

**How can I use video to enhance teacher engagement with my school's abundant ICT equipment?**

Laura Sloyan

April 2011



**Video 1:** [St. Aidan's: An I.T. School](#)

[\(Click here to view video/ copy and paste the link into your browser\)](#)

[http://www.thedigitalclass.com/Appendices/Video/IT\\_School.html](http://www.thedigitalclass.com/Appendices/Video/IT_School.html)

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### **Timeframe including details of when the research was carried out:**

This action research enquiry was carried out between January and June 2010 as a dissertation for an MSc in Education and Training management (e-Learning strand) in Dublin City University (DCU).

### **Brief outline of research idea:**

South Dublin County Council's 'Connect Project' seeks to integrate ICT into the community through a variety of approaches. St. Aidan's Community School's appointment as the 'Connect School' in 2006 brought with it a wide range of technologies to enhance teaching and learning. May 2006 saw the roll out of teacher laptops and the initial installation of data projectors in every classroom. The provision of laptop computers to students continued year on year and now St. Aidan's has a student to computer ratio (SCR) of 1:1. The provision of this hardware has been complemented with the establishment of the school's Virtual Learning Environment (VLE), Moodle (<http://connect.learnonline.ie/>).

While St. Aidan's now more than meets the government's desirable levels of ICT in schools, the Connect initiative it is not without its problems. An evaluation carried out in 2010 noted that over a two month period, on a day-to-day basis up to 20 percent of pupils did not collect their laptops (Galvin, 2010). If a significant minority of students do not bring their laptops to class, there is a negative impact on the teachers' planned lesson and they may be reluctant to use them in the future. This is unfortunate as the use of ICT in class can be a motivational pedagogical tool, it can provide a 'fun' alternative to 'chalk and talk' (Cope and Ward, 2002, Prensky, 2001, Dwyer, 1994) and equip pupils with some of the skills necessary for the highly prized 'knowledge economy' (DES, 2009).

My main consideration when undertaking this piece of research was to identify an action I could carry out that might encourage further use of ICT in classes. From group meetings with staff and discussions with pupils it became clear that good practice, with regard to the use of ICT, was taking place in St. Aidan's- unfortunately, it was in the solitary confines of the classroom, unobserved by colleagues. I decided that videoing this good practice and making it available to all in the school would be a simple way to disseminate these effective ICT-based teaching practices within the school and give teachers, who may not be comfortable in using ICT, practical models and examples of how it might be used in class.

### **Summary of research aims:**

My principal aim for this piece of research was to encourage teachers who were reluctant ICT users to make greater use of the technological facilities available in St. Aidan's C.S., using Elliott's model of Action Research. I felt that by watching other teachers in action, awareness could be raised among staff that using ICT, be it through learning games, visual aids or researching and presenting information, could be interesting and engaging for students. I believed that if teacher's levels of engagement with the project were raised, so too would the students.

In terms of my own learning, I hoped that by preparing and producing a video that modelled good practice, I would become more aware of the successful ICT based teaching methods used by my peers. Consequently, as I garnered effective methods and strategies for using ICT to engage and inform students, I hoped that my own teaching practice would improve.

### **Outline of methodology used including details of how any ethical considerations were addressed:**

In order to answer my research question, "How can I use video to enhance teacher engagement with my school's abundant ICT equipment?" I used an action research methodology based on Elliot's model. Elliot's model of Action Research calls for systematic cycles of identifying an idea, fact-finding and analysis, formulating a general plan involving one or more actions, implementing these actions and monitoring the implementation and effects. Further fact-finding and analysis may be necessary to explain any failures/ effects of the actions, after which the general idea may need to be revised (Elliott 1991, p70).

### **Fig 1.- Elliott's Model of Action research**

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are needed to see this picture.

(<http://cslsrv.ice.ntnu.edu.tw/LabNews/Minutes98/981215yen.html>)

Action research is grounded in the critical theory paradigm drawing on the Marxist idea that the oppressed can free themselves. Critical theory asserts that the researcher should identify an organisation of people whose needs are not being met and put themselves in the world of these people. This allows the researcher to see how certain social conditions exist, how they came about and how people may be educated to bring about a change in said conditions. However, there have been criticisms levelled at critical theory suggesting that while it purports to be emancipatory it “demonstrates much more skill at criticising than at empowering and freeing” (Willis, 2007, p87) and is in danger of becoming “merely contemplative” (Cohen et al, 2005, p32).

Action research, on the other hand, is concerned with practical problems. Its fundamental aim is to improve practice, dealing with the problems that are of greatest relevance to the practitioner. Often as professionals we solve these problems instinctively as they arise. If asked to describe how or why we took certain actions we may be unable to as “we know more than we can tell” (Polanyi, 1966). Hopkins (2002) describes this tacit knowledge as “knowledge we cannot articulate”. Elliott’s model of action research requires reconnaissance (observation) and careful monitoring of the implementation and effects of our actions (reflection) as a means of making our tacit knowledge explicit.

Among the St. Aidan’s community there are a number of teachers and students who are enthused about using ICT to benefit teaching and learning and do so to great effect. Action research is done *with* people and not *on* them (McNiff, 2003) and thus provides an opportunity to work in collaboration with colleagues and disseminate this good practice. McNiff (ibid) suggests collaborating with others on a number of levels: as research participants, as observers, as validators and as potential researchers.

The following qualitative methods of data collection were used to gather data for this study. In contrast with quantitative procedures, qualitative methods “rely on text and image data” (Creswell, 2003, p179) and take place in the natural setting of the participants.

#### **Reflective Journals:**

Twice weekly journals were kept containing personal accounts of “observations, feelings, reactions, interpretations, reflections, hunches, hypotheses and explanations” (Kemmis, 1981 cited in Elliott, 1991). Regular journaling allowed me to ‘reflect-on-action’ and documented the progress of the research throughout the cycles of observing, planning, acting and reflecting.

#### **Interviews:**

Interviews were conducted with my colleagues in order to garner information as to how they used ICT in the classroom to enhance learning. Initially, interviews were unstructured in order to “remain as open as possible on the question of what information is relevant” to the interviewee (Elliott, p76). As the research developed a semi-structured approach was taken towards the interviews, as appropriate topics for discussion were identified in previous unstructured interviews. However, a degree of flexibility remained throughout.

### **Video Footage:**

According to Creswell (2003) one of the advantages of video recording as a method of data collection is that it allows participants to directly share their reality. It allows the researcher to repeatedly review the reality that has been captured and track any patterns of progress that may arise over the period of research. Throughout my research, video was used to record best practice of the use of ICT to enhance teaching and learning within the school, as it allowed “the teacher to observe many facets of his/her teaching quickly and provided heuristic and accurate information for diagnosis” (Hopkins, 2002).

### **Ethical Considerations**

A key element of this research was to observe good ethical practice throughout, in line with ethical research policies laid down by the DCU Research Ethics Committee (REC). I obtained parental permission from all students involved in the making of the video in school. I ensured that parents were aware of the purpose and focus of this study and were aware of the ways in which the video material produced could be distributed within the educational community.

Elliott (1991) warns that teacher researchers do not have an automatic right to “collect, document or report insider information”. With this in mind, I maintained transparency with regard to the purpose and processes of the research with management and colleagues. Before accessing documentation I obtained explicit authorisation from participants. I secured written permission from, and distributed ethics statements to, all participants. Recordings/ transcripts of all interviews were openly available to all participants, as were progress reports to any interested parties.

### **Summary of background reading:**

A review of relevant literature sought to establish a theoretical framework for this action research enquiry. Most of the literature was drawn from journals and reviewed under the following headings:

1. The benefits of ubiquitous computing in schools.
2. The challenges involved in integrating IT into teaching/ learning.
3. Encouraging teacher engagement with technology in schools.

#### **1. The benefits of ubiquitous computing in schools:**

Today’s teachers are dealing with a new type of student the ‘net-gen’ or ‘digital native’. These are students who are used the seamless integration of computers into society and where technology is used with natural ease (Weisner, 1991). The integration of technology into the classroom can be seen as an attempt to bridge the divide between the divide between these ‘digital-native’ students and their ‘digital-immigrant’ teachers. Indeed, studies as far back as Dywer’s (1994) review of the Apple Classroom of Tomorrow Project (ACOT) provide evidence that ubiquitous computing in schools can lead to positive student attitudes, increased self esteem, improved writing abilities and higher test scores.

Technology rich learning environments have been found to be particularly productive for students of low socio-economic status or educationally disadvantaged in other ways; learning disabled, students with English as a second language, labelled as low achieving, etc. (Mouza, 2008 Page, 2002, Zhang, 2000). Studies carried out in urban,

under-privileged schools have shown that the use of technology can increase student motivation and engagement, empower students and increase the academic gains of these students (Mouza, 2008, Page, 2002, Zhang, 2000).

As academic achievement is very much linked to self-esteem (Page, 2002, Zhang, 2000), Page draws the conclusion that a student's technology use and self-esteem are complementary. This is particularly true for what Cuban (2001) calls "Open Door" students - predominantly male and from ethnic minorities, whose self-taught computer skills lead them to be seen as computer experts in their schools. This increases their self-confidence, self-esteem and motivates them to do well in school.

In a more general sense, the ubiquitous use of computing in schools can lead to the development of effective learning environments (Cope and Ward, 2002). Classes, across all age groups, where ubiquitous computing and other technologies have been employed, have been shown to be learner, knowledge, assessment and knowledge centred (Bransford et al, 2000, Dunleavy et al 2007). This is in line with Mouza's (2008) findings that technology rich learning environments supports four characteristics of learning; Frequent interaction and feedback, participation in groups, active engagement and connections to real world contexts.

## **2. The Challenges involved in integrating ICT into teaching and learning:**

Simply because schools invest in technological equipment does not necessarily mean that it will be used. In fact, high access to hard and software seldom leads to increased use by students and teachers (Cuban 2006, Mulkeen, 2004, Cuban et al, 2001). Teachers tend to remain occasional or non-users irrespective of the equipment at their disposal.

### ***Increased Workload and Insufficient Time***

It takes a considerable amount of time to source and evaluate suitable ICT based and interactive material. The average day of a teacher is a busy one and often it is unfeasible for teachers to dedicate the required time to dealing with the increased workload technology use can bring (Dunleavy, 2007, Hew and Brush, 2007, Silvernail 2004, Cuban et al, 2001)..

### ***Teacher Attitudes and Beliefs about the Curriculum***

The reality of a teacher's job is that their primary task is to "transfer knowledge, skills and moral values to students" within a 40-50 minute class period (Cuban, 2001). Teachers who have a structured curriculum that needs to be covered in a short period of time, can feel that a teacher-centred, didactic style of teaching is the most efficient way of meeting their students' needs (Penuel, 2006, Butzin, 2004). When the pressure of guiding students through formal examinations is added (ibid, Hew and Brush 2007), teachers who are in doubt about the use of computer-based activities to achieve their educational objectives are unlikely to use them (Fuller, 2000).

### ***School organisation and structure***

For genuine and substantial application of technology in teaching and learning, fundamental changes would have to be made to timetabling allocation and teachers' planning time (Cuban, 2001). Butzin's (2004)'Project CHILD', illustrates how changes in

class structure, layout, timetable and teachers' planning methods and time, can lead to the successful implementation of 1:1 computing with participating students shown to be on-task, disciplined and most importantly, highly engaged with the curriculum.

### ***Technical Difficulties***

Broken and outdated machines, unreliable Internet connections, uncharged batteries and incompatible software are among some of the problems that can arise in computer-based lessons. If these problems are frequent, the subsequent wasted class time can deter teachers from using the available technology especially if sufficient technical support is unavailable onsite (Hew and Brush 2007, Silvernail, 2004, Cuban et al 2001, Fuller 2000).

### **3. Encouraging teacher engagement with technology in schools:**

Teachers play a pivotal role in the integration of ICT into school life. It is necessary that teachers perceive the use of ICT as a teaching tool as positive and advantageous if there is to be successful integration of learning technologies (Penuel, 2006, Levin and Wadmany, 2005, Bitner and Bitner, 2002, Cope and Ward, 2002, Cuban et al, 2001, Fuller, 2000). It has been found that teacher attitudes towards educational technologies have a direct impact on students' opinions (Cope and Ward, 2002).

Training teachers in the use of ICT is a key factor in integrating it into school practice. However, the training must focus on how to incorporate the new technology into their own subject instruction, rather than the mere technicalities of using the hardware and software (Klieger et al, 2009, Penuel, 2006, Levin and Wadmany, 2005, Bitner and Bitner, 2002, Cope and Ward, 2002, Cuban et al, 2001, Fuller, 2000, Carr-Chellman and Dyer, 2000). Mulkeen's 2003 study found that although the National Centre for Technology in Education (NCTE) provided basic-skills short courses, that 70 percent of the teaching population attended, these did not lead to an increase of ICT use in classes. Conversely, the Maths-specific course on offer did lead to increased use of ICT within the subject. As such, "Pedagogy is key" (Klieger et al, 2009) and it is imperative that teachers are able to conceptualise how the use of various technologies can facilitate teaching and learning before they can be used successfully in class (Bitner and Bitner, 2002).

When attempting to implement technological innovations to any organisation Rosenberg (2006) recommends focusing on the early adopters and encouraging them to embrace the changes. He suggests that they will be able to "influence, explain and show what they are doing so that others can come onboard". This idea of using ICT enthusiasts to motivate others, tallies with Bitner and Bitner's (2002) idea that teachers will be intrinsically motivated to adopt new technologies if they can see the possibilities that said technologies can offer their students.

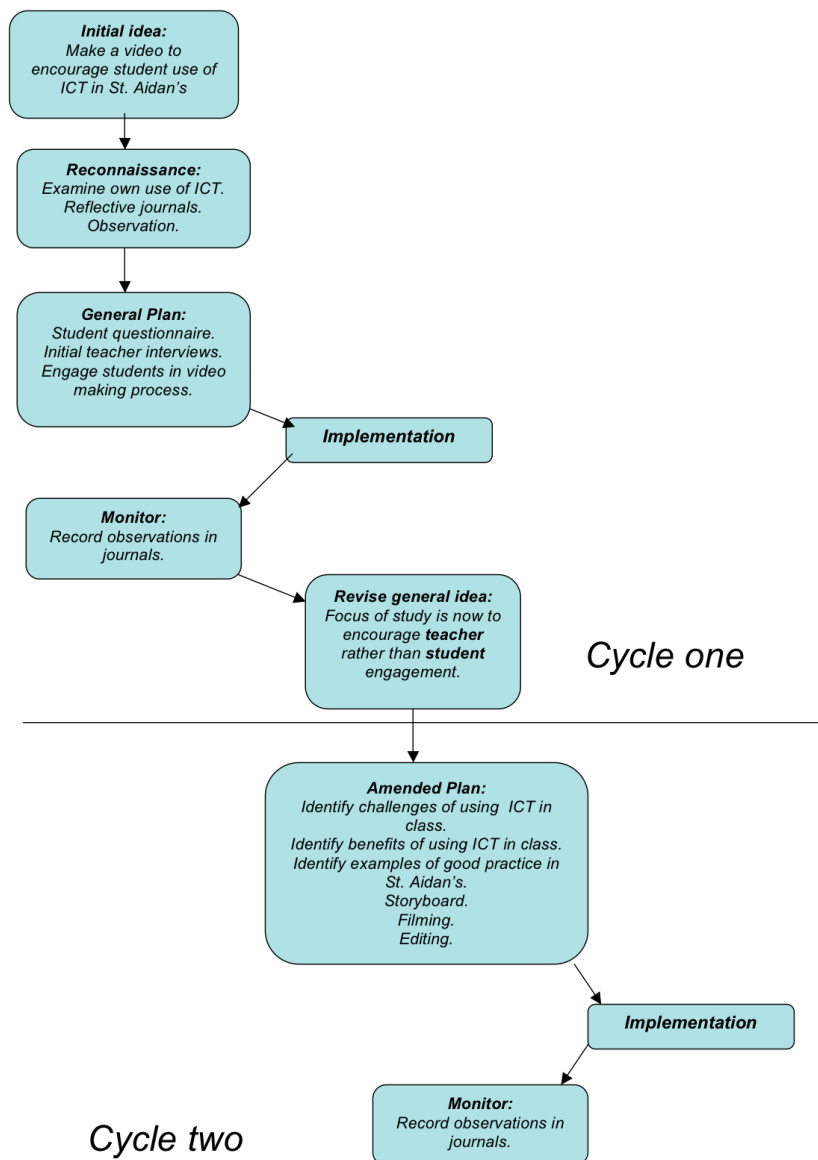
Teaching can be an isolating profession in which we are rarely afforded opportunities to observe our colleagues practice or to learn directly from our peers. Gamoran-Sherin (2000) found that when examining our own or other teachers' practice on video we are able to respond to the video with less immediacy than is needed to respond to things in class, allowing time for careful reflection on practice. This is supported by Loudon et al's (cited in Newhouse, 2007) findings that it is "helpful to provide pre-service and inservice teachers with the opportunity to carefully observe and reflect on the complexity of the work done by effective teachers in their classrooms. This might

be done by reviewing videos of effective teachers”. Plotzner et al (2005), highlight how observing video footage of peers’ teaching practices allowed viewers to “adopt multiple perspectives on the lessons” (Plotzner et al, 2005). It was also found that the viewers familiarity with their peers on the video allowed them to relate to the content in a way that would not have been possible had the teaching examples been provided by a stranger.

### Overview of research findings and recommendations:

This enquiry involved two research cycles, in line with Elliott’s model of action research. The first cycle of enquiry focused on identifying student beliefs about positive aspects of the use of ICT in their learning and encouraging their involvement in the video making process. The second cycle saw a shift in emphasis from *students* to *teachers*, due to the understanding that teacher attitudes towards the use of ICT would be likely to influence their students’ opinions. The second cycle involved planning and producing a video that highlighted and modelled good practice in using ICT for the benefit of teaching and learning throughout the school.

**Fig 2.- Cycles of this action research enquiry**





Today's 'digital native' students are generally adept at using technology for purposes that appeal to them: texting, gaming, social networking, etc. Students in St. Aidan's Community School displayed positive attitudes towards using their laptops and other technologies to enhance their learning experiences, reflected in their expressed desire to use them more frequently in class.

Often when teachers are being trained in the use of ICT for educational purposes the focus of the training is on the technicalities of using the equipment. Research shows, however, that this is insufficient and if teachers are to embrace technology as a teaching and learning tool they must be provided with not only the technical know-how but also solid examples of how hardware, software and web-based resources can be used effectively in day-to-day teaching practices (Klieger, et al 2009, Peneul, 2006, Levin and Wadmany, 2005, Bitner and Bitner, 2002, Cope and Ward, 2002, Cuban, 2001, Fuller, 2000, Carr-Chellman and Dyer, 2000). If the current governmental plan to develop quality digital learning environments within Irish schools (DES, 2009) is to be recognised, then it is necessary for teachers to be given training and support that has a pedagogical focus and encourages greater use of ICT in the classroom. Teachers' primary objective is to impart knowledge to their students and they will only embrace new innovations in the classroom if they can be shown that they are truly beneficial in doing this.

As with any organisation, there are varying ICT skill levels in schools. Some teachers, the 'early adopters' (Rosenberg, 2006) will embrace, and become proficient in, new technologies more quickly than others. These early adopters can be enlisted and encouraged to "influence, explain and show what they are doing so that others can come onboard". Unfortunately, teaching can be an isolated profession, with timetable restrictions that seldom allows time for observing the work of others (Dunleavy, 2007). The use of video can help to overcome this problem. The widespread availability of digital video cameras and free video editing such as iMovie or Windows Movie Maker means that teachers, especially 'early adopters' can record their best practice with a view sharing it with colleagues, facilitating peer-to-peer learning with little disruption to the school day.

The making of this video was an inclusive endeavour with management, staff and students all engaged in the video making process. This interaction between management, staff and students for the express purpose of documenting and promoting effective uses of ICT in teaching and learning encouraged open discussion that focused very much on the positives aspects of the 1:1 SCR rather than the problems that can arise as a result of it; an experience which itself promoted the use of ICT before the video was produced.

Moving forward, I would suggest that the resulting video be made accessible to staff via the school's Virtual Learning Environment (VLE), Moodle. Using Moodle's forum facility teachers could pose questions and offer help, advise and support to each other using the video as a discussion prompt. This implementation should be carefully monitored and if considered successful further videos could be produced and shared as staff develop new ICT based strategies and activities.

### **How the research has contributed to your professional development:**

Having had little experience with video production prior to carrying out this research I found it to be hugely worthwhile experience. Producing the video allowed me to observe my colleagues at work, an inspiring experience that furnished me with new ideas and approaches to using ICT in the classroom. It also became apparent, throughout the course of my study, that making a video was itself an interesting and engaging classroom activity. Although initially reluctant to volunteer to help produce the video, many students did eventually contribute to the process, which led to the production of other audio and visual (AV) pieces of work in my classes. This alternative way of presenting class work appealed greatly to my students and had the added bonus of further encouraging the use of ICT in class.

Central to action research is the notion of reflective practice. Throughout the course of this research regular journaling meant that I was consciously looking at my own practice in an effort to draw out my own tacit knowledge. Reflecting on what constitutes effective practice and how I could improve my own work was highly beneficial. I was forced to consider my own use of ICT as a pedagogical tool, realising that despite my espoused value of student-centred learning, my approach was still very much teacher-led. Reflecting on my practice has encouraged me to live out this value in my own practice.

### **How this research will benefit the teaching profession and the wider education community:**

I became aware during the course of my research that teachers sought ideas and materials that were relevant to their own subjects, as well as generic examples of classroom ICT use. With this in mind, schools should be encouraged to develop videos depicting subject specific practices. Such videos would not only be applicable on a school-wide level, but on a national level. Ireland's current economic troubles have seen funding for the Second Level Support Services (SLSS) slashed, limiting in-service training for teachers. The medium of video could prove to be an ideal way to provide training and support for teachers who, despite a dearth of formal training opportunities, are required to prepare their pupils to be key players in Ireland's '*Smart Economy*'.

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