BLENDED LEARNING UNIT

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Agile learning and teaching with wikis: building a pattern

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Introduction

We describe a blended learning process that is based on the agile development principles [1] and techniques [2] and supported by wikis. The process was implemented in Semester B 2007/8 with a group of post-graduate Project Managements students at University of Hertfordshire Business School. The presentation is in a format of a pattern (as in [5]), for clarity purposes only, as we acknowledge that a promotion of an "idea" to a "pattern" has to be justified with its broader use and adoption (therefore "building a pattern" in the title).

Intent

•To provide students with practice in agile development, regardless of their subject area
•to use agile principles [1] in working together with students to achieve the learning objectives of the module.

Motivation

•Problem: find a common ground that all students can equally refer to when practicing agile development techniques (as project management students come from different development domains e.g. software, construction industry, public broadcasting etc))
•Solution: use the students' coursework as a "development" paradigm, and guide the students through the process of developing the coursework using agile principles and techniques.

Applicability

The pattern can be used whenever the module objectives require development of non-cognitive skills such as: teamwork, giving and receiving feedback, collaborative writing, incremental and iterative development etc. ("embedding employability into the curriculum" [4])

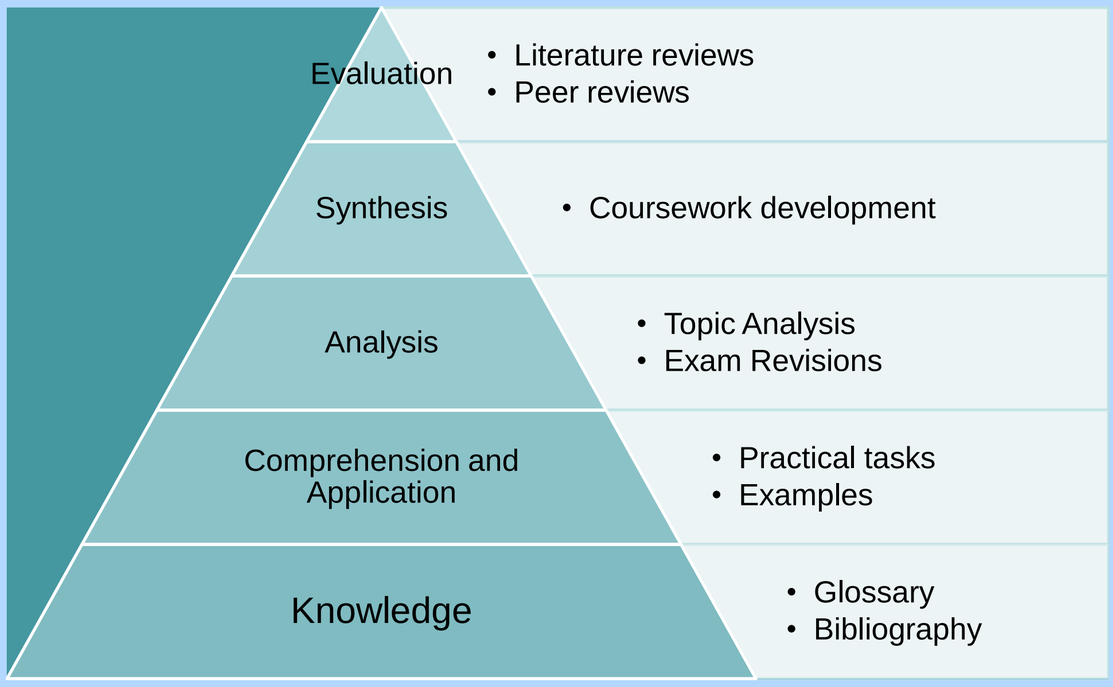

Figure 1 Wiki learning activities, ordered according to levels in Bloom's taxonomy of educational objectives [9]

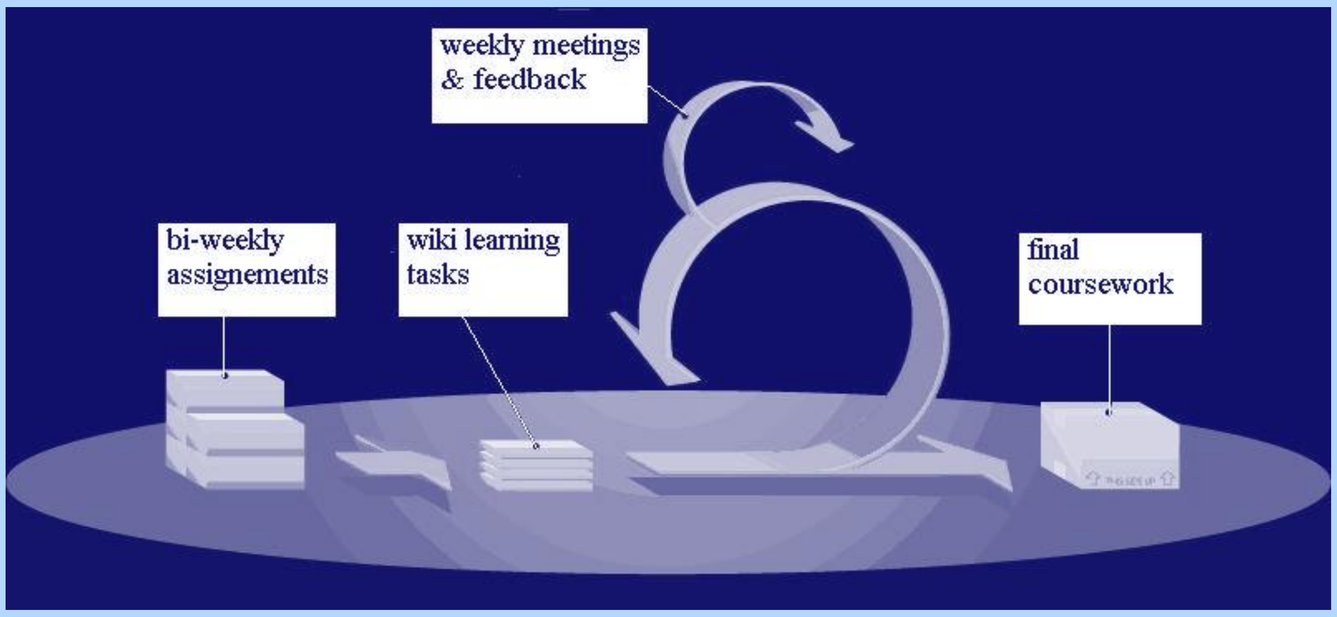

Figure 2 Agile Learning & Teaching Process based on SCRUM [8] (diagram adapted, with permission, from http://www.mountaingoatsoftware.com/popular)

Consequences

•Using the "user story" metaphor for student learning activities has helped students in understanding better the principles of agile planning and estimating.
•The main side-effect was in the extended workload for the tutor in providing the students with the regular bi-weekly feedback.

Known Uses

See mbsp0340.wikispaces.com (the actual wiki under the consideration).

Related

Just-in-time teaching [7], Conversational learning [6], Wiki framework for blended learning [3]

Structure

Shown on Figure 2

Participants

Tutor ("project owner" [2]), students ("development team"), other tutors, internal moderators and external examiners

Collaborations

•Every two weeks, the tutor publishes a list of five to six wiki learning tasks on the module wiki, covering various levels of educational competencies (for examples see Figure 1). The template for the tasks is the same as for the user stories described in [2]: "I as a lecturer, would like to see <task> completed, as it fulfils the following <learning objectives> of the module"
•Every week, students meet to estimate the complexity of each wiki task (in "story points"[2]) and based on the previous speed of development (i.e. "historical velocity" [2]), estimate the completion time of the current assignment.
• Individual task allocation is done by the group in their off-line or on-line meetings. Tasks are implemented on the module wiki
•After the completion date, the tutor reviews all tasks and provides the feedback to students. The points for improvement are included as a new task and added to the next assignment ("refactoring").

Implementation

•Extension of the feedback-driven blended learning process[3]
•Wikispaces used as the development platform.

References

[1] Agile Manifesto http://agilemanifesto.org/ **[2]** Cohn M.2006.Agile Estimating and Planning.New Jersey: Pearson Education **[3]** Cubric, M.2007.Wiki-based process framework for blended learning. In: Proceedings of the 2007 International Symposium on Wikis 2007.pp.11-24. **[4]** Dearing,R.1997.The Dearing Report National Committee of Inquiry into Higher Education.National Report-Future Demands for higher education **[5]** Gamma E, Helm R, Johnson R. Vlissides J. 1995 Design Patterns: Elements of Reusable Object-Oriented Software, Addison-Wesley. **[6]** Laurillard D. 2002. Rethinking University Teaching: a framework for the effective use of educational technology;2nd edition.London;RoutledgeFalmer **[7]** Novak J.& Patterson E. 1998.Just-In-Time Teaching: Active Learner Pedagogy With WWW, IASTED International Conference on Computers and Advanced Technology in Education,May 27 -30,1998. **[8]** Schwaber K. 2004. Agile Project Management with SCRUM.Microsoft Press **[9]** Bloom B. S. 1956. Taxonomie of educational objectives, Handbook I: Cognitive domain. New York: David McKay Co Inc.1956

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