


Chapter 1

Exploring Educators’ Pedagogical Capabilities to Develop University Students’ 21st Century Skills: Navigating Within a Digital Learning Environment

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ABSTRACT

The purpose of the study reported on in this chapter is exploring the pedagogical capabilities of educators at a university in Namibia to develop the 21st century skills of undergraduate tertiary students within a digital learning environment. Against the background of navigating computer science education in the 21st century, the chapter will discuss e.g., self-directed learning, game- and problem-based learning, as well as blended and online teaching and learning. One of the objectives of the study centers on developing a framework around the fully online learning community model and different types of learning.

INTRODUCTION

This section will describe the general perspective of the chapter and end by specifically stating the **aim and objectives**.

Navigating Computer Science Education in the 21st Century

Computer Science Education (CSE) is a rapidly growing field with ever-changing technologies and complex concepts that can be challenging for students to understand (Qurat-ul-Ain, et al., 2019, p. 1). With accent

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similarities to the Eurasia journal article on Mathematics, Science and Technology education by the latter authors, the purpose of this chapter is to provide “a comprehensive review of several of the most popular teaching methodologies”, including ones related to game- and problem-based learning, as well as “an analysis of different technological tools” and online learning tools, such as Massive Open Online Courses (MOOCs).

CSE has become increasingly important in society today as technologies continue to play a significant role in daily life (Burbules, Fan, & Repp, 2020, p. 93). The journal article by the latter authors against the background of Geography and sustainability pointed out that quality “education is one of the pillars in the United Nations 2030 Agenda for Sustainable Development” Goals (SDGs), which aim “to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Despite its importance, CSE is often not afforded the same level of attention as other subjects within the education system. The integration of CSE into the education system is critical to prepare students for the challenges of tomorrow (Qurat-ul-Ain, et al., 2019).

Exploring Educators' Capabilities to Develop University Students' 21st Century Skills Within a Digital Learning Environment

Namibia has aspirations to become a knowledge-based society by 2030 as per its Vision 2030 developmental policy that articulates the role of education towards this goal. Education is expected to develop students “with flexible enquiring minds and critical thinking skills, capable of adapting to new situations and demands and continuously learning from own initiative” (Government of the Republic of Namibia (GRN), 2004, p. 30). At a global level, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 1999, p. 24) aims to “educate students to become well informed and deeply motivated citizens, who can think critically”, analyze the “**problems** of society, look for **solutions** to the **problems** of society”, as the role of higher education was outlined at its 1998 World Higher Education Conference (Teixeira & Shin, 2020).

To fulfil these developmental goals and global policy expectations, the revised National Curriculum for Basic Education in Namibia (Ministry of Education, Arts and Culture (MEAC), 2016, p. 8) identified core skills that learners need in order to operate in a knowledge-based society, that include learning to learn, personal skills, social skills, cognitive skills, communication skills and ICT skills, skills generally referred to as 21st century skills. In response to the basic education curriculum revision, the University of Namibia (UNAM) transformed its curriculum to be more competence based. This new curriculum implemented in 2023 seeks to embrace digital learning to promote learning approaches such as active and collaborative learning informed by social constructivism. The new curriculum also seeks to enhance students' 21st century skills of “creativity and innovation, critical thinking and **problem** solving, communication and collaboration and initiative and self-direction”, amongst others (UNAM, 2020, p. 3).

Target Audience

Like that of the book that it proposes to form part of, the **target audience** of this chapter includes people, who, like the editors, believe that by working together with educators, industry, and other stakeholders, a more skilled workforce and more equitable society can be created.

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