

Chapter 5

3Ds of Integrating Cloud Technologies into Classrooms: Digital Identity, Competencies, and Self-Efficacy

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ABSTRACT

Cloud technologies offer many pedagogical possibilities for collaboration, ubiquitous learning, and documenting student engagement activities through learning analytics among others. However, effective integration of cloud technologies demands a complex set of teachers' theoretical and conceptual understandings and digital competencies. Furthermore, the teachers also need to re-examine their critical internal barriers such as the lack of digital self-efficacy. A closer look reveals that there is an undergirding notion – the teachers' digital identity – that enables them to develop their conceptual and practical digital competencies and self-efficacy. In this chapter, I critically explore and examine new pedagogical possibilities of integrating cloud technologies into classrooms within the triadic interplay of digital identity, competencies, and self-efficacy (3Ds).

INTRODUCTION

Effective integration of technology into classrooms involves a complex process. The teacher, whether as a sage on the stage or a guide by side, plays central role in blending technology into teaching and learning processes. Customarily, teachers' digital competencies followed by their technology beliefs and attitudes (referred to in this chapter as digital self-efficacy) are considered the most important factors for successful integration or blending of technology into classrooms (e.g., Ertmer, Ottenbreit-Leftwich & York, 2006; Hew & Brush, 2007; ISTE Standards for Teachers, 2016). However, many teachers face enormous challenges to develop their digital competencies and maintain a positive digital self-efficacy in the context of ever evolving technological advancements. This is even more challenging when it comes to using emerging technologies such as social media, educational apps, learning games, and cloud computing. As result, technology makes little, if any, inroads to the classrooms.

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3Ds of Integrating Cloud Technologies into Classrooms

Although digital competencies and self-efficacy are essential, I argue that there is a little explored third factor – the teachers' digital identity, which is at the core of their technology-mediated pedagogical practices. Developing a strong, solid digital identity, I argue, empowers teachers to explore emerging technologies and build their digital competencies and self-efficacy accordingly. In this chapter, I seek to critically explore and examine new pedagogical possibilities of integrating cloud technologies into classrooms within the triadic interplay of digital identity, competencies, and self-efficacy (3Ds).

Cloud Technologies for Education

The diffusive nature of digital technology has made it pervasive in our everyday lives and classrooms impacting on how we interact, socialize, learn, and live. Digital devices such as smartphones, tablets, gaming consoles, and computers are now personal and household gadgets and regular types of educational technology equipment in classrooms. More recently, those digital devices are being powered by an emerging technology, called cloud computing, that has the capacity to transform the existing physical computing resources and tools into online environments.

Cloud computing has already gained significant attraction in the field of teaching and learning. Of the many useful cloud affordances, teachers and learners can utilize its data storage capacity along with the other features such as creating content, sharing, and interacting online. Moreover, new features and functionalities are progressively being added to cloud technology making it viable for educational engagement more than ever. Cloud's features and affordances resonate with the teacher and learners because they carry potentials of pedagogical imaginaries of collaboration, anytime anywhere learning, and documenting the learning processes and outcomes through the implementation of learning analytics. Yet, cloud technology is available on-demand and at affordable costs ranging from free and basic, to customizable, and systemwide purchases. As result, many teachers around the world use cloud technologies such as Google drive, Edmodo, iCloud, and Onedrive to facilitate teaching and student learning engagement in more dynamic ways. The teachers harness those tools to facilitate their ongoing pedagogical practices and also to design new types of learning environments such as flipped classrooms and social learning platforms.

What Is Cloud Computing?

Cloud computing is basically the virtualization of computing resources such as servers, data, software, and applications. The National Institute of Standards and Technology (NIST) states that cloud computing has three major service capabilities including infrastructures as a Service (IaaS), platform as a Service (PaaS) and, software as a Service (SaaS) (Mell & Grance, 2011). For education, PaaS and IaaS are mainly designed to meet the large scale computing needs and resources such as at the institutional levels (e.g., colleges and universities) as those cloud services provide on-demand services for massive scale applications, storages, and servers.

SaaS, on the other hand, is designed for small business and individual or small group consumers. Teachers and learners can harness some of the limitedly free SaaS based cloud services such as Google Drive, OneDrive, and Edmodo. Those cloud services and tools offer new and more efficient pedagogical affordances. Perhaps the single most important advantage of using cloud over the traditional computer-based hardware and software is to move everything online – folders, files, documents, and the whole

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