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## Collaborative requirements development in a wiki on a software engineering course

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# Collaborative requirements development in a wiki on a software engineering course

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# Background and Issues

- OU – open, distance learning
- Collaborative learning – difficult at a distance
- VLE – Moodle (from 2006)
- Course – postgraduate, requirements engineering
- Research – how best to incorporate online tools



# Overview

- Context: M883 (the Requirement Engineering course)
- Rationale for Collaborative (group) work on the course
- VLE (Moodle) tools
- Integration of Collaborative activities
- Issues during Implementation
- Practicalities (how we have done it)
- Experiences to date



# Context – Course

## *Software Requirements for Business Systems*

- Postgraduate (in several programmes)
- 150 hours of study
- 3 Tutor Marked Assignments, no substitution
- Final 3 hour unseen exam
- 2 presentations per year (May & November)
- Currently in its second presentation (November 2006)
- Approx. 150 students per presentation



# Course - content

- How to elicit and record requirements for a product so that the requirements can be:
  - communicated
  - analysed
  - implemented (built), and
  - evolved
- To produce a requirements specification
  - a formalised, template-based document
  - following a proven process



# Participative Requirements Engineering

- Requirements Engineering on a project is performed 'in the real world' by a team of requirements engineers
- More work is being done remotely and across time zones
- Need for effective communications, particularly asynchronous
- Better requirements (quality) are achieved within groups



# Use of the VLE Tools

In the second presentation of the course (November 2006) we have introduced:

- Collaborative activities - using *wiki*  
to support collaborative Requirements Engineering
- Reflection - using *personal journal*  
and revised the TMA (Tutor-Marked Assignment) structure accordingly for wiki and reflection
- Online *quizzes* (for each Study Guide)





# Issues or Challenges

- Student workload
- Knowledge about wikis (course team, students, tutors)
- Stakeholders' interests and perspectives (Tutors, students, external assessor, Faculty, VLE-team, developers)
- Informing the students: 'new' activities (linking with the pedagogy of the course)
- Encouraging collaboration
- Feedback from students: Inputs for the course team and encouraging (explicit) reflection amongst students
- Wiki tool (usability and support issues)



# Collaborative activities

- **TMA01**
  - Learn about wikis and how to use Moodle wiki
  - An ice breaker task:
    - Select a stakeholder role in a case study
    - Essentially an individual activity
- **TMA02**
  - Devise and submit some requirements from the point of view of the chosen stakeholder (individual)
  - Analyse and improve the group's requirements (ambiguity, duplication, conflict) (collaborative)
- **TMA03**
  - Specify the fit criteria for the requirements (collaborative)
  - Write the specification (collaborative)



# Learning about the wiki (TMA01)

Using wikis is a new activity for many students

- Read paper about the increasing use of wikis in RE
  - Keeping up to date (Learning Outcome)
- Read course document (*How to use wiki on M883*)
- Read user manual (*Moodle wiki: User's guide*)
- Look at sample wiki (which describes how the course team got to this point)
- Do individual activity in TMA01



# Moodle Wiki

A brief look at what the student sees

# M883 Course Website (VLE)



Course: Software Requirements For Business Systems - Microsoft Internet Explorer provided by The Open University I.E...

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Recycle Bin Mail Print Word Pad Notepad Favorites IE8

Address <http://learn.open.ac.uk/course/view.php?id=1181&sesskey=AUsegumwes&switchrole=5> Go Links >>

Google G Go Bookmarks 0 blocked Check Settings

OU Home Study at the OU About the OU Research at the OU Contact the OU


Pete Thomas (00907581) StudentHome TutorHome IntranetHome Sign out Accessibilit

## Software Requirements For Business Systems

### M883-06K

[Return to my normal role](#)

#### Welcome



Welcome to M883 and to the course website. Here you can access all the electronic resources you need for the course, including the additional readings and assignment booklets.

#### Course Resources and Materials

Learning with the OU

- [Study Calendar](#)
- [Study Resources](#)

Study Guides and the associated additional reading

- [Other resources](#)

including Course Guide, Read Me and other useful information

- [Assessment](#)
- [Course software](#)
- [Further reading](#)

#### Latest course news

16 Jan, 10:20  
Pamela Brightman  
Postgraduate Newsletter - January 2007 [more...](#)

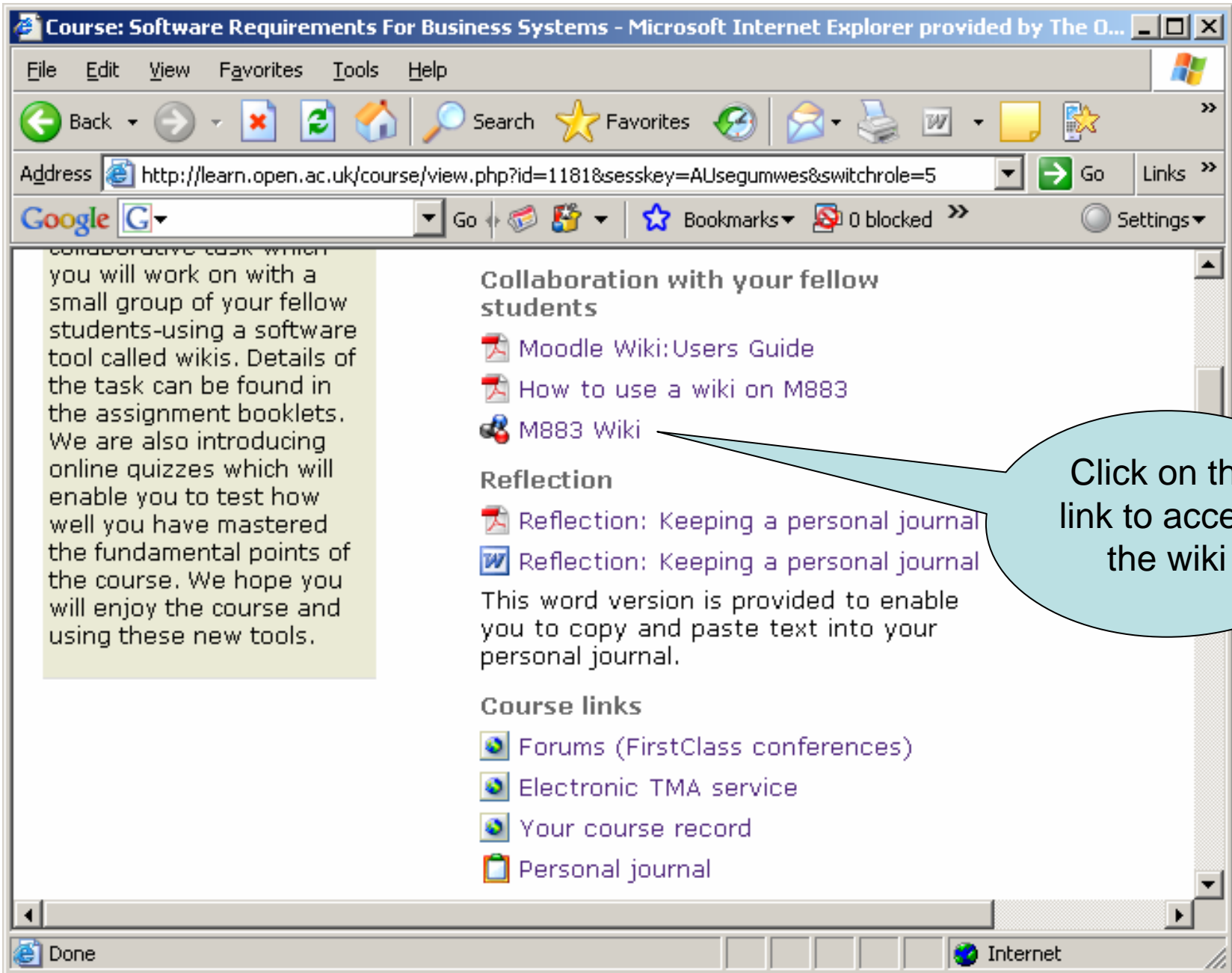
9 Jan, 12:57  
Pamela Brightman  
Wiki activity for TMA02 and Reflection template [more...](#)

30 Nov, 09:39  
Pamela Brightman  
Marks for your wiki work [more...](#)

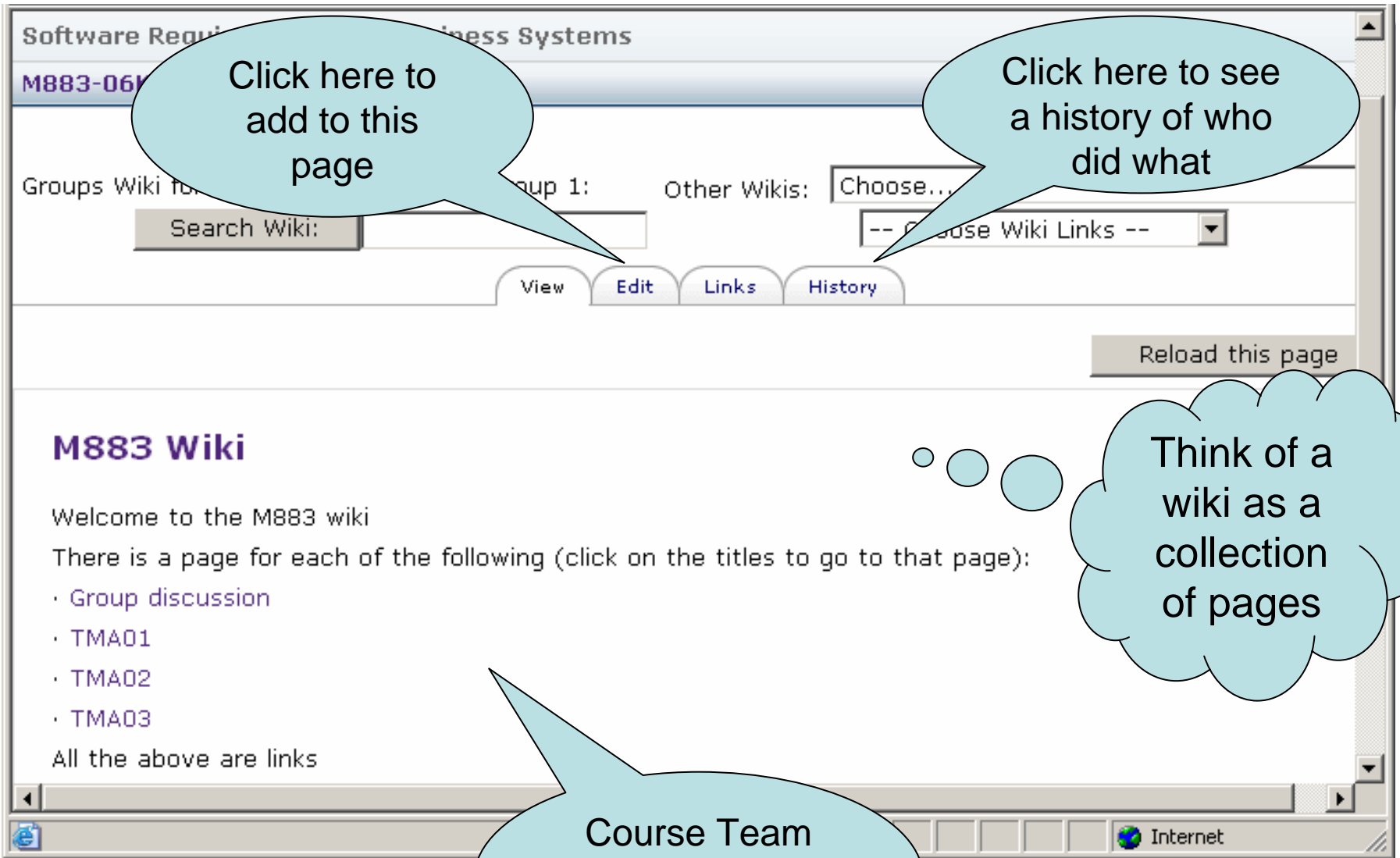
[Older topics ...](#)

Administration

Done Internet



Click on this link to access the wiki



Click here to  
add to this  
page

Click here to see  
a history of who  
did what

Think of a  
wiki as a  
collection  
of pages

Course Team  
designed  
structure

View

Edit

Links

History

Course instructions

## Group discussion

This page is for Group Discussion purposes. Start by providing the following information about yourself (type in your information at the bottom of the page):

- Name
- email address
- phone number
- Brief biography

Then say when you are likely to be available to tackle the activity associated with TMA 01.

Hi, not sure if I'm doing this correctly, but just thought I'd introduce myself. My details are as follows:

Start of student contribution

Internet





# Practicalities

- Small groups of about 6 or 7 students
  - Small enough to be useful/manageable
  - Big enough to allow for drop-out and non-attendees
  - 3 groups per tutor
- Time set aside in study calendar for the work
  - To be completed about a week before the TMA cut-off date – to allow time to complete the assignment
  - Relatively short period required to complete the work (1 week); negotiable by group



# Encourage participation

- Significant resistance to group work
- Approximately 15% of each assignment awarded for collaborative activity. Marks lost for lack of participation.
- Clear rules for participation
- Support from tutors
  - Some of the rules devised in consultation with the tutors (at course briefing)
  - Tutor to encourage their students (near the wiki activity deadline)
  - Minimal formal role for tutors



# ‘How to use’ document

- Who can use a wiki? (confidentiality)
- What is the group-wiki for? (motivation)
- Who are members of your group? (discussion-page)
- How to get started? (introductions)
- How to edit the wiki? (asynchronous working)
- When should the wiki be used? (timetabling)
- What should you write in the wiki? (scale of task)



## ‘How to use’ document (cont.)

- What do you write in the TMA? (evidence)
- How will TMA be marked? (product and process)
- What are your responsibilities? (participation)
- Who is in charge? (self management)
- What if you can't participate? (negotiation; loss)
- What if others do not participate? (no loss)



# Collaborative activities

- The *product* of the collaboration
  - the contributions by individuals (e.g. a set of requirements)
  - discussion of the product (groups) to develop an artefact
  - evidence based (the wiki maintains a history of the contributions)
- The *process* of collaboration
  - Communication: organisation, discussions, negotiations
  - evidence based (reporting in assignments)



# Initial feedback and analysis

- Resistance to group work
  - Inconvenience / unavailability (organisational issues)

*“I tend to study once every few weeks and do several chapters at once - basically, I organise my studying around my life. Now ... I'm being asked to organise my life around my studying.”*
  - Reliance on others

*“I spent a lot of time waiting for other group members to contribute.”*
  - Individuality + critical appraisal of other's work

*“Some students just weren't professional and felt they had the right to criticise other students work without being constructive.”*



# Initial feedback and analysis

- Robustness of the wiki (locking, edit window)
  - Any system problem increases the resistance
- On a positive note:
  - “I did gain something from it. By working [through] the activity it did improve my understanding of gathering and refining requirements.”*
- Balance between amount of work required
  - for engagement
  - effective for learning



# Reflection

- In the third assignment, students have been asked to report on their reflections: experiences of collaborative activities and the use of the wiki
  - We have provided a template for reflection:  
*Reflection: Keeping a journal*
  - Students are encouraged to keep a contemporary record of their experiences (using the *personal journal* tool)
- We await the feedback!





# Research issues

- Did the wiki activities facilitate collaborative content creation and learning?
- Should a wiki be used in conjunction with other tools (Scheduler, group-blog, forum/conference)
- Were the activities appropriate for wiki and vice versa?
- Challenges in collaborative writing
  - Managing conflicts in views/perspectives
  - Roles (authors, editors, readers, facilitators)
  - Rules and social norms (wiki etiquette)
- How effective has been the reflection activity?



# Contact and Documents

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[p.g.thomas@open.ac.uk](mailto:p.g.thomas@open.ac.uk)

- Papers (2007 conferences)
  - EDEN (research oriented)
  - ALT-C paper (course oriented - long)
  - IADIS (course oriented – short)
- OU Documents
  - Reflection
  - Moodle Wiki: a User's Guide
  - How to use a wiki on M883