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Intervention for Learning: Literature and Practice

Assignment 1

Content

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Abstract

By having integrated Cloud Computing and technology, into the National Curriculum of ICT and Computing, this as a whole has transformed teaching and the way students learn and achieve. By having embedded the use of technology into classrooms, this has created a constructivism attitude towards teaching and learning. This is in order to benefit the learners and to provide well collaborative and engaging lessons. With the integration of such technology in the classrooms, in perspective of the constructivist methodology, debates have taken place as to whether this has portrayed a positive or negative intervention for learning. The aim of this assignment 'Intervention for Learning' is to reflect and research professional and academic literature, particularly focusing on the collaborative characteristics of Cloud Computing and to constructively analyse the aspect and its importance to teaching and learning. Does Cloud Computing have a collaborative impact upon a learner? Is Cloud Computing continuing to rise as an intervention for learning within ICT and Computing?

Introduction

For this assignment I am going to be critically focusing and analysing the professional literature of the technological affordances and challenges of Cloud Computing, within the classroom, in ICT and Computing lessons. Cloud Computing is recognised as a technological service managed through the internet. Within the educational environment, Cloud Computing is seen as an interactive form of digital media to improve education. Technology is emerging and improving and thus being incorporated into the curriculum within schools to further the learning of the students.

This assignment will explore Cloud Computing as an intervention for learning. The paper will delve into the challenges and the technological affordances of Cloud Computing, which can be largely defined as the "way in which technology offers or supports certain things, specifically to teaching or learning" (Putnam, 2008). Cloud Computing is identified as being a currently modern way of learning. It is collaborative amongst learners, giving the freedom to share and communicate ideas, by allowing numerous users to work on one document all at one time. Cloud Computing is easily accessible for learners, by providing them with the opportunity to access work from almost any technological devices, such as iPads, mobile phones, smart televisions and games consoles. Cloud Computing is seen as successful, cost-effective, and comprehensive as you can store various types of contents onto 'the cloud', ranging from music, photos, to applications and documents similar to Microsoft Office Suite.

Exploring the affordances and challenges of Cloud Computing is vital for my professional development within teaching, as recently the curriculum has changed. With Cloud Computing being innovative, it will be beneficial and enable me to assist students to work collaboratively in the classroom using what technology has to offer them. Secondly, the use of Cloud Computing will keep the students active, engaged and minimise disruptive behaviour in lessons, by providing a challenging and new way of learning.

The importance of collaboration

The assignment aims to constructively focus on the collaborative aspects within learning; does learning with technology provide collaborative lessons? In Mark Warschauer's book *'Learning in the Cloud: how (and why) to transform schools with digital media'*, he mentions how "Computers and the Internet help amplify good teaching."(Warschauer, 2011). With today's technology constantly updating, Cloud Computing has further supported individual learners to collaboratively experience, understand and learn in their own constructive way. With the development of Cloud Computing, as well as developing individual learners, it has provided the opportunity to share learning practices by active use of technology. By introducing active use of technology within classrooms, and not just in ICT and Computing lessons but across all curriculum areas, it encourages students to engage and collaborate. From experience of teaching, I am aware of how students like to interact and share their work with one another; students feel more engaged in lessons when talking about their work and sharing ideas. Pair work and group work play a vital part of education.

Collaboration is seen as vital in education, as it is an effective way of learning. Psychologist, Vygotsky had stated a theory that "students can perform at higher intellectual levels in collaborative situations than when working individually" (Vygotsky, 1978). It is perceived beneficial by stimulating the learner in order for him or her to achieve their academic goal. Henry Ford stated that, "Coming together is a beginning. Keeping together is progress. Working together is success."

Within the learning environment, collaborative learning can be identified as the teacher teaching the student, the students teaching the teacher, or the students teaching one another, and trying to reach an understanding and achievement of what is being taught. Cloud Computing has this to offer by providing the learner with its range of features and applications, to endorse collaboration. Referring back to what Warschauer had said about technology 'amplifying good teaching', and linking this with collaborative learning, Cloud Computing has facilitated ICT and Computing classrooms as a virtuous resource for teaching students through all key stages, across the curriculum and keeping teaching modified with the 21st Century. It is perceived as a constructive approach to building knowledge, support and guidance towards the students' learning. Having the technology there to facilitate collaboration could be portrayed as a bonus through teaching students how to bond as a team.

Constructive critique of collaboration using Cloud Computing

"Google Apps from Google, which has as many as 1.5 million businesses that use its various collaborative applications including e-mail, document management, and instant messaging." (Hurwitz; Bloor; Kaufman, 2009). Here, away from the education setting, we have a major online search engine providing individuals and businesses with a Cloud, in order to collaborate effectively with one another. As a trainee teacher, this I can relate to as Google Apps is a type of Cloud Computing the school uses in order to communicate and collaborate productively. Colleagues and students constructively work together on a daily basis in and out of the classroom, by emailing and file sharing documents, homework, presentations and student data. During the last term of working at a mixed secondary, community school, west of Southampton, I observed how collaborative the staff and students have been, by making use of Google Apps. My Head of Department and I made use of Google Docs as a mean of communicating and sharing training plans, timetables, lesson plans, and schemes of work in order to develop my teaching practice and in order to deliver organised, structured, engaging, motivating and collaborative lessons.

However, Roberts (2004) states, that online collaborative learning can lead to "…difficulties in initiating and maintaining communication. Messages sent by email…were more easily ignored because they lacked the immediacy of a face-to-face conversation." This argues the constructive learning theory that the use of technology in online learning can cause lack of collaboration. Using the Cloud to email or 'maintain communication' with another could lead to messages being effortlessly left aside or disregarded. Students like to email one another or their subject tutors, in order to get information related to homework or

feedback from lessons. If a student has a poor relationship with another peer member, emails, including ones assessing each other's work can easily be avoided, causing jeopardy to, and disengagement from, ones learning.

The companies that provide businesses and the education sector with Cloud Computing "are focused on collaboration as a service today" (Hurwitz; Bloor; Kaufman, 2009). Google happens to be a company amongst others like Microsoft Live and BT, who are extremely focused on collaboration as a service especially amongst businesses. However, with the facilities that Google has to offer, it has a huge collaborative learning impact on teaching within the classrooms. This has been witnessed in my lessons, for instance, when teaching a year 7 class how to file share. By observing as well as teaching the lesson, the students seemed highly engaged and enthusiastic about file sharing with other members of the class. They were in awe of the fact that they could share and type on one Google document at the same time as one another. The presentation that they file shared using the Google App, allowed for them to work together on set projects and peer assess each other's classwork that had been produced. This was a positive and constructive form of collaboration.

In a WordPress article 'Continuing, Applied & Professional Education Change & Growth in lifelong learning and education ', the following quote by Bechard is mentioned:- "Technological Pedagogical Content Knowledge (TPACK) attempts to identify the nature of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge." (Bechard,

2011) Bechard felt that through combining technology, content, pedagogy and knowledge, you can achieve successful teaching within the classroom; integrating collaborative use of digital technology into lessons will further enhance student learning in a creative and motivating approach.

Lee Shulman's dispute is that "we have to consider the pedagogic content knowledge –how will we enable the children to learn?"(Woollard, J. 2007). This could be critically read and analysed by considering that using forms of digital media for assistance to teach students a modern way of learning, will empower the children to learn – by making use of Cloud Computing and by giving them the opportunity and understanding to know that there are other resources for learning out there and other forms of technology. Using Google applications can benefit a student academically. The student and their family may not be able to afford software applications like Microsoft Word, PowerPoint and Excel. Therefore, by having the availability of Google application, which provides free use of the Google Cloud storage and their facilities, including applications that support the Microsoft Office Suite programs listed above, can be an added bonus to assist in the academic learning of students. Having training experience at a school where a majority of the students come from a disadvantaged family background, I have seen that having the use of Google applications has been of extreme benefit; students can access their homework from all subject areas as well as ICT to support them with their academic learning. They can approach adaptive learning in a hands on and collaborate manner with other peer members, whether they are in the classroom or at home. It is a creative and inventive way of learning from a constructive perspective of education.

Nevertheless, Shulman and Sparks (1992) claim that, "Teachers must have commitments to a vision of educational excellence in fair and just societies, a vision that motivates their choices and lends wisdom to their exercise of professional autonomy... But the teacher must remain the key. The literature on effective schools is meaningless; debates over educational policy are moot, if the primary agents of instruction are incapable of performing their functions well. No microcomputer will replace them, no television system will clone and distribute them, no scripted lessons will direct and control them, no voucher system will bypass them" (Soton PGCE website). This could dispute that the teacher should be providing collaborative learning within the classroom rather than a computer as ' no microcomputer will replace them'. On the other hand, one could argue that Google Drive and its applications lead to energetic lessons and learning within ICT and Computing to be constructively collaborative, fun and engaging. Similar tasks which would be allocated to the students in lessons, without the use of Google applications, would not provide lessons as motivating, innovative and challenging in a positive way. When students have entered an ICT and Computing lesson, I have witnessed that they seem more eager to absorb the topics within the national curriculum, by using the computers, rather than being taught a theoretical lesson and not being able to make use of the workstations in the 50 minute lessons. The computers teach the students a new cooperative and innovative way of learning, leading to swapping and negotiating ideas associated to their work.

Pinheiro mentions in her article, *'Constructing knowledge: an experience of active and collaborative learning in ICT classroom'* that the use of ICT in the "learning environment gets learners actively involved in learning and working together in productive ways" (Pinheiro, 2012). Rather than just teaching using the old conventional method, applying a more

modern and stimulating approach gets the students keen to learn. Pinheiro had also mentioned that “Active and collaborative learning are well known as alternative strategies to conventional teaching models”. Cloud Computing and the internet in general has a variety of collaborative tools to offer – which has developed the students need to participate and highly engage in lessons. Children have a natural curiosity about what current technology has to offer. By introducing new technological applications and developments and embedding them into lessons, this will keep students attentive and motivated while promoting active learning.

Pinheiro’s opinion is backed up by Silén & Juhlin, *et a.l* (2008), who claim that making use of traditional teaching methods are derisory for what the current National Curriculum is requesting to be taught. With the traditional teaching method it is the teacher who controls the class and sources the learning activity to occur. From previous training sessions held by my alliance, and from teaching and observing Computing lessons, I have cultured myself with the method ‘3B4ME’, which is known as the ‘Brain, Buddy, Boss’ method. If a student is struggling with a problem, the first step is to try and analyse the problem unaided (brain). The second step is to ask another peer member (buddy). If they are still struggling, then ask the teacher (boss). This encourages active, independent, yet collaborative learning. When delivering a Cloud Computing lesson, the students file shared and created a mind map. By having the support of another student, they worked collaboratively and kept on-task. This worked specifically well for the students of low ability, whom would have usually required differentiation. Having the support of their class-members was beneficial and supported them to engage with active learning. The SEN student was comfortable participating in the task, rather than feeling daunted by having to put hands up when contributing to lessons.

Using Google applications and file sharing for the task fortified creative thinking, reflective learning, teamwork and effective participation.

Kaufman et al. (1997) describes “collaborative learning as a spectrum of instruction that involves small groups of students who have assigned an academic goal”; on the other hand, Prince (2004) states “cooperative learning as a structured form of group work where students pursue common goals while being assessed individually”. With Cloud Computing, students interchange between collaborative and cooperative learning. The students can be provided with open–ended or closed learning tasks, but can still be encouraged to work actively and share paired or group ideas using the applications on Google Drive. It can be argued from the above quote that there are slight differences in collaborative and cooperative learning; however it can be stressed that active learning is still achieved and there is still a social and shared development of skills, assessing their individual performances.

However in the article, *‘Constructing knowledge: an experience of active and collaborative learning in ICT classroom’*, Pinheiro highlights that, “(others like McKeachie, 1972) admit that the improvement of active learning over lectures seem to be small.” McKeachie makes it clear that there is little gained from active learning, rather than being lectured using the traditional method. The quote argues that simply introducing activity into a classroom may fail to capture the attention of the students, especially if the activities have not been planned to facilitate the learning outcomes of the lesson being taught. From observing lessons I have taught with year 7, I am aware that providing them with the technological resources to boost active learning is beneficial. When teaching a low ability group, having

the technological aspect embedded within the lesson plan helps them grasp a concept being taught, by visualising and sampling the task independently.

Thus far, everything that has been mentioned in this assignment has connected with the technological affordances of using Cloud Computing in teaching. Students are able to communicate and collaborate with their peers, using Google applications, building a connection using the emailing service, file sharing and working on documents as a group, developing on peer-to-peer learning. There is a social connectivity and a wonderful rapport in ICT and Computing lessons, encouraging healthy learning. The students can share their ideas, data and make adjustments to meet the requirements of a task set, and at the same time they are developing their subject knowledge, as well as developing their digital and social abilities.

I delivered a lesson where students had to peer mark a presentation about themselves and about 'Internet Safety'. These presentations were created using Google apps – presentation. The students were asked to choose a different font and different colour and check through each slide to see if the work made sense; likewise, they had to correct spelling, punctuation and grammar (SPAG). They were provided with a random student to file share their work and assess. Presenting their work to another person within their class was exhilarating for them and they were enthusiastic to be obtaining feedback via Cloud Computing, while at the same time developing their social and cognitive skills.

"The collaborative activities with others, promoted by this [type of] learning environment, allow [students] to develop multiple perspectives, where some type of 'shared reality' is

produced" (Neo, 2007, p. 151) Collaborative learning will guide the student when using Cloud Computing technology in their learning environment, further progressing and achieving tasks. This is important as technology is further developing and by making use of Cloud Computing within the learning environment, students will also be further developing along with the technology, and will be educating themselves, collaboratively, from various viewpoints. They will view situations from other perspectives by sharing and learning as a group. This is crucial, as by sharing ideas as a group, students are continually enhancing their knowledge within their learning.

Implications for teaching and learning with the use of Cloud Computing from a Constructivism approach

"The basic idea of constructivism is that knowledge must be constructed by the learner" (Gilakjani, A., Leong, L., Ismail,H., 2013) which links in with Piaget's theory that there should be "interaction between subject and object" in order to achieve a constructive, actively engaged lesson. The students need to grasp concepts individually and learn them by constructing and gaining the content themselves and by interaction and deeper thinking in lessons. The students require interaction between the subject being taught, and the object which is being provided to teach, with the object being the technology and the use of Cloud Computing. The teacher is there to provide and encourage a stimulating learning atmosphere as well as support and guide the students with accurate knowledge when essential. If a student was to approach a challenge or error of knowledge, the teacher will intervene.

"Introduction of technology into the classroom environment exerts a change in the way students' learn." (Gilakjani et al. 2013) Cloud computing and its functions has positively utilised the way in which a student learns. There are many features available in Cloud Computing that could academically support a student's learning. As previously mentioned, from working in a school where there are many students who do not have the advantage of installing Microsoft Office Suite, due to financial situations, they have the support of Google Cloud Computing, which facilitates learners to access similar applications for free. Cloud computing could possibly be seen as being cost-effective and may possibly provide the

opportunity for the learners to actively collaborate and communicate from their households. This is case-study which could possibly be researched. This constructively gains the interest of the student and keeps them focused on the subject, rather than secluding and lacking engagement. It also encourages independent thinking.

The file sharing tool which has been embedded into Google applications increases the students' critical thinking by peer-to-peer work and positive collaboration. The students are making use of "tools and media that will shape the way students learn, express themselves and perform" (Gilakjani et al. 2013), positively enhancing their learning. It is used as a form of peer and teacher assessment; feedback from assessments can be provided. This is an effective constructivist perspective.

"Bringing technology into the classroom is the increase in collaboration among teachers and students" (Gilakjani et al. p2). Students feel more confident working with technology. From experience, after delivering instructions on how to attach a file and send an email, by seeing how the students manage the task and achieve this both independently and with the help of others, provides the lesson with a positive atmosphere. Knowing that the learner has achieved a goal with guidance, yet also with collaborative input, is important.

Students "can use email to place their homework and projects on a location that is available at all times." (Gilakjani et al. 2013). With technology developing on a daily basis, Cloud Computing has opened up the opportunity for students to be able to access Google applications, such as emails, files they have created, files they have received or shared,

Google calendar and contacts, from almost any technological device. Students have the benefit of accessing their Google drive from their mobile devices, iPads, games consoles, tablets and laptops, whether they are in school, at home, or even abroad. The number of times I have had a student say “Miss, I have forgotten my homework!” or “Miss, I could not complete the task as I forgot to save it onto my USB”, is almost non-existent. Therefore the reliability and the availability of Cloud Computing is of great advantage.

“...learners construct understanding. They do not simply mirror and reflect what they are told or what they read. Learners look for meaning and will try to find regularity and order in the events of the world even in the absence of full or complete information.” (Von Glaserfeld, 1984) Here, Von Glaserfeld stated that in order for a student to achieve he/she must look for the meaning, try to challenge and understand the task. With Cloud Computing, when using Google applications, students will challenge their academic levels and grasp the concept of the functions available on Google. They will analyse the information provided and fill in the missing pieces of the jigsaw puzzle and collaborate with class-fellows by disseminating their ideas and providing feedback.

As well as creating documents using Google applications, it is common for storing files. Students are constantly panicking about losing their USB sticks, and Google Drive provides the facility of being able to use their storage space in the Cloud for free. This allows students to collaborate and access their stored files from anywhere. Linking with the constructivism theory, it encourages students to be responsible with their own learning. Having their files

in one storage space on the Cloud and being able to access those from anywhere will not affect their learning. Students will be able to academically keep up with their tasks.

Conclusion

Technology is changing on a daily basis. From researching and critically analysing various academic literatures, there are many positive opinions on using technology and digital media as a form of developing collaborative learning within the classroom, to facilitate academic achievement, and active rather than passive learning. This can be seen within Gilakjani et al. (2013) study, "Introduction of technology into the classroom environment exerts a change in the way students' learn." (Gilakjani et al. 2013). Students are more involved in lesson activities taking place and achieving learning outcomes, when collaborating with one another. By approaching the constructivist methodology, using Cloud Computing can enable a learner to:-

- develop engagement
- engage in collaborative learning
- reflect upon class work and collaborate the reflection by sharing with other students
- motivate a student and
- enhanced learning

Making use of Cloud Computing could be perceived as more effective than the traditional method of teaching, providing more assistance. This is stated in 'Teachers' Use of Technology and Constructivism' that, "tools and media that will shape the way students learn, express themselves and perform" (Gilakjani A., Leong L., Ismail H., 2013). This shows that visual use of technological tools can assist learning.

With the traditional method of teaching ICT and Computing having to be, making use of Microsoft Office packages to complete tasks. Cloud Computing provides the students with the opportunity to accomplish their learning academic targets, flexibly and collaboratively, grasping the subject or topic being taught.

Overall, having Cloud Computing combined with the collaborative aspect of learning, students will be able to peer assess, have synchronized class discussions (with less confident students who are unable to speak out in class, contributing online). When using Google Drive within a lesson, students were able to peer assess each other's work on Google's version of Microsoft Word and were able to discuss and correct one another's work. I have found by using Cloud Computing this enabled the students to complete group projects, and gave them the opportunity to work on a single document at the same time and construct presentations, where each student could be assigned to a slide each to work on within a document. Finally, students will be able to participate in an interactive class reflection. These strategies will provide integrated and collaborative learning and would be of extreme benefit if and when applied within my lessons and within my teaching professional development.

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