

Case Study

Piaget's Other Classroom

A Case Study in developing online learning and other IT support for High School Students

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Abstract

The idea of having a learning space which is beyond the confines of the classroom was proposed by Jean Piaget early in the 20th century. This paper discusses the evolution of such a learning space on the internet. How it evolved and what its consequences were on both teacher and students.

The aim behind the construction of the online classroom was to support students in developing individual social research projects. Implicit in this was the need for students to take control of their own learning and become independent constructive learners. The teacher too needed to move from "sage on the stage" to "guide on the side". Consequently a complete cultural shift was involved in the process. The paper will outline the methods, processes and problems encountered in incorporating elearning for High School students as an adjunct to the conventional classroom.

The process evolved over a period of three years and is still being constantly upgraded.

Academic results and anecdotal evidence strongly suggest that the online environment has significantly improved student engagement and University entrance scores. The subject, Society and Culture had an enrolment of 9 students in 2001. The 2007 school year will include 73 students as well as significant number who were unable to gain a place in a class.

All images are active links

Key phrases: Engagement in learning, developing independent research skills, collaborative learning, interactive teaching,

Introduction

This case study concerns the development of online learning support for students of Society and Culture at a suburban High School in Sydney, Australia.

The study covers the years 2002 -2006 and focuses on the teaching and learning changes involved in preparing students (aged 16 – 18) for the NSW Higher School Certificate.

Society and Culture is an inter-disciplinary, humanities based subject which involves original, student instigated, social research. It attracts approximately 3,500 students across the state each year. Subjects for the NSW HSC are statistically compared each year for academic rigor, and Society and Culture regularly ranks in the middle order.

Picnic Point High School is a state run Comprehensive High School with approximately 960 students. The student population covers all social ranks and income levels with the majority being comparatively affluent and middle class. It has a tradition of excellence in sport and performing arts. The student population is much less cultural diverse than surrounding suburbs with an obvious Anglo Celtic dominance. Recent Principals have been concerned with the need to improve academic performance and consequently the online project was given strong support from the school administration.

The initial aim of the project was to more effectively engage students in the learning process and to support them in their research projects. A by product of this was hopefully to be a significant improvement in HSC scores for University entrance. Another aspect was to increase the profile of the subject as it is not compulsory and remains on the curriculum solely by student demand.

The project involved integrating a website into the classroom with lessons prepared and constructed before and during class and uploaded for future reference. Web based resources and tools were also linked through the site. Students were encourage to contribute to the site ,including having a personal web page . (This is presently in abeyance while child protection issues are considered.)

The current incarnation of the site can be viewed @ www.rusanjo.com/society.htm

Piaget's other classroom.

Piaget believed that there should be two classrooms, one where the teacher is, and one where the teacher isn't.

Constructing the second classroom as a website on the internet provided an ideal location for our second learning space and resulted in engaging students to produce social research of a high standard. The following report explains the process of developing that classroom.

The story began in October 2003 with a problem...

The Problem Confronted

The problem was centered on the need design a program which could take students through the process of research and personal reflection and enable them to move from passive receptive learners in a closed classroom to become active participants in an open ended learning environment.

Who were the Learners?

The Students and the School

There were 13 students in the class, 4 female and 9 male all, were between the ages of 16 and 18. These were the survivors of 23 who took the course at the start of the preceding year. All of them had been students at the same High School for five years. There was a range of academic aspirations within the group. (University , Technical College ,Work) All of them would fall into the middle suburban socio-economic class.

The students had to present an original social research project (PIP) for external assessment for the NSW Higher School Certificate as part of the course (30%) in Society and Culture. The project is constructivist in design and includes an exercise in metacognition and as such makes demands beyond those commonly encountered in the environment of a high school.

The dominant culture of the school was instructivist. Students were generally expected to engage only passively in the educational process. Despite moves to change the school's culture from a new Principal, the class of 2004 had been fully socialized into the notion of student compliance to the teacher's governance and more importantly, disengaging from the learning task when not being supervised.

Time constraints were another limiting factor. The school day was broken up into eight, forty minute periods. This meant that the class had about 35 minutes learning time in a day which was extremely disjointed. While this was satisfactory for a one way instructivist lesson it made genuine construction of learning within

the constraints of the classroom almost impossible. To compensate for this, the teacher created a web site where students could access all of their course materials, as well as engage in online discussion and submission of ideas.

When presented with an educational project without answers, a sophisticated process involving taking active control of their own learning, engaging in personal reflection and constructing an original piece of scholarship most students find themselves outside of their comfort zone. In the passive disjointed environment of this particular school the problem was significantly amplified.

This created considerable difficulty with the Personal Interest Project which is the cornerstone of Society and Culture. Each Society and Culture student must submit an original social research paper which conforms to rigorous academic protocols. From initial proposal through, selection of methodologies and integration of course concepts, draft writing, editing and evaluating the student has full responsibility for their project. Students must at some stage in the process take ownership of the project and proceed without too much instructor intervention. By (May 2004) only 3 of the students had done this.

The students who made this breakthrough presented a deepening of the problem. Once students realized that they had to take control of their own project and that there was no answer book there was a sudden increase in anxiety. At this point one student dropped out of the course giving stress over the Project as her reason; -

“ I like to do all of the work just before it's due and I can't do this with the P.I.P. There's nowhere to go and learn all the answers you need. You just have to think of everything yourself. ”

The Solution?

The Solution evolved almost as much out of circumstance as design. Society and Culture classes had been timetabled into a decommissioned computer lab. I (the teacher) was studying online learning and educational web design at The University of Southern Queensland. This meant that we had an opportunity to use our skills and the available facilities to foray into the future, to innovate and experiment with elearning.

Consequently I surveyed the literature looking for a model to use as a framework. Several papers presented relevant and well structured models among these Mergel (1998), Wilson (1997) , Reushle ,et al (1999) Reigeluth (1999) were found to be useful and suited to the project at hand. However Jonassen (1998) was chosen as the primary model as he presented a paradigm that most easily fitted the demands of the Problem of the PIP.

The project focused on the elements of design elaborated by David Jonassen of Pennsylvania State University as outlined in, -

Jonassen, D. 1998, 'Designing constructivist learning environments', in C.M. Reigeluth, (ed.) *Instructional Theories and Models*, 2nd edn, Mahwah, Erlbaum.

The step from taking an eclectic approach to focusing on a single model seemed like a leap of blind faith. However the decision was taken on rational and pragmatic grounds. The problem of creating an effective constructivist learning environment was a real and pressing one and Jonassen's analysis with its focus on processes and problem solving seemed to be well suited to the task in hand. His design concentrated on the components and processes of learning without specifying media. This suited Society and Culture using a mixed delivery with face to face teaching time supplemented by web based activities.

The blackboard was thrown out, a data projector installed on the ceiling, with the side wall painted as a screen. The teacher's desk was thrown out too, replaced by one computer with internet cable access.

The key to the classroom was now the Internet server at the University in Toowoomba over 1000 kilometres away.

At once the student teacher roles were reversed. The students who had knowledge of web design software took charge of the first lessons while the teacher went on a massive html learning experience. The students spent as much time on the class keyboard as the teacher.

Lessons developed with notes written in Microsoft Front Page (the school's licensed software). At the end of each class these notes were uploaded to the site for future reference.

Each student was provided with a Personal Web Page. Society and Culture encourages Personal reflection and individual input. This provided the first shock in the process. The class rejected the idea out right as they felt intimidated by exposure on the internet. Interestingly the class who graduated in 2006 revelled in the idea and were exited by and proud of their pages. Currently the personal page is in Limbo subject to Child protection issues. There have been no complaints or issues raised, just the teacher being prudent.

Classes evolved into a pattern.

The teacher would prepare lessons each weekend. These were up loaded and made available via an online calendar. The lessons would contain text, photos, maps, and Links to relevant sites. During class time alterations were made to the notes, detail etc and these were then up loaded. Each month the calendar was placed in the online archive where all the lessons could be accessed anytime anywhere.



THIS MONTH



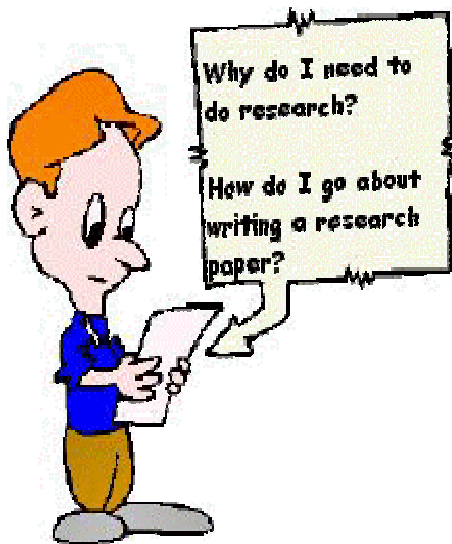
ARCHIVE

The above are the links currently used by students to access lessons.

ehomework and online P.I.P. support.

The next step was to introduce ehomework. The teacher's email was incorporated on to the site and students encouraged to use the system. This proved to be popular, all students had internet access at home and were eager to use it rather than write in their notebooks. The Personal Interest Project is a daunting task for a high school student.

To produce an academic paper on original social research effectively most students need substantial support. As each student is doing something completely different to all the others traditional school structures are not adequate. The web provided essential tools, access to resources and teacher support. The P.I.P. acquired its own support page on the site. This enabled contact to be maintained even when the teacher was overseas.



(Access PIP site through image)

With contact details and links to support and information sites

Students could now instantly access information on the process of social research, get help with their referencing, send their draft work to the teacher for comment and find resources for their secondary research just by working on the class website.

This substantial support not only took a great deal of stress out of the process it also increased student engagement, especially among the less academically inclined students.

Sites such as the Kentucky Virtual Library proved to be really useful in focusing the attention of “less academic” students on the research process.



How to Do Research

The pain (and perhaps some of the rigor) was taken out of referencing and citations with Citation Machine. A US based educational site.



Debate on using these split the class between the academic purists and the pragmatists. In general however the majority of students found the tools useful and user friendly. As the PIP does not stipulate any particular system, dissenting students were free to use the Harvard or Cambridge systems.

One student went as far as to criticise the software because.

“It doesn’t really do your citations because you still have to fill in the boxes”

The introduction of these tools also sparked a healthy debate on research ethics and cultural imperialism. A sensitive issue in Australia, where the process of acculturating American norms and values is relentless. Nevertheless the use of these sites proved to be important in raising the standard of students’ projects across the board.

LEARNING THE CONCEPTS

Society and Culture is a concepts based discipline. There are nine fundamental concepts, Society, Culture, Persons, Environment, Time, Power, Authority, Gender, and Technology. An additional sixty concepts are integrated throughout the course. Students at sixteen often find expressing explaining and defining

concepts extremely difficult. The gap between understanding conceptual meaning and expressing this articulately in words is a complex one to bridge. To do this, students were given the following task,

PRESENTING SOCIETY AND CULTURE CONCEPTS

- **Run the flash files on the course concepts on your CD.**
(Students had been given a CD with a series of Flash and Power Point Presentation on the major concepts as a stimulus. Long downloading times made this preferable to putting them on the website although one was uploaded as an example www.rusanjo.com/authority.swf)
- **In groups of two or three collect images and sound files from the internet that represent the concept you are presenting.**
- **If you know how to use editing software such as Macromedia Flash or Microsoft Movie Maker, proceed.**
- **If you can't do this, email your selections to Mr. Russell**
- **Presentations will be shown in week six this term.**
- **Your presentations will with your permission be used to introduce new students to Society and Culture Concepts and to teachers as exemplars throughout the state.**
- **After your presentation you will be asked to explain your choices in the context of your Concept.**

THIS IS NOT AN ASSESSMENT SO FEEL FREE TO BE CREATIVE AN ENJOY YOURSELF AS MUCH AS YOU CAN!

Students found this exercise stimulating and interesting. Searching Google or Yahoo Images was an exercise that they enjoyed and were drawn towards. Using their ipods and itunes they trawled for songs that expressed their concepts. They were able to break out of their teacher's obsession with Punk Rock and introduce a variety of genres. Just when everything was going well Big Brother stepped in. The school was "Portaled"

The NSW Education Department put a series of restrictions on internet access through all State schools. Students were denied access to image search engines and thousands of sites were barred. It seemed that the best way to deal with the small number of inappropriate images on Google and Yahoo was a complete ban on all images.

The Presentations went on, but only as homework. We had survived the thought police for the moment. This has become a major difficulty in putting material on the website. Society and Culture includes sections on gender and sexuality, subjects dear to the heart of Big Brother, sorry Big Sibling. At present only the visitors' counter has been blocked on the site. Obviously numbers are very sensitive and classified information. The part of the course on identity and sexuality will probably have to be done on a blackboard and students will need to make sure that their notes are sealed on leaving the classroom.

COMPUTER GAMES

Once students had become familiar and comfortable with using software and learning on line, it became evident that there was a need to reinforce such learning, something usually done through quizzes and tests. The search for software was on.

There are thousands of sites with useful interactive software which can be used in teaching and learning. Lots of them were trialed.

The class found that the most useful, user friendly and effective were those created by Andrew Field, a History teacher in the English Midlands. These interactive games enabled students to revise their learning in a creative and effective way through games such as "Fling the Teacher" "Walk the Plank" "Beat the Bomb" and "Penalty Shoot Out"

Mr. Field was contacted by email and was happy for the classes to use his software. These programs are available at



Students construct 15 or more questions and their game is generated as a flash (swf) file and a webpage (html). These are then uploaded and linked on the website. An example is linked below,



The inclusion of interactive games has added a new dimension to the elearning classroom. The inclusion of a laptop loaded with the above software has become a regular feature. While the majority of the class are dealing with the subject matter online via the data projector two students are chosen to create an interactive quiz on the material being studied in that lesson. This normally takes about 30 minutes. The quiz is then projected onto the screen and the class attempts to throw the teacher (This can only be done with 100% correct answers). The game is then uploaded for revision and future use. The students constructing the game are not disadvantaged by missing any important notes as they are uploaded and available at the end of the day.

Over the past four years the face of the classroom and the nature of teaching and learning has been transformed. The new world of the eclassroom engages and maintains students' interest in a way that would have been impossible to envisage a decade ago.

A Cautionary Tale.

The server at the University of Southern Queensland was never going to be a permanent base. The end of my course was approaching and with it the free student space. A new home was on the agenda.

What happened was slightly more traumatic. During March 2006 the server went down and was replaced. All 168 web pages vanished into cyberspace. Over the Easter break I organised hosting and a domain name with a commercial provider. If only I had kept a back up.

On a positive note a new and improved site rose from the ashes.

CONCLUSION

Society and Culture has been transformed into an elearning experience over the past four years at Picnic Point High School.

Student interest and engagement has increased exponentially.

In 2001 nine students were enrolled in the Subject. The enrollment for 2007 is over seventy and would have been more if classes had been available.

The first class to be involved in the elearning experiment achieved scores in the NSW HSC that were 21% better on average than the previous year's scores.

The Society and Culture website has had 950 hits between July and November 2006.

With 46 students currently enrolled at Picnic Point High I suspect others have found our secret.

W.RUSSELL Nov 2006

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