'Show Me Your Wiki and I'll Show you Mine': Using Online Interactive Media to Improve Academic Writing and Research in a Public Health Under-Graduate Cohort.

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Background and Rationale

The range of information and communication technologies that can be classified as Web 2.0, such as blogs, social media, websites, and wikis, provide innovative and fertile learning spaces for students, as they shift the learning processes from linear pathways to more interactive and collaborative dynamics (Wheeler et al, 2008; Tetard et al, 2009; Kirkwood, 2010; Knight, 2009; Hemmi et al, 2009; Duffy & Bruns, 2006). Studies have shown that the use of online tools, such as blogs and wikis, enhances students engagement, deepens their learning experiences, and improves their overall academic achievement (Hemmi et al, 2009). In this paper, we firstly describe Bandura's Social Learning Theory (SLT) as it applies to the use of wikis for academic assessment in a tertiary education setting. Secondly, we outline the wiki assessment used for the Health, Culture & Society unit in the School of Public Health & Social Work at QUT. Thirdly, we detail the methodology of observation and data collection from students regarding their learning processes and outcomes. Fourthly, a conceptual model is proposed to illustrate the findings of this process, and finally, benefits and limitations of applying wikis in the higher education context are discussed.

Theoretical Framework: Social Learning Theory in Collaborative Cyber Spaces

In keeping with the social and collaborative features of Web 2.0 technology, Bandura's Social Learning Theory (SLT) was applied to investigate the effectiveness of a wiki as an online tool to improve the academic writing and referencing standards of undergraduate students in this setting. Bandura described this complex, interactive process of social learning as being comprised of four key conceptual elements.

1. **Attentional Processes** – If a behaviour is seen as attractive, the individual is more likely to give it attention. An individual may be more inclined to *pay attention to a modelled behaviour that they will be required to perform publically, rather than privately.*

2. **Retentional Processes** – An accurate reproduction of the modelled behaviour may be more likely if the behaviour is immediately imitated, if the observer is repeatedly exposed to the particularly behaviour, and/or if the actions required to complete the behaviour are rehearsed, mentally and then overtly.

3. **Motor Reproduction Process** – The course of action that an individual chooses to take is largely dependent on the anticipated outcome, and the confidence that they posses in their own ability to perform the necessary actions (self-efficacy). Self-efficacy will dictate, at least in part, the level of difficulty they wish to tackle, and the amount of effort they wish to invest.

4. **Motivational Processes** - People are also more likely to model behaviours that lead to pleasing results (Bandura, 1997). Differential reinforcement by models, such as teachers or fellow students, is likely to lead to appropriate behaviour. If a model gives similar feedback to everyone performing the behaviour, regardless of the quality, the behaviour is not imitated well (Bandura, 1977).

In light of these well-established theories by Bandura (1977), and his more recent reflections on wiki and internet-based learning, we set out to test the dynamics and learning processes involved in the collaborative production of a wiki by a cohort of Public Health undergraduate students.

The Assessment Task

Having selected a topic, the students were directed to the established Health, Culture, & Society Wiki in Wikispaces (http://www.wikispaces.com/) for the unit. The student's first task involved describing and depicting a cultural artefact. The artefact could be any *symbolic item* that they had located from within their social/cultural worlds that represented the public health issue being addressed in the assessment. The students were to then identify and briefly describe the core public health issue that the cultural artefact represented. The students then conducted a comprehensive and in-depth literature review to demonstrate their knowledge of the latest research and scientific evidence on their chosen topic. Students were required to apply social theory, philosophy, and/or a research-based analysis of how and why *society and culture* were crucial elements in both understanding and redressing the population health issue they had chosen to focus on. Finally, the students had to go back to their cultural artefact and describe what it symbolised and represented, and how it was a good 'case in point' of their topic/issue, and what it meant to them personally.

Research Questions

1. Can shared 'cyber spaces' be occupied by undergraduate public health students to raise standards in academic research, referencing, and writing skills, and what are the processes via which this occurs?
2. Does the interactive process of sharing and comparing assessment items generate collaboration and competition amongst undergraduate students wherein more critically informed arguments are made contemporary public health?

Data Collection
Following the completion, submission, marking and return of grades and feedback to the students on their individual wiki page contributions, we asked them the following questions.
-What did you think of the Wiki research project when it was first introduced for assessment?
-What did you like/not like about doing the Wiki research project?
-Do you think your own academic standards were raised as a result of this type of assessment?
-What were some of the factors that affected how you performed in this task?

Data Analysis
We conducted a thematic analysis in the first instance, followed by axial coding to explore the relationships between the key concepts arising from the data. We employed SLT to organise the emanating findings from a social constructionist perspective, and to develop theory about how ICTs such as a wiki work to raise standards amongst undergraduate public health students. We paid particular attention to the social dynamics that shaped the students' internal processing and outward performance and academic achievement.

Findings
The findings are organised the model below.

Collaboration and Competition on a Wiki: The Praxis of Social Learning
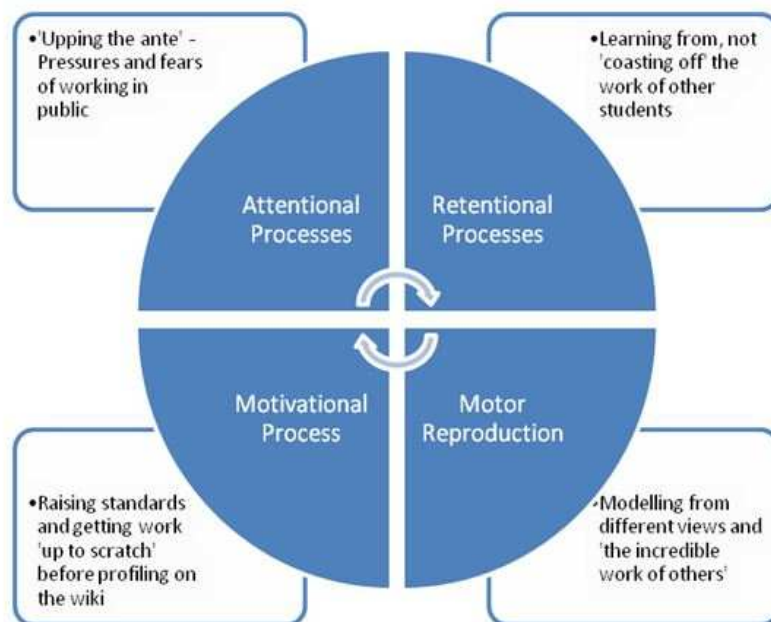
According to SLT, more attention will be paid to a behaviour that is perceived as appealing or attractive, and which will be required to be performed publically rather than privately. The students stated that while the desire to perform well was indeed present, they were initially intimidated by the demands on them to produce work that would ultimately be visible to the entire student cohort, as these students clearly express:
'I didn't like or feel that comfortable with having my name attached to my work for all to see' and
'*I was intimidated when I heard the wiki would be able to be accessed by my fellow classmates.'*
There was ample opportunity for the students to be exposed to the final products that they were required to produce, as some students began their work early, and there were many examples to watch unfolding and to study during this time. What was most interesting, was that despite students' anticipating that they could simple model, or copy the work of others, this time of observing and processing what was being produced actually made them want to perform even better than their peers, as this student described:

'Initially I had thought that doing this assessment might mean that you could coast off those more organized and submitted early, however, it made me want to find something different, and do better than them.'
Following the opportunity to observe, ask questions, and plan an approach to their own projects, students began to attempt to post work on the site, and this process was an iterative one of self-reflection and regulation – which they conducted in relation to 'checking-in' with their models and/or peers. During this stage of production, the students were still heavily engaged in observing the work of others around them, as these quotes indicate:
'It was great to see others style and notice the difference in views'
'[the best part was] Seeing other people's artefacts and wiki's, most of which were incredible'
In order to direct students to examples or models of the best work possible, the teaching staff identified the best work being produced and held these up as exemplars for other students to use as a guide. As well as generating a useful guide for performance, this process of rewarding 'good work' instilled a further level of competitiveness amongst students to raise the quality of their work, as this student stated:
'My standards were raised because I saw the quality of work posted before I had completed my own wiki. It made me put that extra bit of effort in to get it up to scratch.'

Discussion and Conclusions

By providing a standard against which one's own performance can be evaluated, modelled behaviour can induce self-motivation (Bandura, 1977). These processes were highly evident and able to be observed in the work produced by students on the Health, Culture, & Society wiki project, and were further highlighted in students' accounts of undertaking their individual wiki page projects. The learning that occurred was done socially, publically, collaboratively, and competitively; and via an iterative process wherein students observed and studied each others' work, and then both imitated and innovated ways of conducting their own projects. As predicted in SLT theory, the value the individual students placed on accomplishing the desired behaviour allowed them to overcome such barriers. Overall, the wiki allowed some of the most advantageous elements of social media and ICTs to work in parallel with the pedagogical goals of the teaching staff to ensure deep and sustained learning for students; learning which had been inspired by competition, and informed by lengthy periods of collaboration and iterative reflective processes.

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