ACCEPTING CHOICES: TO ICT OR NOT TO ICT: ENGAGEMENT!

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Abstract

Over a period of several weeks 16 male students in a middle school were required to complete a project to measure their level of engagement using Information Communication Technology (ICT). During the lessons students were observed by the classroom teacher, two pre-service teachers and an ICT education lecturer, who assisted, photographed, videoed and interviewed students. Students were also requested to complete survey questions on three occasions throughout the project. The project required student to use anything they desired, technology or otherwise, to research and present their findings in order persuade the observers to choose their group’s project. The tasks of the onlookers were to observe whether students were engaged, or otherwise, in the production and presentation of their project. The degree of engagement when using ICT is dependant on a student’s ability to choose how and when to implement ICT. Engagement is the combination of feelings (emotional), observable actions or performance (behavioural) and perceptions and beliefs (cognitive). Many observations were made about the students’ choice of whether to use ICT or not and this paper addresses the results of their engagement in the task.

Keywords

Engagement, ICT, choice, middle school

Introduction

In the 1990’s it was claimed that using Information Communication Technology (ICT) in the classroom was engaging for students (Greenwood, 2009) and, in fact, it probably was. However, ICT in the classroom is now so common that it needs to be taught and used in meaningful ways to avoid boredom from students. We need to consider what engagement is and then focus on whether using ICT in the classroom is engaging for students.

Engagement is the combination of student’s feelings (affective), observable actions or performance (behavioural) and perceptions and beliefs (cognitive) (Russell, Ainley, & Frydenberg, 2008). Engagement can be considered the attitudes to and interest in a particular learning domain. This project measured engagement in a private boys middle school using ICT for team projects.

Over a period of several weeks, 16 boys from an independent middle school on the Northern Tablelands of NSW, embarked on a Human Society in its Environment (HSIE) project on Egypt. They were to create a travel package to Egypt and had to convince four tourists to choose their itinerary and package. It was deemed that the winning team was the best in terms of value for money, time, variety and creativity from a tourist’s point of view. Students were given very little direction on the task, except that they could choose to use ICT or not.

Students were given several hours over a four week period to research, create and present their packages. They were encouraged to use the resources from the library, their computers,
utilizing the software provided and the Internet. They were also able to use any other resource they thought appropriate and were given every opportunity to use resources other than ICT.

Background

The school was established in 1894 and is an independent school situated on the Northern Tablelands of NSW, Australia. There are 620 students enrolled in the school and females only attend the school until Year 5, of which there are approximately 30. Only males are able to attend the school from Year 6 onwards. The school in this project has a Middle School for males encompassing Years 6, 7 and 8 and has been in existence since 1999. It currently has 163 students. In the Year 7 class that is being presented, there were 16 students, four of which were new to the school in 2009. Six students were boarders and ten were day students. That is, six students live on campus in dormitory style accommodation with their meals and cleaning provided and the other students live with their parents or guardians in the local community.

Three years ago the school began the one-to-one laptop program where all students from Years 3 to 12 were provided with a laptop for classroom and homework use. Both students and staff had to learn how to use the computers and teachers, in particular, had to learn how to incorporate Information Communication Technology (ICT) into their lessons seamlessly. The Rudd Government in Australia has just embarked on a program to ensure that no child is left behind digitally by providing students in government, catholic and independent secondary schools with technology to ‘provide world class information and communications technology for every secondary student in years 9 to 12’ in the form of personal laptops, thin clients with virtual desktops, where the software and data are stored on a network server, and internet network infrastructure to plug the schools in the information superhighway (Rudd, Smith, & Conroy, 2007: p11). It has been claimed that the one-on-one laptop program may have had an impact on learning due to discomfort during computer use and that students should change their postures frequently to prevent this (Harris & Straker, 2000), however, the teachers at this school have incorporated computers and other classroom resources into the lessons so that the tasks given do not lead to the overuse of computers, thus reducing the possibility of a problem. These students have embraced the technology in such a way that they use the computer not as a tool but as a means to an end to find the answer or solution, or creating the end result, as a problem solver, not only as a word processor or fancy calculator which are major influencers on discomfort of use.

The project being presented was a subset of a larger project that involved students across year levels from Year 3 to Year 11 within the school. Areas which the larger project covered included Year 3 (Primary), Year 5 (Primary), Year 6 (Middle School Extension English), Year 7 (Middle School HSIE), Year 10 (Mathematics and English) and Year 11 (History). All students in the larger project were given surveys to complete to reflect on their personal engagement in the prior lesson. Therefore questions that students had to answer in the survey were designed so that all age levels could understand them and complete the survey successfully.

Project Description

A learning team was formed consisting of the teacher and two pre-service teachers to implement learning activities in ICT-rich environments. They were facilitated by a university lecturer who acted as a critical friend. The learning team formed a learning community facilitated by an online environment and face-to-face meetings. The learning activities were designed to foster creativity and individuality. Teachers were also self-reporting to inform of their knowledge of their changing perspectives of engagement.
Research questions

1. What does student engagement look like when ICT is used to support learning?
2. How do educators perceptions of student engagement change as a result of involvement in a collaborative project focusing on engagement and ICT in learning?

Project Aim

In 2009, a partnership was formed with a local school to facilitate the innovative use of ICT as a change agent to support learning and to promote engagement of students, teachers, pre-service teachers and lecturers in learning (Reading & Levins, 2009). This project incorporates Kearsley’s (1998) engagement theory where student’s worked collaboratively on a task that was meaningful to someone outside the classroom (Miliszewska & Horwood, 2004). The project was based on the concept that engagement was either behavioural, emotional or cognitive (Russell, Ainley, & Frydenberg, 2005) or a combination of these. In this project engagement was measured as student’s feelings (emotional/affective), observable actions or performance (behavioural) or perceptions and beliefs (cognitive) predominantly by:

- Asking (questioning or surveys)
- Observing (providing observation feedback, answering questions, contributing to discussions/participation, monitoring whether students stayed on task)
- Discovering student’s attitudes, perceptions and beliefs (discussions/questions/surveys)

Understanding Engagement in the Classroom

Engagement is multidimensional and encompasses affective (students’ feelings), behavioural (students’ observable actions or performance) and cognitive (students’ perceptions and beliefs) as discussed above and recognized by Russell et al. (2005) and Jimerson, Campos, & Greif, (2003). There are a variety of definitions of engagement, but for this project, the educators needed to know what engagement actually looked like in the classroom. Reading (2008) states that we require meaningful ways to measure engagement and this can be done through measuring teacher and student reporting and observation. However, Hu & Kught (2002: p571) state “student engagement is a function of the interaction of the student and institutional characteristics”. In their study, Greene & Miller (1996) report that achievement in the classroom was determined by a student’s perceived ability and learning goals which influenced meaningful cognitive engagement. Schaufeli, Bakker & Salanova (2006, p702) state that if one is engaged, they “have a sense of energetic and effective connection with the activities they are undertaking”. During this project students “learned the skills for seeking out the required knowledge as the changing situation demanded” (Raeburn, Muldoon, Bookallil, 2009, p821) which “facilitated active student engagement in authentic learning activities designed to achieve desired learning outcomes”. Engagement refers to the “time, energy and resources students devote to activities designed to enhance learning” (Krause, 2005). This project incorporated a variety of ways to measure engagement in the classroom.

Methodology

The study triangulated data collection methodologies (both quantitative and qualitative) through various formats: surveys, observations, discussions and questioning which can be seen in Image 1. Surveys were completed by students, teacher and pre service teachers on three occasions over the duration of the project, one at the beginning of the project, one in the middle and another at the end. All student surveys were on a single page with a simple ticking of a box to express how they felt about their engagement during the lesson. The same surveys were given on all three occasions. Observations were made by the teacher, pre service teachers and the university lecturer and recorded. Students were interviewed to find
out what they felt about the project, whether they enjoyed the work and felt engaged during the project. These were conducted by the preservice teachers nearing the end of the project. The teacher, pre service teachers and university lecturer, discussed the project with the students to obtain student’s feelings of engagement. Photos and video footage were also taken on all occasions throughout the project. By conducting the research in this manner the analysis strengthens interpretations based on more available evidence. Findings were corroborated across data sets, reducing the impact of potential biases that can exist in a single study (University of Southern California, 2007).

Originally four groups were formed by the sixteen students, which were self-selecting. The students were able to choose who they were going to go with in their group. However, the classroom teacher intervened as he felt that the combination of students that had formed should be rearranged to create a healthier dynamic in two of the groups. Eventually, three groups were formed; one of five students and two of six students.

Image 1: Methods of collecting data

Ethics was sought and approved. Survey questions that the students had to complete were based on a five point likert scale. They had only three questions to answer and was simply a tick in the square that they thought related to the following questions:

- How much effort did I put into my learning?
- How interested was I in what I was learning?
- How hard did my brain have to work when I was learning?

Pre-Service teachers had to complete a survey based on their perceptions of engagement of all students. Again, the survey was a likert scale, however, they had to answer three
questions for each of the sixteen students. They had to answer the following questions:

- Positive Conduct (adheres to rules and follows directions)
- Affect (shows enthusiasm and/or excitement)
- Self-regulation (undertakes activities without direct teacher intervention)

The classroom teacher had a different set of questions to answer in the surveys, again, based on a five point likert scale and his perception of engagement of all students. The questions the classroom teacher had to answer were:

- Persistence (finds ways to overcome problems during learning)
- Attitude (positive attitude to tasks, teacher and peers)
- Independent learning (actions contribute to learning goals)

**Findings**

Qualitative data is yet to be analysed, which is being undertaken for the whole larger project using Rasch Analysis. However, reflections on observations from the three sources of classroom teacher, pre-service teachers and university lecturer reveal that the students embraced the use of ICT and weren’t aware that they were using technology. To the students, technology was their pen and paper.

Perceptions from observations were that most of the students appeared to be on task most of the time. However, whenever the classroom teacher in particular, or the lecturer, were nearby, the students were on their best behaviour. They made sure they were doing their work and asked appropriate questions to appear to be doing so. However, the lecturer noticed that the students fell off task frequently when they thought that only their peers or the pre-service teachers were nearby. On many occasions the pre-service teachers reported that certain students were frequently off task, however, when the lecturer or classroom teacher went to assist, they went back to their work. It was clear that the configuration of the room being used for the class at any particular time influenced the students’ distractibility. When in a classroom where supervisors could regularly view their screens, students were more on task. In the library, for example students were more likely to position themselves in such a way that close supervision of their screens was less possible.

Another observation was that the students were given the freedom to use whatever resources they required to complete the project. It was found that when given a timeframe the students were committed to getting their tasks complete. The closer the deadline was, the more on task the students appeared. Because most of the students had been using laptops in their everyday lessons for three years, it appeared that they were less aware that the task could have been completed without using technology for their assignment. Students were taken to the school library on two separate occasions to enable them to use the resources that were available there. After about 40 minutes of being in the library and utilizing the wireless internet access via their laptops to gather information to complete their projects, it was asked of the students if they had thought of using books. The rapid response of all students was an outright “no”. However, after they pondered on their response for a few minutes about half the class decided that they would go in exploration of books, magazines or videos that the library had on offer. In the end, many books were used in the project, but only to a very limited degree. The students found that the most up to date information could be obtained from the Internet and there was also access to digital images which allowed for easier utilisation in their presentations. Even though the books had very good photos that could be used, it was difficult to acquire these as they had to be scanned into their computer, instead of quickly clicking on an image and saving it to file.

As students were able to use any resource they required, a lot of imagination was used on how to present materials and what they would use to create it. The students final task was to
present their findings and convince tourists to choose their itinerary for their upcoming travels to Egypt. The three groups presented their materials as follows:

Group 1: Travel brochure (which they gave to the tourists and were in colour), including a presentation, movie and answering of questions
Group 2: Booklet of travel information and were able to answer questions
Group 3: Answering of information with all information available to them in the form of printouts and computer

After all three groups had been interviewed by the tourists it was found that even though all three groups presented their work in very different ways, they were all enthusiastic in wanting the tourists’ business. Group 1 used the most technology and had a very polished presentation. They knew answers to all questions and were confident travel agents. Group 2 produced a booklet and were also very confident in answering questions and had undertaken some extra research to impress the tourists. Group 3 seemed to flounder under the information that they had collected. The confident travel agents were not always familiar with the information that they were presenting and had to call on their peers to answer questions. It was also evident with Group 3’s presentation that this was the group that had a greater proportion of students who weren’t always on tasks with their work. It was also noticed that there wasn’t consistent information being presented by the three groups.

From an outsider’s point of view, the lecturer felt the students were engaged in the project, but that it wasn’t due to the ICT being used. Students were so familiar with ICT that they just used it without thinking about it. It could also be said that they did not think about using other types of presentation, such as their familiarity with technology. Students used various software programs and they didn’t really think about using technology. It was part of their everyday schooling and they used it without thinking about it. Some programs that the Year 7 students used included: Inspiration, Excel, Word, iMovie, Keynote and the Internet. No instructions had to be given on how to use any of the software. However, it was apparent that the more able students gave some thought to the types of software they might use as part of the planning process while others were less thoughtful. Groups 2 & 3 were more one dimensional with their presentation, where Group 1 used several different modes for their presentation, including, Microsoft Word, iMovie, and Keynote with an embedded movie link.

At the completion of the project, when students were asked to reflect on their final product, many of them said that they might have done things differently. Such ideas included visiting a local travel agent to find out how they did things, researching other websites more thoroughly for other ideas and interviewing others who had experience in travelling. However, as the technology was there and available, that is what they used. If a different group of students learning in the same environment under the same circumstances were asked to produce the same final product, with the same resources that these students had, they would probably go about the task in exactly the same manner, ie using software available on their laptop and the Internet.

**Conclusion**

Is the use of ICT engaging or not? Certainly in this project, ICT was the tool used to create the end product. Students were engaged in the production of their project, but the technology was used as an easy means to an end. It appeared that the students believed that technology provided the best way for them to be able to create their product and was seamlessly used throughout the process. They undertook the task this way because it is how they believe all such tasks should be done without a lot of thought. Therefore, it is not definitive that the use of ICT in itself was engaging but more the task that was set for the students. If the students
have a task that they can immerse themselves in, they will be engaged. Perhaps the question still remains; if the students were not immersed in an activity such as this, would the introduction and use of ICT increase their engagement?

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References


