Chapter 2
Cloud-Enabled Learning Environment: Optimizing Collaborative Pedagogies, Bridging the Digital Divide, and Enhancing Inclusive Learning

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ABSTRACT

The emergence of cloud computing has changed the ways of thinking, communicating, performing professions, and maintaining sociocultural and community relations. The capacious cloud storage and its amazingly growing facilities and capabilities in virtualizing human activities and the entire phenomenal entities and in synchronizing them with new digital cloud technologies such as laptops, tablets, smartphones or mobile phones, and personal computers (PCs) have not only increased human capabilities, but also added new creative dimensions to sociocultural, economic, political, epistemological, ontological, and educational fields. The ways of producing, sharing, and acquiring knowledge, teaching, and learning have been profoundly changed. So this chapter first defines what a cloud-enabled learning environment refers to and critically examines how cloud computing optimizes learning opportunities and transforms teaching and learning pedagogies. Then, it critically explores how cloud-enabled learning environments and cloud-based pedagogies can address the gaps in education caused by the digital divide, how cloud-assisted networks of local learning-hubs can contribute to the success of global literacy campaigns, and how cloud computing reaffirms the significance of distance learning or massive open online course (MOOC) and cloud-assisted practices of teaching self. The rapid shifts in pedagogical grounds from non-virtual paradigms into the virtual world or the cloud clearly indicate that in the future teaching and learning activities and pedagogies become more cloudocratic.

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INTRODUCTION

The expeditious growth in the use of big data and the emergence of the cloud are the two most significant hallmarks of the twenty-first-century revolution in the field of information and communication technologies (ICTs) and digital technologies. Here the phrase “the cloud” is used as an umbrella concept that includes all of virtual machines, virtual storages, virtual platforms, and the Internet. Another important phrase alternative to “the cloud” is “cloud computing,” which the National Institute of Standards and Technology ([NIST] 2011) defines as “a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storages, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction” (p. 2). The cloud is used to generate, shape, and contain information, ideas, knowledge, and skills in order to globally share and communicate them through a communication system enabled by cloud technologies such as the Internet, the world wide web (WWW), PCs, tablets, smartphones, and mobile phones. The information, ideas, and knowledge about diverse human activities, skills, and all phenomenal entities have been increasingly being translated into the forms of digitized data—a new epistemological perspective. They have their parallel existence also in the virtualized digital world, alternative to the real world—a new ontological ground. The underlying urgency bolstered by the facts and arguments about the rapid growth in the acts of digitizing ideas, concepts, and knowledge about human activities and the phenomenal world is that there is a huge growth in need of high capacity disk-spaces in order to adjust the ever-increasing data. Consequently, big data centers such as Google Data centers, Facebook Data centers, Amazon Data centers, and Microsoft Data centers have been established. These big data centers offer facilities of high capacity disk-spaces which are made globally accessible and synchronous and called “virtual storages.”

Along with the establishments of big data centers, local storages have been moved into global virtual storages, local networks into global networks, and on-premise settings into off-premise settings. The hardware and other physical facilities such as disk-space or storage device, random-access memory, and other in-house infrastructure that an end-user or a client computer requires to be run are moved into remote big data centers or the cloud. The virtual machines in the data centers built up in different locations are globally linked by the Internet.

The Internet works as a global conduit or router through which the global and synchronous process of storing big data into virtual storage/the cloud and accessing into it is always being securely and innovatively executed. Viewed broadly, the cloud implies a series of new concepts such as globally elastic virtual storage, a new virtual platform where human activities can be performed, a faster means of communicating data around the world, and an increased ability to perform creative works through collaborative global networks. The cloud is one of the most innovative dimensions of ICTs that has very lately added new innovative dimensions to economic, social, cultural, and educational efforts as well as to political practices.

The educational dimension of cloud computing provides a new form of physical and electronic foundation upon which a rapid increment of ability has been progressively witnessed in educational field. The attributes of the cloud have significantly changed the ways of thinking, communicating ideas, creating knowledge, and sharing as well as teaching and learning pedagogies. The cloud provides a virtualized data space where teaching-learning materials are re-/generated, re-/stored, re-/shared, re-/used, and communicated globally and instantly.