Applying the Community of Practice Approach to Postgraduate IT Projects

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1 Overview

- objectives
- background to the Masters IT projects
- what is a Community of Practice?
  - other educational ideas involved
- design principles and implementation
- results: anecdotal, surveys, student performance
- conclusions
  - lessons learned and important factors for success
  - where to from here?
  - acknowledgements
2 Objectives

- improve the learning of generic research-related skills in project students
  - project management, implementation issues, presentations (verbal communication) and report writing (written communication)
  - latter includes style, structure, literature search, citations / attribution
  - important, for supporting research-based education, and these are ‘lifelong skills’!
  - important for the students: their assessment will be primarily focused on the quality of these!
- improve the project experience for the students
  - this can in turn influence learning (and also in the longer term)
- how best to do this?
  - leave it to the supervisor(s)?
  - run a separate course?

or …
3 Background to the Masters IT projects

• Masters and GradDip in IT project courses form a ‘capstone’ for their respective (‘eScience’) degree
  
  • implementation projects: COMP6701 (6 units), COMP6703 (12 units)
  • research projects: COMP6720 / COMP6702 (6 + 18 units)

• all projects are individual, normally with an internal (experienced!) supervisor and possibly also an external supervisor or client

• clearly defined learning objectives and structure (eScience group)

• what the students achieved was often very exciting!

• but still some problems, e.g. quality of reports, sometimes insufficient attributions, lack of social context

• what could be done with the 2006 (S1) and 2007 (S1) project students?

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4 Communities of Practice

- Community of Practice (CoP): a group of people with a common interest collaborate to solve problems in that area, and learn of each others’ ideas and experiences.

- 3 key elements:
  - mutual engagement
  - a joint enterprise
  - a shared repertoire

- Arises from the observation that learning is a fundamentally social phenomenon; hence social aspects are central to learning.

- Desirable properties include:
  - the group is committed to the shared task and to each other
  - discussions remain focused but members are free to express feelings
  - the leader (if any) does not dominate; different members can take different roles.
5 Other Key Ideas from Educational Literature

CoPs and the following key ideas also from the 2006 Graduate Certificate in Higher Education (College-Based Program):

- action research: cyclic process of planning, acting observing, reflecting
  - systematic observation and evaluation to improve teaching practice
- reflective writing is a tool often used to assist this
  - requires regular student feedback to be gained and analyzed!
- use of formative assessment techniques, including peer feedback

lead to the idea to form a CoP amongst the Masters IT project students:

- the project co-ordinator as leader / facilitator
- use action research and reflective writing for rapid cycles of feedback / improvement
- involve the students in each others’ projects; utilize their collective experience
- promote an enjoyable experience for all at the same time!
6 Design Principles and Implementation

- study meetings in two phases (5 in weeks 1–7, 4 in weeks 10–15)
  - apply action research method (including surveys weeks 3 and 15)
- guiding principles were according to that of the CoP:
  - choose topics with a known need, useful during each phase
  - make use of previous students’ work (good & bad!)
  - make use of the students’ work in progress (esp. phase 2)
  - make use of members’ views and experiences
  - give members as much say as possible
  - foster interactions outside the meetings
- these, and member feedback, led to the 2006 (2007) schedule
  - students evaluate each others’ presentations (formally) and draft reports (informally)
- materials based on an excellent text Writing for Computer Science (Justin Zobel, 2004) and ASLC materials
7 Some Results

- Effectiveness measured in 2 dimensions: perceptions of members & impact on learning
  - Very high positivity in surveys on potential / actual value of sessions
  - Several useful suggestions for improvement
  - Generally high quality of presentations / reports (relative to background)

- Some anecdotes:
  - “A definite improvement in morale over last semester”,
  - Several positive expressions that feedback was being acted on
  - Spontaneous continuation of discussions in small groups after sessions ended
  - ‘Experienced’ (COMP6702) students proved invaluable!
  - Emergence of ‘enthusiasts’; one in 2006 became a facilitator!
  - Lunch at the Pickle after last 2006 session (and later the Bar!)

- More details in a paper (ACE’2008)
8 Conclusions

• the Community of Practice approach was (cost-) effective!
  • common purpose of improving generic skills sufficient to establish a cohesive and effective CoP

• significantly enhanced the students’ experience during the culminating phase of their degrees

• believe it was unique application of CoPs
  • action research method acted synergistically!

• still areas for improvement:
  • foster more active participation in the more reserved (ESL) students
  • promote more outside-session interactions (electronic message board?)
  • make more use of social opportunities
9 Important Factors in Establishing a good CoP

- rapid implementation of feedback
- promotion of collective ownership
- utilizing support from (senior) members
  - an ‘ethusiast’ will work wonders!
  - COMP6720 / 6720 structure helped
- use of previous projects
- peer evaluation for formative feedback
- the facilitator: genuine enthusiasm, expertise, knowledge and prior/current relationship with the students
  - must foster rather than control the group
- group size 6–12 seems optimal
- social aspects are very important!
10 Where to from here?

• more details on the Masters CoP web page
• so what did all of this have to do with IT?
• the Masters and GradDip in IT degrees are winding down – but we have many project courses!
  • 3rd year, Honours, 4th year BE & BSEng, MCOMP and ME
• “expert level peer communities work well”
• the CoP approach in this context needs more trials & objective (!) evaluations
11 Acknowledgements

- the College, for encouraging and sponsoring me to do the GCHE
- the GCHE lecturers (facilitators) and fellow students
- my referees and nominators
- the members of the 2006 and 2007 Masters project CoP!
12 Questions?