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# **THE WIKI WAY: SUPPORTING COLLABORATIVE LEARNING**

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# **The Wiki Way: Supporting Collaborative Learning**

## **Abstract:**

Skills in working in teamwork are demanded from graduates, and these are ever more likely to be over the internet. Horizon (2011) calls for this experience to be reflected in students' project work. The use of Wikis has been posited as a tool for collaborative online knowledge creation, increasing students levels of engagement, and social constructivism (Wheeler and Wheeler, 2009; Lai and Ng, 2011). The use of wikis in student groups is still relatively new, however, and the need for investigation of its role in supporting group collaboration has been identified in literature (Bruen, et al., in Donnelly, Harvey and O' Rourke, 2010).

This study offers a contribution to the practice of online collaboration, and should be of interest to instructors who use group work in their teaching, as well as those who wish to explore the application of web 2.0 tools, or wikis specifically, in enhancing learning.

Wikis were adopted to support a collaborative group project in the final (fourth) year of a general Business degree for an optional Marketing Communications module in the Dublin Institute of Technology. The wiki was chosen in response to some concerns about the assessment. Issues such as poor progress, last minute action, lack of meaningful collaboration, and inability of the instructor to track progress or identify problems, all arose in the past. For all of these reasons, along with the desire to integrate Web 2.0 tools into assessment, the wiki was adopted.

The students were surveyed after completion of the project regarding: how the wiki was used (method and functionality), participation levels of the group (also measured through the wiki itself), whether they believed the wiki added value for the assessment, and finally challenges encountered and recommendations.

Responses demonstrate the enhancement of the groups' collaboration, improved communication and social construction of knowledge. The feedback was generally positive about the experience. Practical issues such as 'one version of the project', and being able to view each others' progress, and avoid repetition, were perceived as adding value to the process. It was viewed by many groups as an efficient and effective mechanism of developing a group assessment that they would like to use again. The study indicates that many positive benefits (for both students and instructors) can be gained from embedding a wiki into a group activity.

## **Introduction:**

The challenges presented by working with student groups include varying levels of participation and contributions, and conflicts over decisions. These can result in students often disliking group work, and can lead to reluctance on the part of lecturers to incorporate them into assessment (Palloff and Pratt, 2005). Group collaboration has, however, been shown to improve grades compared to individual work, and is included as one of the principles of good practice in undergraduate education according to Chickering and Gamson (1987; McCabe and Meuter, 2011). However these benefits are not always realised in practice due to the challenges encountered (Jaques and Salmon, 2007). Managing and

supporting students working in groups in order to avoid or reduce these problems has become a focus for instructors. Research into these issues, and efforts to encourage and assist groups, cited the possible potential of web 2.0 tools in enhancing group collaboration (Wheeler and Wheeler, 2009).

Web 2.0 technologies encompass a range of open source, interactive, easy to use tools that have been heralded as providing educational opportunities for increasing engagement and supporting learning and teaching in the higher education sector (Hughes, 2009). Tools such as blogs, wikis, and podcasts are being used both within learning management systems (LMS), and independently, to enhance learning and improve engagement and collaboration (Richardson, 2010).

The potential of wikis to support collaborative learning has received particular attention in recent years (Wheeler, Yeomans and Wheeler, 2008; Cronin, 2009), with the recommendation that they need to be constructively aligned (Biggs, 2007). However, their use with student groups is still relatively new, and the need for further investigation of their role in supporting group collaboration has been identified in literature (Bruen et al, in Donnelly, Harvey and O' Rourke, 2010), as there are only a few empirical studies into the assessment of learning in the Web 2.0 environment.

### **Assessment design:**

The overall objective is to support the students' collaborative learning. This action research project represents the second cycle of this study (prior cycle reported in Hughes, 2011). Action research constitutes a process of reflection, and is particularly suited to educational settings (McNiff and Whitehead, 2010), with the primary aim of improving practice.

The study explored the use of wikis on a group project for final (fourth) year students of a general business degree, on an optional Marketing Communications module. Past experience showed that student groups working on this project were slow to progress their project, analysis of critical sections was superficial, and there was evidence that tasks were divided up, with little communication and collaboration between members. The instructor had no mechanism of monitoring group progress or members contributions, and so was unable to intervene or provide intermediate support. The long initial timescale of October to March, and the significant weighting of 40% contributed to a high risk, high stress group context. The absence of any formative feedback for the groups during this process did not reflect good teaching practice.

A review of the assessment practice resulted in a number of changes to the assessment structure. The long project was split into two well defined sections: firstly the groups should analyse the brand, and make fundamental marketing decisions, then for section two, propose a creative marketing communications campaign. Wikis were implemented for section one only, in which students were required to review the industry for a brand and make Marketing Communications decisions about target market, budget and campaign objectives - all using the wiki.

The assessment was carried out in the latter part of the first semester, from October to December 2011 (seven weeks duration). It required the groups to analyse the Marketing Communications activity for a consumer brand, and then propose an appropriate marketing

communications strategy. In total 80 students registered for the module, and self-selected their groups, resulting in 18 groups of between 4 and 5 members, most of the students opted to work with friends they had previously worked with. Age range was from 21 to 26. The wiki was embedded in the Blackboard Learning Management System (LMS) that the students were familiar with from previous modules, and was private to each group. An informal show of hands revealed that only two students reported having used wikis previously.

Previous experience of this assessment review indicated the importance of a comprehensive briefing process (Cole, 2009; Hughes, 2011), therefore the assessment briefing included the following elements:

- Presentation on the learning activity and links to outcomes and assessment criteria (with supporting written document)
- Team work presentation and team building exercise, followed by discussion of the challenges and best practice for group work
- Wiki video: 'Wikis in Plain English', shown and discussed ([www.commoncraft.com](http://www.commoncraft.com))
- Wiki in the Blackboard LMS demonstrated (supporting screen-cast available on the VLE)
- Appropriate behaviour online –(Netiquette, 2012)
- Class discussion of the assessment, and its link to the following semesters assessment (section two).

This reflects earlier scholars' comments on the need for tutors skilled in both understanding the needs of learners from both technological and pedagogical standpoints (Wheeler, 2001; Doolan, 2011).

## **Evaluation:**

Evaluation of the groups' collaboration levels was captured using the following methods:

*Email survey* of students for feedback on their experience of using the wiki, and the process of working in groups. 48 surveys were completed, of those 4 students to have their responses excluded from publication of results, so the remaining 44 surveys are included in this analysis.

*Wiki content:* Students' contributions and communications on the wikis – the number and form of interactions and participation (of the group). The purpose of reviewing text contributions of groups members is in order to identify or quantify collaboration as opposed to co-operation within the groups. Curtis and Lawsons' (2001) framework was utilised for this (Johnson and Johnson, 1996; Arnold et al., 2009). This was designed specifically for analysing online collaboration, and is based on five specific behaviour patterns. It reviews the student's contributions and categorises, or codes, the communications into the following groups: Planning, contributing, seeking input, reflection or monitoring, and social interaction.

## **Results:**

The main themes that emerged from this study include engagement, the experience of using the wiki, and collaboration, these are discussed in turn.

*Engagement:* Participation in the wiki was extremely high, with an average (per group) of 162 visits, over 800 views and 15 hours spent on the wiki. There was significant variation from highest to lowest levels of engagement from group to group. As has been recorded by other authors such as Arnold et al. (2009), these statistics are not necessarily suggestive of the groups levels of performance, especially in this context where groups could opt to communicate mostly face-to-face, however they do give an indication of the level of engagement and participation with the wiki.

Response from the email survey shed additional light on this issue. Students were asked to comment on whether using the wiki encouraged better participation among members:

*‘Knowing that someone could see the level of participation for the assignment*

*I feel made group members work harder’*

*‘people didn’t want to look like they weren’t doing any work on the wiki’*

*‘Yeah I think it did as you are able to see who has been working on the project so it keeps everyone involved for fear of being seen to be doing little’*

This ‘Instructor as Big Brother’ was not the intended outcome of activity moderation, but it appears that the open nature of contribution statistics did foster a culture of accountability among the students. It seems that the fact that the instructor could view participation levels and statistics resulted in more equal participation within the groups. It should be noted that not all groups felt this way, with a small number of students reporting (in the survey) that they felt some of their members got a free ride.

*Using the wiki:* Not surprisingly, levels of confidence in using the technology varied. Some of the challenges that were reported by the students include internet access and speed causing connection difficulties, in addition to difficulties uploading images and video. A number of responses reported a growing appreciation for its collaborative potential as they became more used to the wiki:

*‘I enjoyed the experience, as did the rest of our group, but only after we eventually got used to using it on a regular basis’*

*‘once you got the hang of it, it was easy to work!’*

Difficulties reported include uploading images and video material, instructions for this were included in the briefing documents, but it became clear that the student’s expectations were that the wiki would be as easy to use as a Word document – with no allowance for the vagaries of its online nature.

Students did also recognise the benefits of using wikis in terms of efficiency, convenience and time-saving, of having a single version of their document that all could contribute to, and monitor progress. They also appreciated the formative feedback on progress from the instructor. Figure 1 shows an example of one of the wikis, with image and video embedded.

INSERT Figure 1 HERE

*Collaboration:* In addition to participation levels, group collaboration was also assessed. As stated earlier, collaboration can be evaluated through the analysis of students’ online

postings, and Curtis and Lawson' (2001) framework was applied in analysing the online collaboration.

For this study three groups' online communication was reviewed in detail – these were the groups with the highest amount of online communication or comments. The data derived from the analysis of one of these groups is summarized in table 1 below.

INSERT TABLE 1 HERE

Analysis of the data shows significantly higher levels of communications surrounding specific behaviours of Contributing and Seeking Input, it seems that most of the students online comments were in relation to information posted, and seeking or giving feedback on its suitability for inclusion in the final version of their wiki.

The two categories that look weaker: Planning and Social Interaction, can be explained by the groups working process. Planning activities would be much more likely to take place in the groups regular face to face meetings. Online social interaction, on the other hand, was discouraged during the instructors initial project briefing – the students were advised that the wikis would be reviewed by the programme external examiner as part of their overall grades, and that their communication should be professional, and project-related – this would naturally preclude casual social interactions.

There was no evidence of Group Skills (GS) at all, and it is believed that this is likely to be due to the fact that these students know each other well, and meet face to face regularly, thus precluding the need to fostering group activity cohesiveness (such as introductions).

Prominent behaviours evident from the analysis of the data are Help Seeking, Feedback Seeking, Feedback Giving, and Sharing Knowledge (HeS, FbS, FbG, SK). These combine to indicate sharing of information, and genuine collaboration with each other to develop the content:

*'Hey Guys, I'm not sure if you're finished, but the decision making process could be a bit more detailed. I found a good website...' [link included]*

*'Hey, yea it does look a tad bare, I will have a look tomorrow morning and try and bulk it up more'*

*'Yeah cool, I'll have another look too.'*

The analysis indicates that four members of this group dominated the online conversation, and that one appeared to be lurking (member 4), however deeper analysis of the wiki contribution statistics (last line in table 1 above) indicates that this members' overall contribution to the wiki content was on a par with the other members' revision figures. Member 5 emerges as a likely leader from the above – both in terms of volume and quality of communication. This mirrors finding by Curtis and Lawson (2001), who found that more frequent contributors were likely to be 'natural leaders'.

## **Conclusion:**

This study reports on the process of using wikis in a blended, collaborative assessment. The findings from this research indicate support for their role in supporting and adding value to

collaborative learning, in the form of improved communication, acting as a sounding board for ideas, and as a repository for information. In addition, the benefits of efficiency and time saved in meetings were much appreciated by many groups.

Some difficulties were experienced by the students in utilising wikis, due to the speed and reliability of internet access, and difficulties uploading video and images material. These were overcome by the groups as they practiced using the wikis. It is recommended that their use be encouraged across a number of modules, to capitalise on this.

The advantages of using wikis for the tutor have been identified in the literature, along with the instructors' role (Salmon, 2003). It allowed monitoring and tracking of the groups' activity and progress, and the opportunity to give formative feedback contributed to the students learning, and has contributed to improved practice.

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Figure 1: Wiki from Group 2

Print

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**Table 1: Analysis of postings of Group 2:**

Behaviour Categories	Codes	Group 2 Member 1	Group 2 Member 2	Group 2 Member 3	Group 2 Member 4	Group 2 Member 5	Code totals	Code percent	Category percent
Planning	GS						0	0	9.7%
	OW		1	1		1	3	4.8%	
	IA	1	1	1			3	4.8%	
Contributing	HeG			1			1	1.6%	38.7%
	FbG	2	2	1	1	3	9	14.5%	
	RI	1	1	1			3	4.84%	
	SK	1	1	2		2	6	9.7%	
	Ch		1			1	2	3.2%	
	Ex		1				2	4.8%	
Seeking input	HeS	2				5	7	11.3%	30.7%
	FbS	1	2	1		5	9	14.5%	
	Ef		2			1	3	4.8%	
Reflection / Monitoring	ME	2	2	1		2	7	11.3%	12.9%
	RM					1	1	1.6%	
Social Interaction	SI	1	1			3	5	8.1%	8.1%
<b>Person Totals</b>		11	15	9	1	26	62		
<b>Percentages</b>		17.7%	24.2%	14.5%	1.6%	41.9%			

% overall wiki  
revision activity

13%    32%    13%    15%    26%

**Key to abbreviations above:**

Planning: Encouraging group activity and skills (GS), organising work (OW), and initiating activities (IA).

Contributing: Help giving (HeG), feedback giving (FbG), Exchanging resources or information (RI), sharing knowledge (SK), challenging others (Ch), and explaining or elaborating (Ex).

Seeking input: Help seeking (HeS), feedback seeking (FbS), advocating effort (Ef).

Reflection and monitoring: monitoring group effort (ME), reflecting on medium (RM).

Social interaction: conversations about social matters (SI).