challenging content that is interesting and important to them with the support of technological tools for collecting, analyzing, displaying and communicating information. In the face of severe social and economic challenges, many developing countries are struggling to overcome barriers to the integration of digital tools in education to help students develop high-order skills and global competences for life and work. This chapter is intended to further discussions on incorporating technologies into instruction in order to bridge the gap between critical thinking skills and digital tools, and helping learners to become globally competent at the digital workplace.*

### INTRODUCTION

Digital technologies have not only become an accepted component of the day-to-day world, but they have also had a great impact on virtually every aspect of our lives. Increasingly, specialized technological innovations are being incorporated into an immense array of human activities, often with extremely positive results. One area in which the introduction of technological approaches holds particular promise is that of education. Given the overall consensus concerning the positive value of technology-enhanced learning environments in educational practice, we can anticipate not only that will the integration of technology in

DOI: 10.4018/978-1-7998-3022-1.ch025

schools increase, but it will also continue into the foreseeable future through the development of critical thinking skills (Kurt, 2013). In fact, many nations (Kenya inclusive) have already assimilated technology into their educational development plans, or are in the process of doing so. However, the transition from traditional educational approaches to technology-enhanced ones has proved a significant challenge for many countries (Omariba, 2016). In an increasingly multifaceted and fast-changing global job market, most nations are being forced to re-examine their ability to compete and participate successfully; to create new strategies and relationships that will allow them to do so. This is because successfully preparing all learners with the skills and capacities for 21<sup>st</sup> century global competencies in life and work, many educational leaders are finding that the traditional forms of education that have evolved through the end of the last century are simply inadequate for achieving these goals (Groff, 2013; Omariba, 2016).

Studies show that the advent of the "Information Age" has made the development of problem solving, critical thinking, and higher-order thinking skills crucial to future success (Fontana, Dede, White, & Cates, 1993; Morgan, 1996; Norris & Poirot, 1990; Ramirez & Bell, 1994). Hence, experiences that engage students at higher levels of the Bloom's Taxonomy (analysis, synthesis, evaluation) need to become a common practice. Harris (1996) observes that "Information Age citizens must learn not only how to access information, but more importantly how to manage, analyze, critique, cross-reference, and transform it into usable knowledge". Kelman (1989) identifies higher-order thinking skills as one of the instructional areas that could be improved by integrating ICTs. However, Salomon (1990) observes that for the computer to be an effective classroom tool, "... everything in the classroom needs to be technologically-enhanced in a way that makes curriculum, learning activities, teacher's behavior, social interactions, learning goals, and evaluation interwoven into a whole newly orchestrated learning environment". In light of what is known about learning, using the computer and other technology as tools for meaningful instruction seems reasonable as a method for engaging students in problem solving and critical thinking (Muir, 1994; Peck & Dorricot, 1994). Ragsdale (1989) challenges educators to teach with the computer because "tool" applications are independent of subject matter and can be used for curriculum integration across grade levels and subject areas.

According to Omariba (2016), technology-enhanced educational environments can provide students with significantly expanded learning opportunities, which are linked to critical thinking skills and increased levels of academic achievement. However, like many other developing countries, Kenya is struggling to overcome a number of serious barriers to full technology integration at the classroom level to develop high-order skills and global competences for life and work. The most significant of these is non-compliance on the part of teachers and the learning environment. In respect to technology integration in education, teachers are consistently failing to utilize technological tools for instruction purposes, (Gode, 2013; Omariba 2016).

Both the successful integration of technology into the classroom and the degree to which students can benefit from a technology-enhanced environment, depends almost entirely on teachers. It is essential that teachers are willing to learn to use the technology themselves in order to incorporate it successfully into their interactions with students in the classroom (Kozma 2003), hence developing critical thinking skills in their students. Unfortunately, it is exactly in this respect that some of the most serious challenges in creating a fully technology-enhanced educational environment arise. Kenya must address the challenge of technology-enhanced classrooms in order to ensure that the agenda of technology adoption in schools is realized (Omariba, 2016). Creating technology-enhanced classrooms is a promising tool for expanding and widening access to education and developing critical thinking skills especially at advanced levels (Kurt & Larchin, 2005; Omariba, 2016). In the face of stern social and economic challenges, many developing

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/technology-enhanced-classroom-to-enhance-critical-thinking-skills/269903](http://www.igi-global.com/chapter/technology-enhanced-classroom-to-enhance-critical-thinking-skills/269903)

## Related Content

---

### Green Thumb Educating: Believing in the Power of Meaningful Relationships

(2019). *Evidence-Based Approaches to Becoming a Culturally Responsive Educator: Emerging Research and Opportunities* (pp. 81-112).

[www.irma-international.org/chapter/green-thumb-educating/228403](http://www.irma-international.org/chapter/green-thumb-educating/228403)

### Technology Support for Collaborative Learning

David A. Banks (2008). *Encyclopedia of Information Technology Curriculum Integration* (pp. 888-893).

[www.irma-international.org/chapter/technology-support-collaborative-learning/16810](http://www.irma-international.org/chapter/technology-support-collaborative-learning/16810)

### Heidelberg Makerspace

(2019). *European Perspectives on Learning Communities and Opportunities in the Maker Movement* (pp. 111-134).

[www.irma-international.org/chapter/heidelberg-makerspace/220818](http://www.irma-international.org/chapter/heidelberg-makerspace/220818)

### Impact of the Digitalization Level on the Assessment of Virtual Reality in Higher Education

Álvaro Antón-Sancho, Diego Vergaraand Pablo Fernández-Arias (2023). *International Journal of Online Pedagogy and Course Design* (pp. 1-19).

[www.irma-international.org/article/impact-of-the-digitalization-level-on-the-assessment-of-virtual-reality-in-higher-education/314153](http://www.irma-international.org/article/impact-of-the-digitalization-level-on-the-assessment-of-virtual-reality-in-higher-education/314153)

### Structuring CSCL Through Collaborative Techniques and Scripts

F. Pozzi, L. Hofmann, D. Persico, K. Stegmannand F. Fischer (2011). *International Journal of Online Pedagogy and Course Design* (pp. 39-49).

[www.irma-international.org/article/structuring-cscl-through-collaborative-techniques/58661](http://www.irma-international.org/article/structuring-cscl-through-collaborative-techniques/58661)