

Online projects: what's so remarkable? - students' experiences of an online project in NSW schools

Susan Harriman
University of Technology, Sydney

Abstract

Connection to the Internet is a major priority for NSW government schools, with the expectation that students will increasingly participate in online learning activities. 'Online projects' have emerged as a new learning form, building on non-computer problem-based learning approaches. They aim to create learning environments that are student-centred and interdisciplinary, where students engage in longer-term, complex assignments linked to the world outside school and that capitalise on the information and communications facilities of the Internet.

Recent studies of online learning projects have been characterised by an 'overview' approach, mapping the occurrence and nature of projects or documenting individual cases, with an emphasis on implementation issues for teachers and suggestions for their successful operation. The benefits of participation are often celebrated, with little evidence of actual learning outcomes for students.

This paper identifies the claims of project providers and advocates. It draws on a study of four very different online projects, implemented in schools in NSW, where the purported benefits were explored through in-depth case studies, using multi-faceted sources of data. Some initial findings of the study are presented, highlighting the experiences and learning of students, with implications for project design and provision.

Introduction

During the last decade and a half we have all witnessed the unprecedented investments made by Australian states and territories in the widespread introduction of information and communications technologies (ICT) to schools. The emphasis on hardware provision and Internet connection needs to be matched with equal emphasis on demonstrating ways that computing technologies can significantly add to student achievement. Lankshear, et al (2000) suggest that one of the beneficial outcomes of the pressure on schools to "technologise learning" is that it may force a reconsideration of the important questions of purpose and priorities in learning.

How online learning activities may provide new opportunities, and in what form, constitutes much of the current debate. An ever-increasing number of projects are offered by all manner of providers, both locally and overseas. Different learning opportunities are promised as students move into a wider learning environment and communications facilities change the way activities are framed and undertaken. The benefits of participation in online projects are expounded by project providers (Donlan, 1998; iEARN, 2003) and yet they remain relatively invisible in reports of school-based use of ICT and in the research literature.

Studies of school-based online learning projects have been characterised by an 'overview' approach, mapping the occurrence and nature of projects (Berenfeld, 1996; Harris, 2002) or documenting individual cases, with an emphasis on implementation issues and suggestions for their successful operation (Carr, 2001; Serim & Koch, 1996). While teachers recount their positive experiences of participation in online projects and the largely motivational benefits to students (Clark, 2002; Robertson, 2000; Tate, 1998) anecdotal evidence of the value of online projects is not yet well supported by research into the experiences of learners or evidence of outcomes achieved. Concerted research is required that investigates and demonstrates how and what students are achieving through their participation (Bennett & Lockyer, 1999; Windschitl, 1998). Harris (2002) sets a challenge: to capture and share the experiences of online collaborative projects, highlighting what it is about the learning that is "so remarkable".

The focus of my research is to explore how online projects can contribute to students' learning and to the effective use of Internet technologies in K-12 school settings.

This paper draws on a study conducted in four classes from Year 2 to Year 11, each participating in an online project involving more than one school. In-depth case studies using multiple sources of data were developed in order to capture the variety of possible views and provide insights into different aspects of the learning situation. Questions about how students participate and what they do and learn through engagement with online projects required that the classroom environment be thoroughly explored, to both contextualise activities and describe the nature of actions, interactions and patterns of participation.

Data were collected through interviews with students and teachers, triangulated with extensive observations of class activities over the duration of each project. Analysis of student products provides evidence of outcomes achieved, particularly related to syllabus requirements.

A significant feature of the study is the value placed on students' perspectives of the experience and learning achieved. Students' reflections on activities as they occurred, and in interviews at different stages of the project, are being used as the primary focus of analysis: foregrounding students' perceptions of the project experience and the (sometimes less obvious) learning achieved. Class teachers described how they selected and implemented the projects. However, it is their knowledge of students, revealed through interviews and less formal reflections, that is contributing most to an understanding of the project learning experience: providing insights into what was occurring in the class and what was achieved as a result.

In this paper I identify some of the claims made by online project providers and advocates, and set them against the issues and themes that are emerging from analysis of the projects in action.

When is an online activity a project?

Selecting appropriate projects for the study became an unexpected challenge, requiring clarification of what was meant by the very loose label 'online project'. Activities describing themselves as online projects range from simple information sharing or web publishing activities; to those that bring together problem-based learning approaches and the promise of increased connection to and opportunities for collaboration with people and organisations beyond the school.

All Australian education systems contribute to the OzProjects directory site administered by *EdNA Online* (Education Network Australia, 2003). The site provides a central directory of local and international projects, including some created by state education systems, with links to selected overseas collections. It is certainly not the only source of online projects being implemented in Australian schools. It does, however, represent an endorsement of online projects as e-learning content promoted for school use.

Harris (2002) provides a taxonomy of project types grouped into three broad genres: interpersonal communications; information collection and analysis; and problem solving. Project descriptions articulated by other project providers and researchers are consistent with these groupings (Berenfeld, 1996: Education Network Australia, 2003). Global School House uses only two categories: Basic - simple information exchange projects; and Advanced - complex processing of data projects (Global SchoolNet, 2001).

Harris' analysis of the frequency of projects revealed the dominance of information collection and analysis projects (41 of the 101 examined) compared to 9 interpersonal and 29 problem solving activities. She attributes this preference to the ability of classes to participate within their own learning spaces and then simply share the results. By contrast, problem solving projects require sustained online interaction between participant classes and greater shifts in pedagogy. These differences are described as representing cooperative projects in the first case and collaborative in the latter. Collaboration is ascribed with providing greater opportunities for higher levels of thinking and interaction, and result in "multiplied benefits" for students who have to "understand and incorporate plans, procedures and perspectives different from their own" (Harris, 2002, p. 57).

During February 2004, the OzProjects site listed 52 projects operating during the 2003-2004 school years. A review of these, using Harris' taxonomy, reveals similar patterns of representation; the most frequent being data sharing or exchange activities, with limited demands for collaboration or shared actions beyond individual class boundaries. Problem solving or complex investigation projects represented approximately 10% of the total. Yet these are the projects for which the greatest claims are made - learning from doing complex, challenging and

authentic projects, requiring resourcefulness and planning by the student, new forms of knowledge representation, and active involvement with others.

Bringing project-based learning online

Online projects extend the traditions of problem-based and the related project-based approaches (Katz, 2000; Moursund, 2002; Stepien & Gallagher, 1993). In his meta-analysis of project-based learning programs Thomas (2000) establishes five criteria that distinguish “project-based learning (PBL) projects” and reflect commonly described characteristics of problem-based approaches. Thomas requires that projects:

- are implemented as central parts of the curriculum (centrality);
- are driven by questions, issues or activities that require students to grapple with concepts and skills of “important intellectual purpose” (driving question);
- involve investigation that is goal-directed, involving students in the transformation and construction of knowledge (constructive investigation)
- present the potential for increased student decision making and direction, in both the outcomes and processes of working within the project (autonomy); and
- maintain a sense of authenticity for students, through realistic, non school-like topics, tasks or outcomes (realism)

Online project providers claim benefits of participation that meet Thomas’ criteria (Donlan, 1998 - heavily referenced in Education Network Australia, 2003; GLOBE, 2004), with major additions attributed to participation in online spaces. A review of the project collections available via OzProjects, reveals the following additional claims:

- Uses of Internet technologies add further motivational effects for students.
- Communications within a project increases collaboration by extending the range of student participants and increasing access to professionals, experts and real practitioners.
- Authenticity is enhanced either through participation in real-world projects, not limited by location or access, or through simulation that brings life-like situations into the classroom.
- The use of a range of technologies and opportunities to further develop ICT skills are valued as ends in themselves, especially in online research and web publishing.

Online projects also differ significantly from other online activities. A partnership is developed between the online component of the project and the necessary activities that take place in other spheres of the class’ work - both on and off computer. Student activities take centre stage; the technologies themselves (the computer and the network) recede further into the background of complex learning tasks, perhaps more so than in the other styles of online activity.

Whether complex, collaborative online projects offer “superior educational benefits” as Harris (2002) claims, is at the centre of my project. To date, many of the virtues have been extolled rather than empirically demonstrated.

Exploring projects in action

In selecting the cases for exploration to test these claims, I sought out projects that moved beyond information gathering and sharing and attempted to introduce a purposeful task (collaborative design, problem to solve) involving more than one class, or extending student activity beyond the school learning environment. In each case study the project was implemented as an integral part of class activities. Use of online technologies was a pivotal part of each project, if not necessarily the aspect where most time was spent.

Emerging issues

Initial analysis of the case data has involved an open coding of interview transcripts and class observations, and appraisal of samples of student work undertaken in partnership with the class teachers. Common issues and themes are clearly apparent. On the other hand, each project is revealing very distinctive features, even irregularities, because of their highly situated context, intentions or unique design.

Some key questions are guiding my analysis at this mid-point in the study:

- How do students view their participation in the projects and what value do they derive?
- Are the online projects reflecting or fulfilling the claims made, especially related to authenticity, student autonomy and realism.?
- How is the project enhanced through presentation in an online context?

In the following section I relate the experiences of one case, the Year 11 Modern History *Middle East Simulation*, to provide some preliminary insights. A limited sample of issues are discussed, drawing predominantly on the interviews with students.

The Middle East simulation

The Middle East simulation immerses students in the Arab-Israeli conflict. Originally developed by the Macquarie University Centre for Middle East and North African Studies, for use by tertiary students studying the politics of the whole Middle East region (Macquarie University Centre for Middle East and North African Studies, 2003), the simulation has been adapted to meet the needs of high school participants focussing specifically on the Arab-Israeli conflict.

Students take on roles of significant characters in contemporary Middle East affairs, using Internet technologies to interact and play out the action in a likely, if not real, political scenario. The participants were 60 students in three classes, across two Sydney high schools. Several 'control' roles were created to allow monitoring and assessment of activities by class teachers and 'controllers' from the Centre for Middle East and North African Studies. The controllers provided support and guidance to students, as required, allowing them to draw on the expertise of the participating university faculty members.

Following the release of a scenario which sets the scene for the simulation to follow, the action and reaction was driven by the ideas and decisions of students, unfolding over a three week period. The culmination of the project was a Conference Day where players came together, face-to-face, to negotiate around key issues in the conflict. All the action took place online: messages were sent by e-mail, players used chat sessions to negotiate in real time and the simulation web site provided information and facilities to help students explore issues, and plan their participation.

Experiences of students

The overall response of students to this very different learning environment was unexpectedly varied. Problems with groups and difficulty feeling 'in role' made it less productive for some students, and the timing of the project was the subject of frequent complaints. Yet in only a very few cases were these barriers sufficient to dampen enthusiasm or outweigh the benefits described by students.

The level of involvement was extremely high, evidenced in all sorts of ways - from heated arguments on the school bus, reassurances between friends after impassioned conference debates, to numbers of players who continued to log on to the site well after the simulation was finished. This is not to suggest that participation was easy. At times the challenge to existing ideas was difficult to deal with, particularly for those students who held strong views prior to the simulation.

Because I'm Jewish and I was playing Syria... when you went inside their views it gives a different perspective on the whole situation... I had never seen or even thought about other countries and what they are thinking..., another perspective, never thought about it before...

Overwhelmingly, interviewed students appreciated being able to direct the action themselves; having to weigh up ideas, think strategically and develop careful negotiating skills.

... great - not being checked all the time - do what you want in your character - you're in control of the character.

The project was time consuming, and the 'every night' commitment was problematic when other priorities were neglected. Several students described it as engrossing, addictive and themselves as 'becoming obsessed'. Strategies had to be developed to manage participation. Working to a team schedule, setting time limits and flexibly sharing the workload to accommodate other demands on team-members' time, were all used to deal with time pressures.

'Being the character' exerted a pressure to do the research and develop a very deep understanding of the role being played. In order to take strategically consistent actions, students developed understandings of the range of characters, not just their own. The project shifted the emphasis from learning about events and consequences, to experiencing the processes of policy making, tactics and making difficult decisions at different levels of politics.

...there is like internal and external results of things – all the people who die, poor conditions and then the political side... thinking as the nation.... It's really hard to know which to do, because if you just go from the side of the civilians it's like giving up your nation's rights – like your beliefs ...

Not knowing 'the answer' was particularly significant for teacher and student. To truly engage in the processes of diplomacy, the characters had to have options, make choices and take risks - and deal with the uncertainty of how others might respond. The teacher's role necessarily shifted to guiding and scaffolding the investigative process, rather than, even inadvertently, guiding students to a preconceived conclusion. This was a condition of the project structures, being developed and situated outside the class.

The conference day was characterised by strongly expressed positions, impassioned responses and heart-felt attempts to find solutions. The depth of knowledge and empathy with their character's position and outlook, developed through the online activities, allowed students to confidently argue their points and respond 'in character'. Students developed a strong sense of the complexity of the situation and reasons behind it, all the while maintaining a remarkable optimism.

The simulation provided students with a degree of agency that is rarely found in school settings, especially in senior classes, where it might be most urgently required (Heath, 2003). Similarly the project extended the range of performances that count as demonstrations of effective learning. While clear criteria for success were identified from the start, the methods of meeting them was open - left entirely to the students, both individually and in their groups.

Analysis of activities and work products provided evidence for subject-based knowledge that clearly met the required course or syllabus outcomes. Particular mention was made of this in relation to the Palestinian world that was previously less well understood. Both teachers and students highlighted that the students did much more than simply reach these outcomes. Awareness and understanding of current events, and appreciation of both sides of the conflict were repeatedly mentioned as perhaps the most valuable outcome of the project. New depths of understanding of the complexity of issues were described, with an awareness of motivations and the different points of view that are inevitably present in any conflict. Building empathy with the ordinary, as well as not-so-ordinary people on both sides of the conflict was a surprising result for some.

...this isn't about countries - they were people.

...obviously we learnt about the conflict - but more. You know it's so easy to stand back and criticise the way that politics work. Everyone is so stubborn... it's so much harder to be so neat about it now – to criticise when you've been there... so I think it made us realise it's not that easy – these feelings have been held for years. You can't just change it

Contribution of the online dimension

Project design was found to support teachers, both in implementing authentic, problem-based activities and in making effective use of online technologies. The project forced a shift in the role of the technology, making it ancillary to the learning purpose and intention. Despite this, students were most vocally critical of any online aspects that didn't measure up to their (outside school) experiences.

The activity *could* have taken place in a face-to-face classroom environment. However, being online added several significant dimensions. Some benefits were expected, such as increased participation of all students, access to expertise beyond the school and extended audience for student activity. Unexpected effects also emerged, related to the unfolding of events, the learning supports provided through the project infrastructure, and the positioning of students that enhanced the authenticity of the task.

Shifting the major activity away from a face-to-face interaction increased students' ability to construct arguments in considered ways, working collaboratively to explore ideas, plan actions and respond to the initiatives of other characters, without being interrupted. Being online still maintained the pace of interaction, with events unfolding on a daily basis, sustaining the momentum while maintaining the depth of responses.

Interactions between group members did not have to occur synchronously. A 'diary' area was provided, where character group members could privately communicate with each other. Not all groups made use of this, preferring to use instant messaging or the telephone, or even discussing and planning at school. The intensity of the project and structure made it imperative that students plan and manage their participation, at the same time as providing support structures to do so.

The involvement of another school was only made possible by working online. As students did not know the others, they communicated entirely in role. Being online also meant that existing relationships were minimised; communication occurred between the 'characters' rather than friends and classmates. Equally the action was 'unable to be influenced' by existing friendships. This was expressed as very important in several interviews.

It forced you to do e-mails and stuff because we couldn't really (talk). We just had to come up with other ways...

It didn't feel like just talking to kids.

Conclusion

At this point in my study, the insights gained from immersion in online project environments suggest that rich and complex learning outcomes are being achieved, however, not without important issues arising in the process. Only a selection of aspects has been dealt with here. Significant areas for continuing analysis include matters related to students, to teachers and to the projects themselves, such as:

- student agency, individually and within group activities
- variation in experiences of different students and groups of students
- the difficulty of more demanding ways of 'finding out' and methods used to assess success
- connection to and reliable involvement of partner schools, gaining sustainable participation
- the extent to which outcomes are made possible through the use of online technologies and how situating the projects online alters the nature of learning experiences.

Teachers are enthusiastic about the value of online projects for student learning, and the benefits they personally derive from the support provided within the project environments. However, complex, problem-solving projects require time and expertise to develop and maintain - far beyond the capacity of individuals or even groups of teachers to sustain.

To capitalise on the opportunities offered, education systems need to become more involved in the development (independently or in partnership with other organisations), support and promotion of quality projects - especially if the range of projects is to include quality examples with a distinctly Australian flavour and originality. This demands an urgent review of the online content development that currently receives priority funding and support.

References

- Bennett, S., & Lockyer, L. (1999). *The Impact of Digital Technologies on Teaching and Learning in K-12 Education: Research and Literature review Final Report*. Wollongong: University of Wollongong.
- Berenfeld, B. (1996). Linking Students to the Infosphere. *T.H.E. Journal Online*, 23(9).
- Carr, J. (2001). *Project pillars: Foundations for success in online curriculum projects* (A research paper funded by the Commonwealth Department of Education, Training and Youth Affairs): EdNA schools project.
- Clark, M. (2002). *Linking Learners Through Project-Based Adventures*. Paper presented at the Linking learners: ACEC 2002 - Australian Computers in Education Conference, Hobart.
- Donlan, L. (1998). *Visions of Online Projects Dance in My Head* [web site]. Information Today Inc. Retrieved Feb 12, 2004, from <http://www.infotoday.com/MMSchools/jan98/story.htm>
- Education Network Australia. (2003). *OzProjects* [web site]. Retrieved Feb 12, 2004, from <http://ozprojects.edna.edu.au>
- Global SchoolNet. (2001). *Global School House Project Registry* [web site]. Global SchoolNet. Retrieved Feb 22, 2004, from <http://www.globalschoolnet.org/GSH/index.html>
- GLOBE. (2004). *The Globe Program* [web site]. University Corporation for Atmospheric Research (UCAR), Colorado State University (CSU), Retrieved Feb 18, 2004, from <http://www.globe.gov/fsl/welcome.html>
- Harris, J. (2002). Wherefore Art Thou, Telecollaboration? *Learning & Leading with Technology*, 29(6), 54-59.
- Heath, S. B. (2003). Making Learning Work. *After School Matters*, 1(1).

- iEARN. (2003). *Collaborative projects* [web site]. International Education and Resource Network in Australia. Retrieved Feb 26, 2004, from <http://www.iearn.org.au/collab.htm>
- Katz, L. G. (2000). *Engaging Children's Minds: The Project Approach* (2nd ed.). Stamford, Co: Ablex.
- Macquarie University Centre for Middle East and North African Studies. (2003). Middle East Politics Simulation. Retrieved August 15, 2003, from <http://www.mq.edu.au/mec/sim/>
- Moursund, D. (2002). *The case for PBL, Project-Based Learning Using Information Technology* (2nd Edition). Eugene, OR: International Society for Technology in Education.
- Robertson, E. (2000). *Integrating Learning Technologies and Collaborative Internet Projects into the Curriculum*. Paper presented at the 16th Australasian Computers in Education Conference: Learning Technologies. Teaching and the Future of Schools, Melbourne.
- Serim, F., & Koch, M. (1996). NetLearning: Why Teachers Use the Internet. Sebastopol, CA: Songline Studios.
- Stepien, W., & Gallagher, S. (1993). Problem-based learning: As authentic as it gets. *Educational Leadership*, 50(7), 25-28.
- Tate, J. (1998). Collaborative internet learning. *Computers in the Social Studies Journal*, Sept/Oct.
- Thomas, J. W. (2000). *A Review Of Research On Project-Based Learning*. San Rafael, C.A.: The Autodesk Foundation.
- Windschitl, M. (1998). The WWW and Classroom Research: What path should we take? *Educational Researcher*, 27(1).