

Cloud Computing Issues for Higher Education

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Abstract: Advances in technology offer new opportunities in enhancing teaching and learning. Many advances in learning technologies are taking place throughout the world. The new technologies enable individuals to personalise the environment in which they work or learn, utilising a range of tools to meet their interests and needs. In this paper, we explore the features of ‘cloud computing’ (CC) in order to exploit the affordance of CC in advancing the scholarship of teaching and learning in a higher education context. In the paper we argue that the cloud computing has a significant place in the higher education landscape both as a ubiquitous computing tool and a powerful platform that can enhance engagement among educators to understand and improve practice, and thus, increase productivity. Specific cloud tools considered in this paper are the Kinsta Cloud, IBM Cloud, VMWare, Google Docs and Microsoft’s SkyDrive. By critically examining the utility of these tools, we find that they are user-friendly media which can be used as a personal digital workspace as well as for storage for digital artefacts. Such artefacts stored in the “cloud” can be accessed from anywhere at anytime, and can be easily shared with others. It is worth trying its use by academics for sharing tested-and-trying teaching materials, artefacts, portfolios, strategies, and research and all these, with an eye not only to improving their own classroom but to advancing practice beyond it. As a result, the purpose is to raise awareness about concept of Cloud Computing.

Keywords: Cloud Computing, Scholarship of Teaching and Learning, Higher Education

Introduction: Challenges in Higher Education

Higher education (HE) landscape around the world is in a constant state of flux and evolution, mainly as a result of significant challenges arising from efforts in adopting new and emerging technologies and pedagogies in their teaching and learning environments. This is mainly as a result of a new genre of students with learning needs vastly different from their predecessors, and it is increasingly recognised that using technology effectively in higher education is essential to providing high quality education and preparing students for the challenges of the 21st century. However, an unresolved challenge to the effective use of technology in education is the continued dominance of traditional didactic pedagogy despite the critical need for a paradigm shift from the passive teacher-centred approach (transmission of information and skills) to student-centred constructivist approaches whereby students construct knowledge through interaction and collaboration with peers as well as teachers. The bulk of today’s e learning systems still consist of simple conversion of classroom-based content to an electronic format while still retaining its traditional distinctive knowledge-centric nature.

Although the new technologies have the potential to play an important role in the development and emergence of new pedagogies, where control can shift from the teacher to an increasingly more autonomous learner, and to rescue the HE from this appalling situation, the change is very slow or not forthcoming at all for various reasons. This is mainly because both teachers and learners require a number of specific skills for technology-supported constructivist approaches that is, online tutor skills, and online learning skills; learners get limited support to develop such skills from their teachers who often lack these same skills themselves.

It is becoming clear to many people, including students, that traditional methods are unable to address the needs of HE where the emphasis is on higher order learning experiences and outcomes demanded of a changing knowledge- and communication-based society. The rapid advances in technology in the last few decades have had a significant impact on work, leisure, culture and social interaction. The kind of skills students need to develop to be prepared for the jobs of the 21st century is different from what they needed 20 years ago. Therefore, it is not an option but is a necessity the move beyond our comfort zones towards adopting constructivist approaches that can better equip our student for the needs of the 21st century.

Scholarship of Teaching and Learning (SoTL)

It is becoming increasingly evident that teaching should no more be a private affair (as it used to be traditionally) but a peer-reviewed transparent process that makes it known what makes learning possible and how student learning can be improved generally. An ideal model of the SoTL offers a framework for peer review and making transparent the processes of making learning possible, not only in one's own classroom but even beyond it. The salient attributes of SoTL are:

- Teaching as well as its development is done publicly to invite critical review in order to improve teaching but also with an emphasis on inquiry into student learning.
- *Peer review* and evaluation of teaching and its development; peer review enhances the dialogue related to teaching effectiveness, course content, pedagogical methods, and assessment strategies;
- *Adoption by peers* through further development or modification or even as it is in an atmosphere of intellectual openness which is a recognition of the appropriateness of one's approaches;
- Investigation of questions related to student learning, particularly around issues of student learning—the conditions under which it occurs, what it looks like, how to deepen it, and so forth—with a view to improving not only their own classroom but also to advancing practice beyond it.

By constructivist belief, the emphasis is on learner-centred teaching and learning environments that is nurtured/ supported by the affordances of emerging communication technologies. In this paper the focus is on SoTL. By the principles of SoTL, the success in aligning our classroom practice depends largely on our individual efforts, and our ongoing dialogue with colleagues who may have done it successfully before or who are struggling with the same transformation.

For most teachers, SoTL is an uncharted territory; technology can greatly facilitate and advance the SoTL. More than ever before, there is an urgent need for more and better research through increased active collaboration among teachers in order to optimise their roles and expertises. Active collaboration among teachers is no longer an option, but a *must* for their success as teachers.

What is cloud computing?

Although the concept of “cloud computing” has been around for over a decade, the terminology is gaining popular traction. Cloud computing is the development of parallel computing, distributed computing, grid computing and virtualization technologies which define the shape of a new generation. Cloud computing is regarded as massively scalable, an on-demand configurable resources computing model and is one of the latest topics in the information sector. Technical aspects of cloud computing is certainly out of the scope of this paper. However, it is essential to provide certain features that are relevant to academics. The concept of “computing in the cloud” is about the delivery of IT services that run in a web browser; the type of services range from adaptations of familiar tools such as email and personal finance to new offerings such as virtual worlds and social networks. Storage of digital data is an important service among these.

Cloud computing is a computing platform that resides in a service provider's large data centre and is able to dynamically provide servers the ability to address a wide range of needs of clients. Some people call it the World Wide Computer. Technically, it is a computing paradigm in which tasks are assigned to a combination of connections, software and services accessed over a network. This network of servers and connections is collectively known as *the cloud*. Physically, the resource may sit on a bunch of servers at different data centres or even span across continents. Actually, it is designed to work like a whole computer in the cloud and aimed at a wider audience, including those who can't afford their own computer. Computing at the scale of the cloud allows users to access supercomputer-level power. Instead of operating their own data centres, firms might rent computing power and storage capacity from a service provider, paying only for what they use, as they do with electricity or water. This paradigm has also been referred to as “utility computing.”

Some of the providers of cloud computing service are the Kinsta Cloud, IBM Cloud, VMWare, SAP, Oracle Cloud and Microsoft. Microsoft's Windows Live software suite includes an updated electronic mail program, a photo-sharing application, a writing tool designed for people who keep Web logs and SkyDrive for online data storage and FolderShare services. By offering a suite of free word-processing and spreadsheet software over a browser, Google took cloud computing a step further.

The typical uses of cloud computing to academics are:

- It can be used as a personal workspace;
- Universities and colleges can build custom private clouds that can be integrated into public cloud services.
- A convenient tool to engage in the scholarship of teaching and learning;
- Provides opportunity for ubiquitous computing;
- No need for backing up everything to a thumb drive and transferring it from one device to another;
- When buy a new system, there is no need to copy all stuff from one system to another.
- Provides large amounts of processing power.
- Cloud computing has the capacity of scaling and elasticity which is perfect for academics

Conclusion

The paper describes the salient features of the SoTL and discusses how the educational potential of 'cloud computing' may be utilised for advancing the much needed practice of collaboration among educators, and achieving the ideals of SoTL. We argue that the cloud computing has a significant place in the higher education landscape both as a computing tool and a powerful platform that can enhance engagement among educators to understand and improve practice, and thus, increase productivity. Specific cloud tools considered in this paper are the Kinsta Cloud, IBM Cloud, VMWare, SAP, Oracle Cloud and Microsoft. By critically examining the features of the Google Docs and Microsoft's SkyDrive, we find that they are user-friendly media which can be used as a personal digital workspace that can be accessed or easily shared with others anywhere at anytime.

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