Chapter X

Student Wiki Pages: Online collaboration in a networked learning environment

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Introduction

This chapter is concerned with student collaboration and 'peer-support' pedagogy as facilitated by online learning environments. Specifically the chapter discusses the use of wiki tools as part of the e-learning strategy in a first year BA (Hons) Communication and Media unit at Bournemouth University. The pedagogical aim here is to assess students' ability to work effectively in a computer-mediated environment by applying interpersonal communication skills taught in the unit, whilst fostering a professional engagement with the unit's theoretical foundation and facilitating student-centred learning.

The Student Wiki Pages is an educational strategy that encourages students to develop active learning, media literacy and scholarship at the start of their degree programmes, providing a solid underpinning for their future studies. Collaboratively producing a wiki means students have to be self-reflexive and critically evaluate their own notes from lectures and set readings on a weekly basis.

Drawing on evidence from 2010/2011, the chapter will demonstrate how the Student Wiki Pages helped inspire students' commitment to learning by analysing five core areas where student performance improved. Practical complexities of assessing collaborative learning will be evaluated, together with a discussion on how to manage student expectations in relation to grading and feedback.

Peer collaboration, wikis and networked learning

The role of 'peer' or 'collaborative' learning has attracted increasing attention in education research. Scholars have put forth a wide range of conceptualisations in relation to undergraduate teaching, including: peer learning (Collier, 1983), collaborative learning (Bruffee, 1999), coopera-

tive learning (Mills and Cottell, 1998), peer assisted learning (Topping & Ehly, 1998), peer tutoring (Falchikov, 2001), peer facilitation (Micari, Streitwieser, & Light, 2006), and peer mentoring (Jocobi, 1991, Terrion & Leonard, 2007; Hall & Jaugietis, 2010). These studies share a central tenet that there is educational benefit in students taking responsibility for shared, self-directed learning from each other, working in groups independent of the teacher. That is, hierarchical status differences and barriers of power between fellow students are less than those between faculty members and students, which might engender what Habermas (1984) terms an 'ideal speech situation'. 'In these circumstances more open communication can therefore occur', Boud and Lee asserts, 'allowing for fuller engagement and potentially greater opportunities for learning (as distinct from teaching).' (Boud & Lee, 2005:513). In so doing, engaging peers in pedagogic strategy have been positioned not only as effective ways of enhancing student performance (as indicated by higher grades), but also improving student experience of university life and reducing attrition (Hall & Jaugietis, 2010).

Similarly, Boud and Lee (2005) contends that by situating 'peer-learning' as an integral component part of a postgraduate student's environment, drawing on the 'community of peers/experts/others' envisaged by Pearson and Brew (2002), it engenders 'an environmental *space* that is intellectually, socially and geographically complex and dispersed' (Boud & Lee, 2005:504, emphasis added). That is,

> Rather than seeing these complex and dispersed relations in terms of an 'environment' which is separate and apart from 'pedagogy', understood primarily in 'vertical' terms as 'supervision', we suggest that pedagogy be reconceptualized as significantly 'distributed' and 'horizontalized', with an associated dispersal of responsibilities and of agency. (Boud & Lee, 2005:502-503)

Here they draw on Lea and Nicoll's (2002) notion of 'distributed learning' to 'refer to networks of learning in which learners take up opportunities in a variety of ways without necessary involvement from teachers or supervisors' (Boud & Lee, 2005:503). They construct their notion of 'peer learning' as a 'two-way reciprocal learning activity […] among students and significant others' (Boud & Lee, 2005:503). Thus peer relations are not only about overcoming the isolation and loneliness of postgraduate students, but indeed an active space and site of learning.

The increasing complexity of learning environments has also been conceptualised in Enriquez's (2008) study on 'networked learning'. This draws on Castells' (1999; 2001) 'network society' to explain the emergence on new information networks, made possible by computer mediated communication, that increasingly disassociates 'spatial and temporal proximity of the performance of everyday life's functions' (Enriquez, 2008:116). In so doing, the study also accentuates both the complexity of networked learning, that involves 'flexibility, mobility, discontinuity' and social relations that might be 'weak and distant' (Enriquez, 2008:116). Whilst Enriquez' study is predominantly concerned with virtual learning environments, the attributes of the nexus described also apply to real life spaces and interpersonal connections.

Different approaches exist that attempt to harness the potential of online peer collaboration. Wikis have in particular attracted significant attention in different disciplines and industries, in part because it is a technology designed specifically with online collaboration in mind. That is, the open co-production of text by multiple authors, where each change is tracked and logged. Indeed wikis have been used widely, for example in: online encyclopedias and most famously Wikipedia (Bruns 2008; Ferron & Massa 2011; Joyce 2005; Korfiatis et al. 2006; Lih 2004; Pentzold and Seidenglanz 2006; Wagner 2006); for knowledge-management (Fuchs-Kittowski and Köhler 2005; Hepp et al. 2007; Wagner 2006; Wagner and Bolloju 2005); in journalism (Bradshaw, 2009); economical (Wagner and Majchrzak 2007), legal (Egli & Sommerlad 2009) or political contexts (Makice 2006); citizen science communities (Sheppard & Terveen 2011); as well as for educational purposes (Bruns and Humphreys 2005; Chong and Yamamoto 2006; Notari 2006; Tselios 2011, Wang and Turner 2005).

Various studies have demonstrated wikis' potential for collaborative learning, emphasising how they can: allow for debate-based learning experiences (Chong and Yamamoto 2006); facilitate shaping of knowledge (Reinhold 2006); facilitate collaboration (Kim et al. 2006; Notari 2006); allow for design-based learning (Rick and Guzdial 2006); enhance inventiveness (Guzdial et al. 2001), and support inquiry learning and the co-construction of knowledge (Yukawa 2006). Here it is important to emphasize, as Scardamalia and Bereiter (2003) did, the importance of knowledge-creating competencies 'in a knowledge society' (Scardamalia 2002, p. 67). Similarly, Cress and Kimmerle (2008) also

highlighted the necessity of systematically analysing the potential of wikis as tools for knowledge building. They argue that:

> Individual learning occurs as a result of externalization (due to processes of deeper elaboration which are activated by the externalization process). And individual learning occurs as a result of internalization (due to the simple adding of new knowledge or due to the expansion of a person's individual knowledge through internalization and, arising from that, an opportunity to interconnect old and new knowledge). (Cress and Kimmerle 2008: 112)

Wikis should, in other words, provide a rich opportunity enhancing collaborative learning among students. Yet many scholars have pointed out the practical complexities of assessing collaborative learning (see Carr et al, 2007, Trentin, 2008, Wheeler et al, 2008, and Cole, 2009). Questions remain as to what the assessor should actually mark - do you, for example, grade the final text or each individual instance? How are student contributions differentiated? There are perhaps as many answers to this as there are permutations of the questions. Learning from practical case studies and adopting wiki-technology in a bespoke manner dependent on the pedagogical context is therefore important. This chapter will now turn to explore one use-scenario of wikis within higher education: assessing students' co-production of lecture notes.

Student Wiki Pages: collaboration in practice

One of the main attractions with online collaboration is that students already operate in a networked communication landscape. Thus teaching and learning may conceivably be more effective by situating the pedagogical practice within the students' natural communication environment. However, whilst wikis were designed to facilitate online collaboration as outlined in the previous section, the deployment of any technology in a learning environment or otherwise does not automatically yield the intended consequences. As such it is important to compare different the results from different use-scenarios when evaluating how wikis may be implemented as part of e-learning strategies. That is, to focus on pedagogical reasoning and experiences, rather than simply technology-oriented solutions. This section will therefore begin by briefly exploring the author's past attempts at using wikis for co-

production of student work before outlining one successful implemen-tation and the associated challenges that remains.

Learning from experimentation

In previous years and across different units my experimentation had centred around the combination of two formative assessments: a weekly blog and wiki. For the former, students were expected to keep a weekly blog, reflecting upon their own learning and issues that came up in lectures. The blog was private, so only the author and tutor could access content. Students were also expected to use a wiki tool to collaborate on writing lecture notes. The idea being that their collective notes and negotiated refinement of this would provide a complete set of lecture notes. The fundamental learning principle here was that the process of co-creating the notes would reinforce the knowledge in a better way than the teacher simply providing them with the lecture slides – which they were not, so as to avoid undermining the process.

Although some of the students engaged with both the blog and the wiki relatively well, the experiment was a mixed success. The main problem for students appeared to be confusion about 'what to write where'. Evidently there was some overlapping functionality between the blog and the wiki, and students struggled to differentiate between them. Naturally there was also some concern that the wiki would be abused by lurkers or freeloaders that did not contribute, in effect exploiting the other students' efforts. Given that the *process* of co-producing the notes was the pedagogical goal rather than the finished text, the problem of lurking was not a concern shared by the teacher. It did nevertheless hinder optimal engagement for many of the students. Finally, there was a feeling amongst students that since both the blog and wiki were formative and not marked, they were less important than the summative assessments (i.e. graded work).

In light of these concerns it was decided to revisit the e-learning strategy significantly. Firstly it was decided to simplify matters by only focussing on a single format – the blog had to go. In part because it was not really a blog: it was private so had no peer engagement, and it was impossible for the teacher to comment on 80+ students' weekly entries. It was also the least effective in engaging the students with the

learning outcomes of the unit. That left the wiki with the challenge of encouraging greater engagement and reducing fear of lurking.

Carrot and stick time.

The stick was to make the wiki part of the summative assessments and associating it with unit grades. That way all students would be required to engage in order to pass the unit. The carrot was to offer the students to embed lecture slides on the relevant wiki page ones the teacher was satisfied students had completed the co-production process and covered the main points from the lecture.

However, there was a further challenge to be addressed. Specifically some students that had wanted to participate in the wiki, but did not, claimed it was 'because all my notes were already on there'. With the cohort increasing to 130+ students, that excuse could actually become an even greater problem. After considering a range of options, it was decided to try the following two solutions: firstly, create a wiki for each seminar group that would only be accessible by those students (17-20 students in each group); secondly, encourage the students to use the comment facility on the wiki to reflect on the lecture, discuss their notes and readings.

Supercharging lecture notes

Wikis form an integral part of the pedagogy in Communication Skills - a first year BA (Hons) Communication and Media unit at Bournemouth University. The pedagogical aim is to assess students' ability to work effectively in a computer-mediated environment by applying interpersonal communication skills taught in the unit, whilst fostering a professional engagement with the unit's theoretical foundation and facilitating student-centred learning.

Each seminar group has a dedicated wiki section on the University's Virtual Learning Environment (VLE) powered by Blackboard and the Campus Pack Wiki. This enables students to collaborate on writing notes from the weekly lectures and set readings. Students contribute to a joint text where each person's changes are tracked, whilst comments associated with the page are used to discuss lecture topics and editing strategies. Students are required to contribute to 8 of 10 lecture weeks,

and are individually assessed on proportion of text written, number of edits, accuracy, detail and self-reflexivity of final entries.

The Student Wiki Pages, as the wikis are now collectively referred to, transformed students' engagement with the assignment – due in large part to the streamlined assignment brief and making it part of the formal summative assessment. The wiki is now inspiring students' commitment to learning, evidenced in 2010/2011 by improvements in five core areas as outlined below.

1. **Ensuring good attendance at lectures and a professional attitude towards learning**

   The requirement for each student to contribute to a set number of weeks meant attendance at lectures was essential, without directly making it a formal requirement. Attendance was regularly above 80% despite being held at a different campus location due to building works, thus requiring students to commute to lectures via bus.

2. **Inspiring student understanding of scholarly literature and engagement in lectures**

   Students developed a competitive spirit about who could be the first to contribute and who would write the most each week. They came prepared and were confident in their contribution to discussion during lectures. Around 15% of students even contributed directly to their respective wikis during lectures - using laptops and iPads to write notes, mobile phones to take pictures and record audio that were embedded in the wikis or used for transcription later.

3. **Facilitating electronic peer support and discussion groups**

   Students used the wiki to support each other's learning by using the co-produced text for revision. Moreover, they used the comment facility associated with the wiki to ask questions and discuss lectures and readings.

4. **Improved engagement with scholarly literature in *both* summative assessment components**

   The weekly wiki entries for each seminar group were frequently around 10,000 words, often with 10-15 comments discussing relevant topics – both far exceeding expectations based on previous years. However, the most impressive improvement was the noticeable change in quality of the second assignment, an extended essay,

compared to 2009/10. In particular students had a much more sol-id grasp of conceptual vocabulary and in-depth engagement with a wider range of scholarly literature.

5.   **Increased grade average for students taking unit**

The overall grade distribution was significantly improved, including 13 firsts in the Communication Skills unit compared to none in 2009/10. The only significant change from one year to the next was altering the wiki from a formative to a summative assignment as outlined above.

Reflecting upon the Student Wiki Pages, one student who was retaking the unit commented:

"I also want to say how good an idea it has been … they've made sure everyone turns up to lectures … has also increased my under-standing of the unit as I've had to do the further reading, which I clearly didn't last year."

Evidently this particular wiki deployment has been very successful. However, it has also thrown up a series of challenges – some of which could be resolved or addressed during the unit, whilst others require further experimentation with how wikis are integrated in the teaching and learning programme.

Dealing with challenges

One of the main challenges with the Student Wiki Pages was in ensur-ing the students understood the assignment and what they were re-quired to do. The temptation might have been to assume that as first years and 'digital natives' it would require little explanation. However, whilst some students may already be versed in use of Wikipedia, this does not extend to the editing process of wikis. Moreover, situating the wiki as central to their self-directed learning created anxiety – particu-larly as the assignment brief was unorthodox compared to customary essays or exams.

Students were initially confused as to what they were expected to write. As with previous years, students also expressed fear that they would be unable to contribute if others had already covered the material – the 'everything has already been written' syndrome! Some argued this was excluding them from participating in a summative assessment that was

a formal requirement of the unit. This was mitigated early on by clarifying that students could contribute to the wiki: 1) notes from the lectures, 2) notes from the readings, 3) notes or observations on the videos from the lectures, 4) additional examples illustrating points from lectures or readings, 5) post comments discussing or reflecting upon each wiki page's contents.

Tension between fostering a healthy competition versus students' self-inflected pressure to be first to contribute was evident throughout the unit. Students were reminded that the wiki pages were not designed to be a competition, but rather a collaborative process. However, the notion of collaborating on assessed work was not enthusiastically embraced by everyone. Suggestions were provided by the teacher and fellow students on how to approach the co-production – for example contributing notes in batches, so as to allow other people to add their own notes. However, there were no formal restrictions concerning how students organised co-production within their seminar groups. It was the collective responsibility of students to ensure that everyone felt able to do so and that you they engaged in dialogue with fellow students. Where concerns remained about how to best approach the wiki, students were encouraged to discuss this their respective seminar groups and agree on how to best tackle it. Restricting the wikis to seminar groups of no more than 20 students was more effective than having a single wiki for the whole cohort. However, further work is required to ascertain the optimum group size for such wiki group collaboration.

Some technical problems with the wiki software also surfaced during the unit. Whilst the wiki integration with Blackboard was good for administrative purposes and tracking user authentication, it was not a fully developed wiki-technology. Perhaps most concerning was the inability of the wiki to properly handle simultaneous editing – crucial given the number of students contributing to each wiki. When editing conflicts occurred, the wiki would occasionally replicate the page and produce two copies with slight variations. Students would then have to merge the content manually. Embedding PowerPoint lecture slides also did not function as intended, so was not offered after the first couple of weeks. Whilst this removed one incentive for students completing the wiki each week, it was more important to ensure parity across the seminar groups. This did not cause any complaints since the students themselves were so diligent at co-producing lengthy notes each week.

Indeed since the assignment was a collaborative effort it did not have a weekly word-limit. This exposed tensions between restricting the freedom of the students to create a comprehensive set of notes and producing information overload. As noted above weekly wiki entries were frequently around 10,000 words with additional comments – for each of the seven seminar groups! In other words the marking commitment at the end of the unit was around 700,000 words and nearly 1,000 comments. This was further complicated by an overly complex grading system, put in place to ensure students were given individual grades that also reflected their own contributions to the wiki. Essentially each seminar group's wiki was awarded a group grade, 10% of which was adjusted in accordance with that students contribution (independent weighting factor, IWF) and 5% deducted for each week they did not contribute. The calculation is outlined below, although future implementations will require a more streamlined and simplified grading.

$$
\begin{aligned}
Individual\ grade \\
= (Group\ grade * 90\%) \\
+ (Group\ grade * IWF * 10\%) \\
- (5\%\ for\ each\ week < 8)
\end{aligned}
$$

$$
Independent\ Weighting\ Factor\ (IWF) \\
= \frac{(comments\ made + number\ of\ saves) * 20\% + (total\ number\ of\ lines\ modified) * 80\%}{pages\ contributed\ to\ *\ average\ score\ across\ seminar\ group}
$$

Whilst it was possible to extract much of the information required for this calculation from the wiki software (e.g. number of saves and lines modified), the grading process was nevertheless too time-consuming. Students were also anxious to ensure what they had written each week was satisfying the marking criteria, exposing a need for more detailed interim feedback on progress.

The challenges with using wikis are evident, although as noted above, most of these can be mitigated through simplifying the assessment brief and grading mechanism together with interim student feedback. This would allow the resource implications of using a wiki assessment to be consistent with the pedagogical benefits.

Conclusion

The Student Wiki Pages assessment is an educational approach that encourages students to develop active learning, media literacy and scholarship at the start of their degree programmes, providing a solid underpinning for their future studies. Collaboratively producing a wiki means students have to be self-reflexive and critically evaluate their own notes from lectures and set readings on a weekly basis. This contrasts with a passive form of study, where students may sporadically and superficially read only a selection of the required material.

Evidently there are several challenges associated with using wikis as a way of fostering online collaboration among students. However, as this case study has shown, the pedagogical benefits are demonstrable. Not only did the students excel at the wiki assignment, producing comprehensive and detailed writing, they also performed much better at the other assessment within the unit. Moreover, it laid the foundation for the students becoming independent learners and enhanced their competency as scholars.

Whilst part of a wiki assessment can be subject specific (e.g. experimentation with computer-mediated communication), this aspect is not integral to the broader pedagogical benefits of using wiki tools for student-centred learning. Other degree programmes at different institutions could adopt the Student Wiki Pages – or variations of this – in a range of units as a beneficial part of their e-learning strategy to help enhance the overall student experience of lectures, seminars or workshops.

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