

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?

year	course				intensity		gender		background		facil. supr.	
	6701	6703	6720	6702	P/T	F/T	M	F	ESL	non-ESL	prim.	sec.
2006	1	2	2	2	1	6	6	1	2	5	2	5
2007	0	5	1	4	1	9	7	3	9	1	0	4

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 'enthusiast' 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

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12 Questions?