

## **The student, technology and learning: a postphenomenological analysis**

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### **ABSTRACT**

As educational media and online learning become a familiar feature of educational delivery, it is timely to remember that for many mature age students who return to study for the first time since schooling, the virtual learning environment (VLE) can be a potential impediment rather than an enabler of their success. While the VLE is an integral part of the lifeworld of the academic teacher and the educational designer, one cannot make this assumption about student learners, neither can one assume how they will engage and use the VLE in their new role as online learner. With the increasing sophistication of our new technology practices (new, because learning has always involved technologies, even the humble chalkboard (Daniel 1997)) there is an imperative to remain attuned to the challenges that online learning still poses for learners as they struggle to engage at even the most basic level. Education is now in a state of flux, technologically and pedagogically. There is therefore a need to review the education practice.

This paper offers a case study of the experiences of mature age university students, new to both university study and online learning, and their engagement with a VLE at Charles Sturt University, one of the largest tertiary distance education providers in Australia. While the case was designed to be a comparative study of mature age students studying by distance education and their Generation Y peers studying face-to-face on campus, surprisingly all ninety on campus students were silent in the use of new technologies, preferring to engage in the assessment task using their familiar technologies of face-to-face meetings in preference to the VLE. This paper asks the question: *What are the dynamics of the online social learning environment for first time users and how are they enabled and restricted by it?*

Using Ihde's (1990, 2006) philosophy of technology we analyse the group processes and interactions of fifty students working collaboratively in seven virtual teams to complete a prescribed assessment task over a six week timeframe. We report on the learning experience of two of the teams that clearly illustrate Ihde's tenet of the non-neutrality of technology. While the quality of the work from these two teams was identical, the way in which these groups worked with and through the same range of Web 2.0 technologies highlights the non-neutrality of technology, and its potential to simultaneously amplify and reduce the experience of learning. In the context of high attrition rates for first year university students, if we are going to facilitate their learning success, it is timely to review our students' engagement with the VLE.

## **THE CONTEXT AND THE PROBLEM**

In 2008 there were 1.1 million students enrolled in higher education courses in Australia, of whom 37% were aged twenty five years or older (ABS 2010). While in the previous decade, the majority of these mature age students would have studied in isolation by distance education using print technologies of hard copy study packs and textbooks, online Web 2.0 education has transformed the learning experience to a blend of active participation, collaboration, experimentation and social relationships (Lankshear and Knobel 2007: 21). Not only has online education provided a potentially richer learning environment but it has also opened up global education markets, something which the Australian government is actively promoting (DEST 2002) and which entrepreneurial universities are keen to exploit (Lee 2008). As Australian universities open their doors to previously untapped markets and attract a more diverse student cohort with different skills, needs and expectations, there is concern across the higher education sector about rising first year attrition rates (DEST 2002). In our own institution the rate stands at 17% (CSU Office of Planning and Audit 2011). Student retention rates are a key performance indicator for Australian universities and under the banner of public accountability, a factor in determining public funding levels.

Rather than engaging in the blame game exercise in which students blame the technology for their failure and technophiles blame students' abilities, this paper seeks to explore the phenomenon of first year, mature age student success in the VLE through an analysis of student interaction with peers and technology. While the VLE potentially offers an enriched learning environment it also poses significant challenges to first year university students.

Our students engaged the VLE through a collaborative learning activity using the range of new technologies available through the University's learning management system (LMS) *CSU Interact*. Technologies amplify and reduce the experience of working *through* and *with* the technology (Ihde 1990). For students this means that the range of technologies may amplify the potential for collaborative learning but at the same time the reduction, or drawbacks are that they have to learn to use those technologies. For example, the wiki used within *CSU Interact* is not a "what you see is what you get" (WYSIWYG) program and

requires students to learn programming code to write within it. In this example the amplification of the learning experience is the enriched learning environment of peer learning and collaborative writing, however the reduction is potentially the barrier of needing to be able to confidently navigate within the VLE in order to maximise the benefits of the affordances which the wiki offers.

There is a tendency to position the student's experience with the technology as attributable to a property of the technology (the affordances) (Oliver 2005) or on the other hand, as an attribute of the student, be they an early adopter or lagger, or somewhere in between (Rogers 1991, cited in Daniel, 1996). As an alternative approach Ihde (2006) positions this experience with technology as a human/technology/world relationship with an emphasis on *interaction*. He maintains that it is not the property of the technology alone or the disposition of the student because they perhaps love playing with the technology. It is the interaction between the student, the technology and their lifeworld that provides a cultural platform which enables individual level amplifications and reductions of the experience of the collaborative online learning of the user. This is important in a learning situation where the focus is on enabling student learning and success. It also has implications for student success/failure and the overall impact on student first year attrition rates as they struggle to not only make the transition to university study, but also grapple with the new technologies.

## **PROJECT DESIGN: PEDAGOGIES AND METHODOLOGIES**

This project used the University's *CSU Interact*, to trial activity-based blended learning in a first year, first semester criminology subject delivered to fifty mature age distance education students living in Australia and overseas, and concurrently to ninety on campus students. It was designed as an interactive group assessment task based in collaborative learning. The assessment task required teams of students to review a short case study about a juvenile offender and to prepare the prosecution and defence cases.

All fifty part-time distance education students were organised into seven virtual teams of six to eight members and assigned team workspaces (individual team project sites separate from the subject site in *CSU Interact*) that provided them the tools of wiki, chat room, an announcements noticeboard with group email function and a resources repository folder. The group of 90 Generation Y, full-time, on campus students were also completing the task and were offered individual project sites, the same as for their off campus distance education peers. Interestingly, all on campus students chose to complete the task face-to-face rather than through virtual collaboration online, stating that they preferred face-to-face social interaction rather than virtual teams and that many of them were unfamiliar with Web 2.0 technologies. This is consistent with Lankshear and Knobel 's (2007) finding that it cannot be assumed that Generation Y are techno-savvy. This was our first assumption about how our students learn that was debunked.

The assessment task itself was carefully designed. The pedagogies underpinning collaborative learning and the social construction of knowledge in the assignment drew on both associative and cognitive pedagogies (Anderson 2004). The associative learning theories are those that model “learning as the gradual building patterns of associations and skill components” (Mayes and de Freitas 2007:15) by building more and more complex tasks, step by step. The associative dimension was integral to the skills component of the subject (that is to say, the analysis and critique of criminological theory through research and reflection as well as the development of skills and confidence in the VLE). Also underpinning collaborative learning and the social construction of knowledge is the cognitive dimension. Cognitive learning theories “have emphasized the assumptions of constructivism that understanding is gained through active processes of creating hypotheses and building new forms of understanding through activity” (Mayes and de Freitas 2007:17), in this instance using the interactive communication affordances of ICT. In the assessment task the cognitive dimension was integral to bridging the skills component of the subject with the collaborative learning between peers in a social context. The integration of both these theoretical frameworks supported the social cognitive pedagogy that was applied in the substantive task of the assignment that required students to analyse the concepts through the case analysis in collaboration with their virtual Team members using ICT.

The anticipated background of the students upon which the design was based, was that they would have little, if any experience in Web 2.0 technologies, something that was confirmed by student survey after the event. Thus the assessment task was designed independent of specific communication technologies, enabling students to focus on the task with whichever technology they collaboratively decided suited them. The primary goal was to develop collaborative problem solving and analysis as a generic attribute and to develop technology expertise as a university-defined generic graduate skill. Therefore minimal guidelines were provided by the academic teacher on how to approach the task: the intellectual nature of the task and also the possible application of different tools on the LMS. The academic teacher regularly monitored Team spaces to ensure effective group dynamics and classroom culture.

The data for analysis of the project are drawn from content analysis of all communication spaces across the seven team project sites, e-mail communication between academic teacher and students across the teaching session, the formal evaluation of the subject carried out by the university’s audit function and a survey of students at the conclusion of the session, seeking information on their skill levels and frequency of engagement with Web 2.0 technologies prior to the task and their evaluation post-task of the benefits and disadvantages of online learning.

## **DISCUSSION AND IMPLICATIONS**

In relation to our research question regarding the dynamics of the online social learning environment we are guided by Ihde’s (2006) philosophy of

technology, a postphenomenological approach which emphasises the negotiated, socially situated and cultural variations in human interaction with technology. Central to Ihde's philosophy is that technology is not neutral. The practice of using technology is shaped by the interaction between the user, located within their culture and how that culture fits the technology into its practices, and the technology. It is the interaction of human-technology-world that is crucial to our understanding of how students are engaging the online learning experience.

In Team 3, it was the group organisation that shaped the learning experience. One of the group members took the role of facilitating group activities and exploring the technology and leading her peers through it. The remainder of the group debated the substantive issues of the assignment. Shaped by this one member's willingness to develop expertise in the use of the different tools, the group were able to engage with the VLE through collaborative writing in the wiki as their primary tool (with 115 revisions) supported by asynchronous chat (173 postings). Their adventurous use of the tools within the context of a collaborative learning environment unleashed creativity and originality that was reflected in their outstanding score for the assessment item.

In the more chaotic organisation of Team 7, without formal leadership or direction, the primary focus of the group was debating the substantive issues of the task, with the selection of tools of secondary importance. The group adopted the technologies which had resonance with communication technologies similar to those within their own lifeworld (an embodied relationship). For example, while a suggested preference for telephone conference was made, the group adopted extensive synchronous chat sessions (381 postings) as though simulating a series of teleconferences. They used the common resources folder (as a filing space) to deposit word processed files containing their substantial contributions to the development of the final paper (13 word files) while their use of the wiki was used merely for publishing of the final paper (29 minor editorial revisions). Their use of the technology varied significantly from the common uses of the technology and the recommended group organization given by the academic teacher, and yet, they achieved the task.

Personal social barriers were a factor in the online learning experience. While the online collaborative peer learning process was certainly a motivator for some promoting a sense of responsibility and commitment to learning, in the case of many of these time-poor mature age distance education students, their inability to be able to contribute in a frequent, sequential manner because of work and family commitments resulted in feelings of guilt and increased stress. Personal social barriers to participation in this group online assessment task included: (a) shift work and general work commitments which removed them from access to the online resources; (b) the primary carer role of females for sick partners, children and parents; (c) the limited access by females to their home computer, identifying that they have lower priority usage than other family members and sometimes the shared PC is located in a child's bedroom which restricts their access; (d) family interventions and commitments such as taking annual holiday leave and holiday travel; (e) the lack of confidence in their technical skills as well as their scholarship in publicly posting views in the

spaces, and; (f) the different pace at which students were learning with some students progressing rapidly while other struggled with concepts which generate feelings of inadequacy and reluctance to contribute to online group work.

And yet, the strength of bonding which was unexpected by the academic teacher was the significance of social interaction between these students and the strength of the social support. Social capital was generated, albeit for the temporary lifespan of the teams. The conversations between students were surprisingly intimate – a student’s mother was dying and a peer, recently widowed, offered emotional support; a female student expressed concerns about her young son going in to hospital and there was a flurry of support from other team members and concessions made regarding the mother’s contribution to the team task. In Team 7 a female student from Greece chatted on line, using the chat tool, very intimately for almost two hours in the early hours of one morning, with a Team member in Northern Australia, about their children, their hopes for them and their concerns. Ihde’s framework of human lifeworld -technology-world interaction was crucial to an understanding of the social learning environment.

Ihde (1990; 2006) also informs the second dimension of our question regarding how first time online learners use the technology. Within this same framework of characterising the relationship with technology as the human-technology-world interaction, he uses the example of eye glasses. The glasses become the technology that enables a person to focus correctly. So the relationship is characterised as:

**Me – glasses – world**

When we become familiar with the glasses, they become ‘embodied’ in a sense the glasses become invisible and a part of the self. This relationship is illustrated as:

*(Me—glasses) – world*

For students writing assignments in familiar technologies, such as a word processor, some embodiment experience occurs.

*(Student – word processor) – assignment*

When the student moves beyond the area of their expertise, the embodied relationship breaks so that the technology becomes a separate, ‘other’ entity, as something foreign in the process of writing the assignment. This is akin to viewing the world through a very dirty or cracked pair of glasses. Then the relationship is represented as:

**Student – writing technology – (world )**

This represents that the student is alienated from the technology and the world.

Another technology relationships is the use of thermometer or speedometer of a car which describes a different relationship, in which the world is experienced only through the reading of the instrument:

**Me – (technology—world)**

For the students in this study, having to understand basic hypertext code to write in the wiki, the relationship was:

**Student – (wiki code – assignment)**

In Group 3 one student assumed a co-ordinating and experimenting role with the group and the project site respectively. She managed and massaged (edited) the contributions of others in the wiki when they became confused by the technology. Through her willingness to explore the uses of the tools, the team collectively had an embodied experience in collaboratively writing the assignment in the wiki as their primary writing space (115 revisions). This is represented as:

**(Student – wiki code) – assignment**

Students in Group 7, in which collaboration was anarchical, felt that the wiki, through the required hypertext coding, was a technology that was ‘other’ – foreign to them and opposite to a word processing technology with which they had an embodied relationship. They worked with their familiar technologies of chat used like a teleconference at negotiated times, and word processing and the resources tool for filing their word processed contributions. When completed they copied their collated document across to the wiki for editing and publication (29 typographical and formatting revisions). Their relationship and interaction with the technology can be illustrated as alienated to the wiki:

**Student – wiki code – (assignment)**

and embodied to chat and the resources folder

**(Student – chat/resources) – assignment**

As one student put it, *“the interesting thing of this exercise is it shows you different methods of how people attack things”*. To understand success in the online social learning environment one needs to consider the multiplicity of human lifeworld -technology- world.

The quality of the final output from each team (800 word paper) was of a high standard, higher than the on campus students who had chosen to complete the same task face-to-face. While one DE student identified that *“unlike on campus students (we) do not have as many resources or time to do such a project”* the online environment was fertile ground for promoting the personal resources of mature age distance education students and creating advantage rather than disadvantage, with the exception of the barrier of temporal inflexibility. There are many variables that may be identified here to explain the quality of the work (maturity, work experience etc). However it is clear that the online social learning environment gave mature age distance education students greater opportunities than in traditional formats to demonstrate their knowledge, practice their skills, and draw on their maturity and life experiences. Their submissions demonstrated analysis, creativity and a synthesis of their understanding of the core concepts with their work experience and lifeworld, something which added originality and value to their final papers. It was a good example of Ihde’s human-technology-lifeworld interaction.

## CONCLUSION

As educators, in order to facilitate our students' success, we need to continuously evaluate the human-technology interaction. Ihde's model (1990, 2006) provides an effective framework for understanding the variety and flexibility of our students' approaches to using technologies.

While the Teams approached the task and engaged the technologies in very different ways, there was one thing in common: the strong social support of peers that underpinned collaborative learning and the social construction of knowledge. The human-technology interaction commonality was the need for students to become embodied to a degree so that the technology became virtually invisible and they could concentrate on the substantive aspect of the learning task. The implication for student success/failure and the overall impact on student first year attrition rates as students struggle to not only make the transition to university study, is to provide enough of a variety in the selection of tools so that embodiment occurs and students can focus on learning the subject.

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