Snapshot

Snapshot paper in the 22nd Annual NACCQ, Mann, S. & Verhaart, M. (eds) Napier, NZ, July 10-13 2008 www.naccq.ac.nz

Project Wiki

Samuel Mann **Lesley Smith** **Hamish Smith**

Information Technology
Otago Polytechnic, Dunedin NZ
smann, lsmith, hamishs @tekotago.ac.nz

1 Introduction

This paper provides an initial review of literature as part of considerations towards the adoption of a wiki as a project management tool for capstone projects.

Many ICT degrees include a capstone project and much effort has been placed in determining appropriate models for the design of the projects (Fincher 2001, Clear 2003, Mann and Smith 2004). Here we focus on the support of the project. We propose a "self documenting process" that combines support for the project and evidence of processes undertaken.

Mann and Smith (2006) describe the evolution of an Agile Development Framework. One of the implication of this move is a shift from a docu-centric process to the "barely sufficient documentation" of Agile processes. Documentation serves two roles in capstone projects. It has the inherent value as artefacts of development process (quality management, communication tools etc), but also serves a special role in providing an evidence trail for assessment.

The goals of supporting a capstone project extend the success measures of normal software development. These differences stem from two areas: the nature of the team and the educational imperatives.

2 Background

The Capstone projects (and hence Software Engineering) follow an integrated methodology that combines elements of both agile and structured software development. This Agile Development Framework (ADF) approach is described more fully in Mann and Smith (2006).

The focus of the methodology is on the production of robust working systems (software, hardware and maintenance documentation). Planning, comprehensive development documentation and processes are important but are 'means to an end' with a focus on content rather than format/representation. The student groups are self managing including milestone planning and determination of workflows. They also have to maintain their own relationships with stakeholders (including supervisors and clients).

Noble, Marshall, Marshall, & Biddle (2004) note that the shift to an agile approach in industry "has created a need for a similar shift in software engineering education", explaining that "document centric project methodologies do not align well with students' reasonable expectations of more agile working methods".

Other authors consider the design of tools to support particular forms of working:

- Beaver *et al* (2009), describes the complexities of software engineering projects given both the technical intricacies of code design and development, and the social aspects of working as a team. These difficulties are exacerbated in teams that develop Free/Libré/Open Source Software (FLOSS) by the distributed nature of the team, the lack of an organizational hierarchy, and the fact that source code contributors are often volunteers. Some of these difficulties apply to capstone projects. These FLOSS projects are similar to capstone projects in that the dynamics of the group are considered as important as the actual product.
- Stahl (2009) argues that cooperative working or collaborative learning, that takes place when small groups of workers or students engage together are "fundamentally different" their support needs. They describe the interaction of individual and community.
- Zhao and Rosson (2009): Role of microblogging at work. Tool design should make use of social cues to promote spontaneous conversations. There are also questions of openness of information – inside vs outside firewall.
- Brzozowski (2009) describes an analysis of internal use ofWeb2: *Content is internally public.* Everything posted is accessible to all employees and contractors. Brzozowski describes WaterCooler to explore ways to help members of a large organisation find each other and share knowledge and insights.
- A further question is the impact of exposing the workings of the projects. Brzozowski (2009) describes this effect in enterprise social media: "I was surprised at the "raw" un-professional content of some of the blogs, but that actually made me feel better about working at HP: here's a way that REAL communication and collaboration (instead of filtered marketing speak) can happen"!
- Phuwanartnurak (2009) describe Wikis for multidisciplinary design. Such editable websites facilitating information exchange within corporations.

Cubric (2007) looks at the use of Wikis in education. She describes pedagogical needs:

• to provide tutors with more regular feedback on students' comprehension and progress;

• to help tutors in identifying "troublesome knowledge" and to enable them in reinforcing the understanding of those areas;

• to provide students with an open "structured bulletin board" for reflection, meta products, analysis and feedback that is easy and fun to use;

• to extend the official "contact time" to 24/7, by using other students as teachers, reviewers and role models;

• to focus on continuous feedback in order to respond to students' needs and enhance their learning experience;

• To facilitate development of research, organizational, and negotiating skills

• to 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"

• to facilitate "connective writing" with emphasis on criticality, clarity, structure and linkage;

• to provide support for different learning styles via an "inherently democratic medium"

• to support international students by providing examples of good writing;

• to reduce plagiarism by making students' work public.

3 Proposal

We propose a wiki-based framework for the support of capstone projects. That is, each project group uses a public wiki as the primary platform for their project. This integrates project management, documentation, communication, reflection and assessment.

This framework will use a wiki as a platform for publishing weekly tasks, completing weekly tasks, maintaining work records and providing feedback.

An interesting question is that of the implications of the capstone equivalent of Richardson's "expanding the walls of the classroom". While there are potential threats (malicious use etc), we believe that moving the projects to a mode of transparent communication will have significant benefits for the projects.

- Achieve a system that can facilitate groups doing their projects
- Remove the disconnection between project and documentation/ management
- Promote the appropriate learnings from Agile and structured methodologies
- Provide transparency between groups, supervisors and clients.

After a successful pilot in 2008, this research is underway with all capstone projects and software engineering classes in 2009.

4 References

Beaver, J. M., X. Cui, et al. (2009). Modeling success in FLOSS project groups. Proceedings of the 5th International Conference on Predictor Models in Software Engineering. Vancouver, British Columbia, Canada, ACM**:** 1-8.

Brzozowski, M. J. (2009). WaterCooler: exploring an organization through enterprise social media. Proceedings of the ACM 2009 international conference on Supporting group work. Sanibel Island, Florida, USA, ACM**:** 219-228.

Brzozowski, M. J., T. Sandholm, et al. (2009). Effects of feedback and peer pressure on contributions to enterprise social media. Proceedings of the ACM 2009 international conference on Supporting group work. Sanibel Island, Florida, USA, ACM**:** 61-70.

Clear, T., F. H. Young, M. Goldweber, P. M. Leidig and K. Scott (2001). "Resources for instructors of capstone courses in computing." ACM SIGCSE Bulletin 33(4): 93-113.

Cubric, M. (2007). Wiki-based process framework for blended learning. Proceedings of the 2007 international symposium on Wikis. Montreal, Quebec, Canada, ACM.

Fincher, S., M. Petre and M. Clark, Eds. (2001). Computer Science Project Work: Principles and Pragmatics. London, Springer.

Mann, S., & Smith, L.G. (2004) Role of the development methodology and prototyping within capstone projects . *Proceedings 17th Annual NACCQ*, Mann, S. & Clear, T. (eds). Christchurch. July 6-9th 2004. p119-128.

Mann, S. and Smith, L.G. (2006). Arriving at an agile framework for teaching software engineering. 19th *Annual Conference of the National Advisory Committee on Computing Qualifications*, Wellington, New Zealand, NACCQ 183-190

Phuwanartnurak, A. J. (2009). Exploring the use of Wikis for information sharing in interdisciplinary design. Proceedings of the ACM 2009 international conference on Supporting group work. Sanibel Island, Florida, USA, ACM.

Richardson, W. (2006). *Blogs, Wikis, Podcasts and other powerful web tools for the classroom.*, Corwin Press,

Stahl, G. (2009). For a science of group interaction. Proceedings of the ACM 2009 international conference on Supporting group work. Sanibel Island, Florida, USA, ACM**:** 129-138.

Zhao, D. and M. B. Rosson (2009). How and why people Twitter: the role that micro-blogging plays in informal communication at work. Proceedings of the ACM 2009 international conference on Supporting group work. Sanibel Island, Florida, USA, ACM.