

Chapter 22

Designing a Cloud-Based Assessment Model: A New Zealand Polytechnic Case Study

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ABSTRACT

A cloud based assessment learning environment exists when the collaborative sharing features of cloud computing tools (e.g. Google Docs) are utilised for a continuous assessment of student learning activity over an extended period of time. This chapter describes a New Zealand Polytechnic based success story which utilised a multi-method approach to investigate student perceptions of a cloud assessment learning environment. The learning environment factors that are examined in this chapter include progress monitoring, cloud tools (i.e. Google Docs), feedback, cloud storage, technology preference, student achievement, and student engagement. This chapter not only describes this unique learning environment, it also provides a clear insight into student perceptions of the cloud assessment learning environment. In concluding, the chapter provides some outcomes that may be utilised to improve pedagogy and student outcomes in a STEM based multimedia learning environment.

INTRODUCTION

The cloud based assessment learning environment is a dynamic, unique and new learning environment capability that has been made possible by the rapid development of cloud based computing services, associated software and technologies. These cloud services are available both commercially and in the public domain and provide new kinds of interactivity for humans and their data.

A seemingly simple idea centering on the provision of off-site computing servers and services to individuals and businesses also seems to have provided enhancements to ways in which collaborative teaching and learning can take place. It is the purpose of this chapter to consider several key areas essential to the design and application of a cloud based assessment learning environment model operating in this education technology space.

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Firstly, this chapter will define the cloud based assessment model. Secondly, the chapter reports research that has investigated key factors in the cloud assessment learning environment related to learners. These include student perceptions of the cloud assessment learning environment, student conceptual change in understanding and interactions with the cloud based assessment environment and student engagement with the cloud based assessment environment as an alternative to standard methods used in teaching and learning.

BACKGROUND

Cloud assessment learning environments have not been the focus of extensive research at this time. This chapter provides new insights from the first study of its kind in New Zealand to engage in cloud based assessment technologies. This chapter also presents key findings from an investigation into student perceptions of the cloud assessment learning environment that emerged from the core of a much larger study that was conducted in 2013 by the authors (Steele, 2013). This study was different from many preceding learning environment studies in that the lecturer involved was a participant observer and researcher who immersed themselves in a detailed examination of this new way of engaging technology in teaching and learning. As a result, this study is an authentic examination from within an emergent cloud based assessment learning environment, and provides a multi method and multi perspective student and academic insight into this environment for the first time.

As was described in the introduction the cloud assessment learning environment is novel, unique and very new in educational learning environment research. Typically the literature has been devoid of cloud based computing research, as it is a new area. There is none that is focused on the cloud based assessment learning environment. Cloud computing on the other hand is an area that in

business has rapidly expanded in its uptake and applications. This is evidenced by its increasing encroachment into everyday technologies such as the Apple iPhone that relies upon cloud-based technologies for the dissemination and storage of music and photographs, amongst other things.

Other examples of educational and business use of the cloud can be found at popular review websites such as the Cloudwards website (Cloudwards, 2015). Sites such as this have emerged as a direct result of cloud based computing. Reports are beginning to emerge regarding the degree to which the cloud is reaching ubiquity in business and as enterprise solutions education. For example, the 2014 State of the Cloud Report by Rightscale, a cloud portfolio management company (Rightscale, 2014).

Another example of the use of Cloud technologies in learner assessment by Ferencik and Solomon (2013) centred on the development of a web based content management system to address issues transparent standards for assessing clinical competency in Medical Education. This study varied from the present study in that it used observers and videotapes and was not developing a cloud based assessment model as a part of the teaching exercise, but rather using a cloud based model to record clinical teaching activity. This was a component of the present study, which extended research activity into the delivery as well as the assessment of the learning environment. Another example of this is a study by Chiu (2014) who developed a system to assess student learning with and without parents and traditional lectures as a comparative analysis of the impact and reliance on teachers by students in English as a foreign language. Findings from this study provided a contribution to better understanding of teacher uptake of technology and their willingness to utilize technology in their teaching. These findings were consistent with the present study, that sought to control for these teacher inhibitory factors by using a trained and expert technology

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