Using Wikis for Summative and Formative Assessment

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OVERVIEW

This case study describes a wiki-based assessment strategy and the underlying "blended learning" process, that have been formulated and implemented in a series of "trials" at University of Hertfordshire Business School (Cubric, 2006; 2007).

The main motivation for use of wikis was to gain regular insight into students' understanding, so to enable more targeted and frequent feedback.

The common characteristic of all (four) trials was that they were based on weekly wiki updates by students, that were triggered by tutor-set questions and assessed.

The results of the trials have shown that students like the idea of using wikis for learning, particularly if supported by well-defined learning and teaching process.

Keywords
Wiki, blended learning, collaborative authoring, peer reviews

INFORMATION ABOUT THE MODULES

Each of the four trials was focused on a single, one semester, post-graduate (MSc) module at the University of Hertfordshire Business School from one of the following disciplines: E-business Systems, Developing Information Systems, Modelling E-business. It is important to emphasise, that the described method is generic i.e. it can be applied to any subject discipline.

The common characteristics of the students groups in the modules included in the trial are: small class sizes (up to 20 students), large proportion of international students (100% in some of the modules) and relatively small percentage (less than 20% overall) of students with IT-related background.

DESCRIPTION OF THE CASE

The description of the case is based on the current semester trial in progress that encompasses all experiences and "lessons-learned" from the previous trials.

Before we describe the exact week-by-week timeline, we will define some of the terminology used in the description.

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- A "weekly task" is a set of learning wiki-based activities that tutors publish on the module wiki for students to complete each week.

- A "learning activity" could be any of the following:
    - Add (referenced) contribution to the weekly topic analysis
    - Add definition of one or more items to the module glossary
    - Review an article/web-site/standard relative to the weekly topic
    - Complete a practical task (e.g. business process/or information system modelling)
    - Develop essay
    - Review the work of your colleague and provide comments.

- Each of the learning activities is accompanied with a specific set of guidelines provided by the tutor. For example, for the "Topic Analysis" activity, students were advised to work together to formulate an in-depth analysis of the topic and to link the content to the internal Literature review and Bibliography pages as well as to external glossaries. They were also provided with links to some useful examples of academic writing.

- A "work record" is an on-line record of student's weekly activities relative to the pre-set weekly task.

The learning and teaching process described below is relative to the prescribed 11 teaching weeks that include 21 hours of (class-based) "contact-time" and 129 hours of "independent learning" (standard rules for all "15-credit" post-graduate modules at the UH Business School).

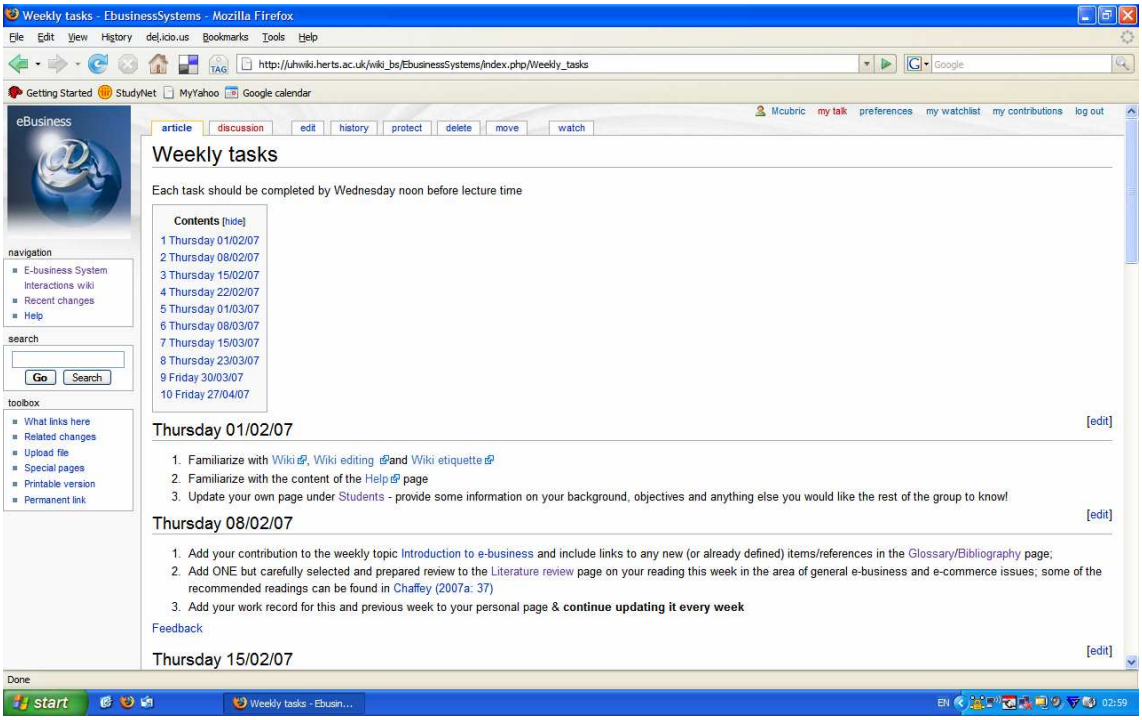
Each week (Week 1-11):

- Day 1 (lecture day): After the lecture, the tutor publishes a "weekly task" on the module wiki (Figure 1). In selecting the topics for the weekly task the tutor gradually increases the required level of educational objectives (Bloom, 1956).

- Day 2 –Day 6: In response to the weekly task, students add individual contributions to the module wiki (Figure 2) and update their "work record" on the wiki (see Figure 3).

- Day 7: Tutor reviews weekly wiki contributions and provides group feedback. The feedback is documented on the module wiki (Figure 4) and serves as a basis for topic review discussion in the next lecture.

Figure 1: Weekly task page



The following are the "milestones" in the described L&T process:

- Week 1: Students familiar with simple wiki editing, wiki "etiquette", as defined in Wikipedia (see first task on Figure 1) and module assessment strategy.
- Week 3: Tutor provides short individual feedback to each student via e-mail underlying areas for improvement in their wiki work.
- Week 6: Tutor provides another short individual feedback, but this time it includes grade prediction e.g." the work so far has been of grade B standard" .
- Week 11: Students provide final wiki contributions, including reflection on the module wiki on their overall progress and issues they have encountered during the course of the module.

If the assessment includes development of an essay or report:

- Week 6 –onwards: Students start to develop their work "incrementally" on the module wiki using "transactional" writing style (Glogowski quoted in Richardson, 2006) – writing based on comments and feedback (e.g. trigger, write, feedback, reflect cycle), where the feedback is provided by tutor or peers.
- Week 7 – onwards: Students provide feedback (on the wiki) to their colleagues on their work in progress.

Students' wiki work is assessed and contributes 40% of their final grade, while the (wiki-developed) essay contribes 30% of the final grade.

The assessment of students' wiki work is based on the quantity and quality of the submitted content.

Regarding the quantity, as a minimum, students should aim to complete weekly tasks published on the module wiki and contribute to no less than 70% of the requested tasks (i.e. 7 out of 10 weeks). Each weekly contribution should be in the range of 300-500 words. Quality of contributed content is assessed using the generic postgraduate grading criteria that defines standard for each of the A-C grades. In addition to that, and as suggested by Richardson (Richardson, 2006) the following criteria for the presentation is used: inclusion

of working internal and external links, collaborative content creation, inclusion and choice of images and/or media files etc. The deadline for each on-line submission is a day before the lecture day, providing enough time to tutor for review.

RATIONALE IN TERMS OF EDUCATIONAL IDEAS

Regarding the theoretical foundation of this work, it is obvious that wiki is a textbook example of constructivist tool for learning with Wikipedia being "a poster child for the collaborative construction of knowledge" (Richardson, 2006)

Some other themes from learning theories that re-occur in this work are:
- Vigotsky's theory of social development, that defines learning process as a problem solving through "adult (i.e. teacher) guidance or in collaboration with more capable peers". (Vygotsky, 1978)
- Conversational approach to learning that defines learning as continuous discussion with student that helps in guiding the student towards the solution. (Laurillard, 2002) or "structured dialogue" via learning tasks (Gravett & Petersen, 2002)
- "Just-in-time" approach to teaching (Novak & Patterson, 1998) where teacher gathers "students' conceptions just-in-time to help re-shape or guide the up-coming lecture" (Russell, 2006).

The main pedagogical objectives in formulating and implementing the wiki-based assessment strategy are:
- To provide students with a "structured bulletin board" (Leuf & Cunningham, 2000) for reflection, meta products, analysis and feedback that is searchable, navigable and fun to use.
- To provide tutor with a regular insight into students' comprehension and progress, that will help in discovery of "troublesome knowledge" (Perkins, 1999) and enable tutor to reinforce those areas.
- To extend pre-scribed contact time from 21h/term to 24h/day by using students as teachers, reviewers and role models.
- To focus on continuous feedback rather than once-and-final "verdict" (i.e. final grade) in order to respond to students' needs and enhance their learning experience.
- To facilitate acquisition of transferable and non-cognitive skills and prepare students to be not only readers and writers, but also editors, reviewers and collaborators. To facilitate development of research, organizational, and negotiating skills (Richardson, 2006).
- Help student employability by preparing them for teamwork, global audience and peer reviews and in general for the new business model where "collaboration is the expectation rather than exception" (Richardson, 2006).
- To facilitate "connective writing" (Richardson, 2006) with emphasis on criticality, clarity, structure, linkage etc;
- To provide support for different learning styles via an "inherently democratic medium" (Leuf & Cunningham, 2001)
- To support international students by providing examples of good writing.
- To reduce plagiarism by making students' work public.

EVALUATION

The first trial of the wiki-based assessment strategy was evaluated using a purposely defined questionnaire and has lead to the following interesting observations:
- Percentage of students who were awarded higher grades because of the quality of their wiki contributions: 30%
- Percentage of students who contributed regularly, but whose contributions were assessed to be of "lower quality" : 10%

- Percentage of students who attempted to plagiarise: 0%
- Percentage of students who found wiki easy to use: 77%
- Percentage of students who think wiki has helped them in learning the subject: 69%.

It is important to notice that the first trial (academic year 2005/6) was not based on a clearly defined process, and had a lower percentage (20%) of the final grade coming from the wiki-work. This might explain the initial lack of interest (53% of students made un-sufficient number of contributions). However, that problem was overcome in the more recent trials (academic year 2006/7) where large majority (90%). We believe that this improvement is a direct consequence of the introduction of the well-defined "blended learning process" and regular feedback provided to the students.

In the later trials the above data were supplemented with more qualitative measures such as students' reflections. Some of the common themes are quoted below:

- "I learnt a lot from other people's input, whenever I got stuck alone, I would hop onto Wiki page and get the answers I needed…"
- "Looking at my input on Wiki made me feel quite good, because I could see my input to the whole course."
- "(Use of wiki) made us concentrate more in class and read more about the topic in order to know how to answer the questions, therefore, understand things better"
- "The things which I have learned beside this module is that how should I conduct my work in organised form."

In conclusion, the described wiki-based process and assessment strategy have lead to increased student engagement and self-confidence but have also opened new questions and dilemmas that will need to be addressed in future research:

- How to motivate students to contribute without assessing their contributions? (54% of students from the first trial responded that they wouldn't be contributing to the wiki if it was not linked to the assessment). E.g. Use wiki content for exam revisions?
- If using wikis for summative assessment, what percentage of final grade to use for wiki work?
- How to resolve conflicting objectives such as encouraging students to develop content collaboratively (i.e. to work together), but assess them individually? What is more important? What is more time-consuming for the tutor?
- What should be the granularity of assessment? E.g. Per week (enforces regular contributions, but more time-consuming for the tutor) or total (better idea about the overall student's contribution, but motivates contributions in "bursts")
- Scalability – how to scale-up he process for large groups? Contributions and feedback per tutor groups rather than per individual users?

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APPENDIX

Figure 2: Topic analysis page

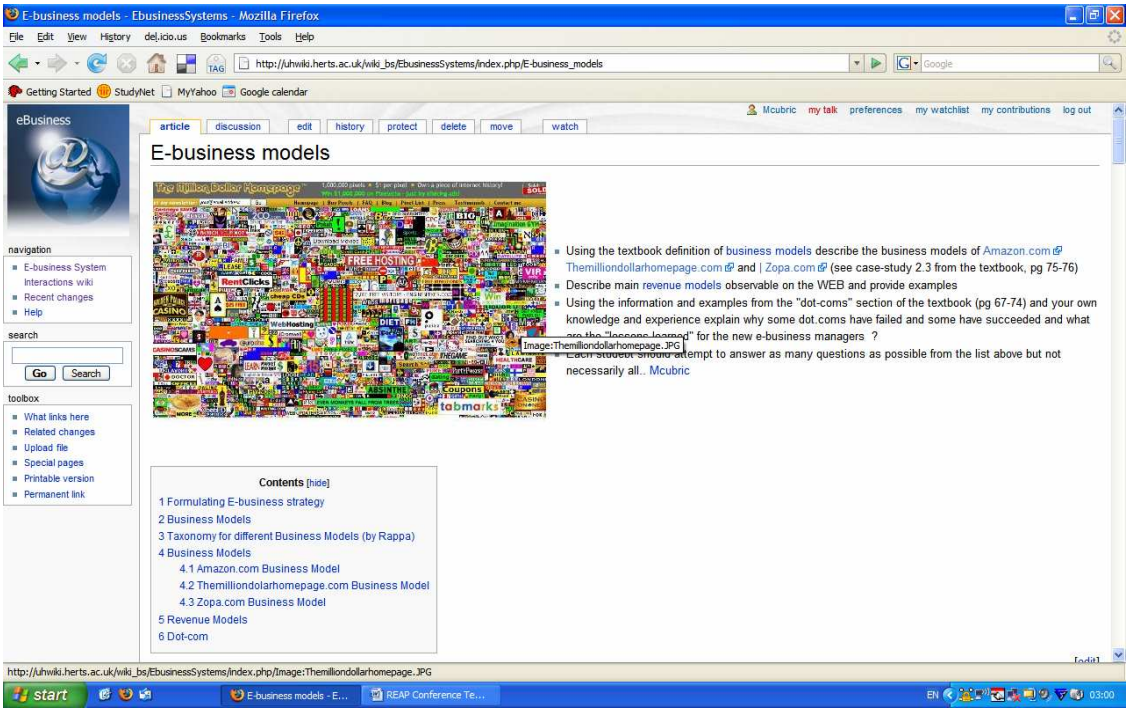

Figure 3: Work record page

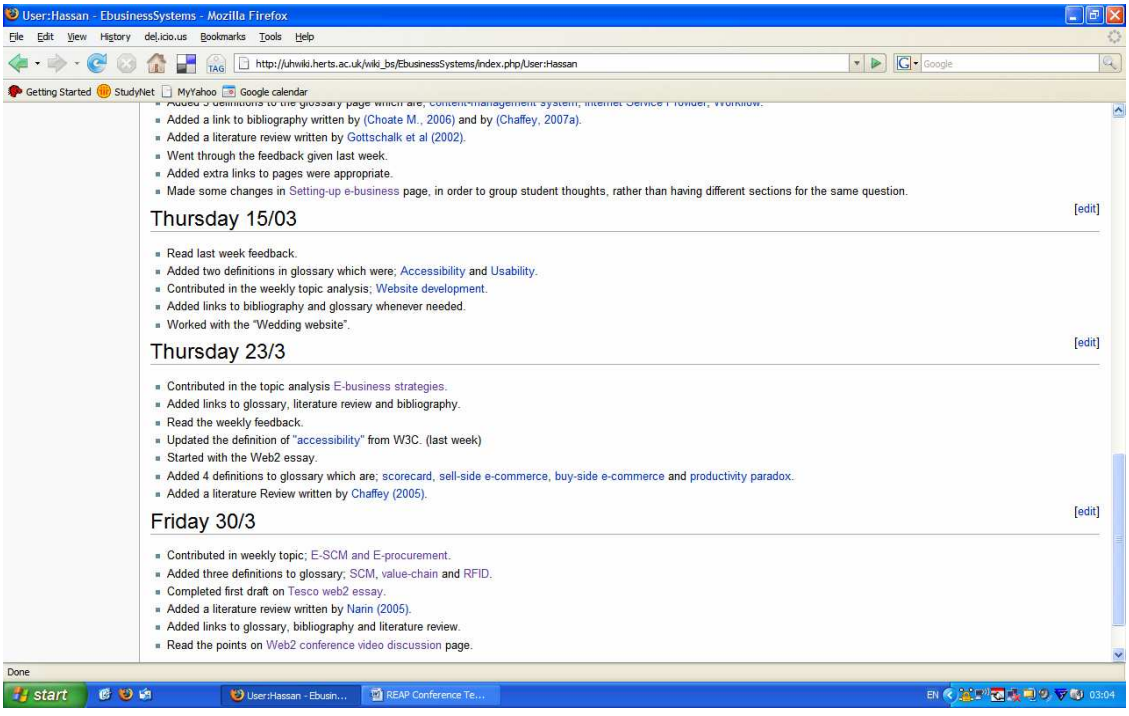
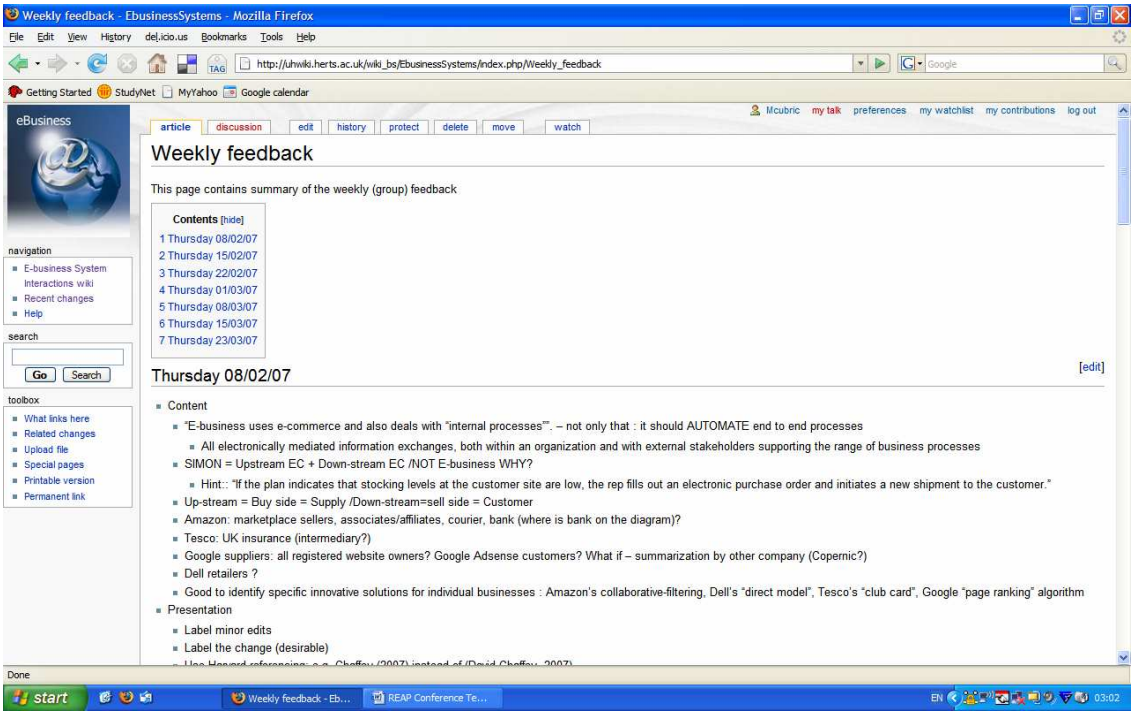
Figure 4: Weekly feedback page