

Request for collaborators: SQUAWK

Samuel Mann

Lesley Smith

Hamish Smith

Information Technology

Otago Polytechnic

Dunedin, NZ

samuel.mann, lesley.smith, hamish.smith @op.ac.nz

In order to gain insight into the student capstone working environment we plan to update Smith and Mann's (2005) probe study. Instead of disposable cameras, the plan is to develop a multiplatform suite of smartphone apps "Squawk" to prompt for a richer understanding. Squawk will facilitate a test-driven micro-blogging narrative documentation process for capstone projects. This Squawk system will be the basis for an international collaboration and a web-scaling of capstone project research into the factors affecting project processes and documentation.

Research questions include:

- What is the nature of the student experience as described by a mobile blogging tool? (ethnographic analysis using probe protocols in new medium).
- What is the effect on student project documentation practices of a mobile blogging tool designed to facilitate an agile micro-test-based documenting approach? (uptake, interaction and content analysis)
- What are the appropriate research protocols to permit a "web scaling" of this Squawk tool and research questions?

We have for some time tried to better understand the nature of the student working environment. In computing education, the nature of the capstone experience is of particular interest (Fincher *et al.* 2001, von Korsk and Ivins 2008). The capstone is of particular interest because of the manner in which it demands time, engagement and a considerable effort from the student. A deeper understanding of the dynamics of the project experience could benefit all parties, allowing improved workspaces to be designed, appropriate support systems introduced and the provision of targeted resources.

Little is recorded of the many hours of student lives that are played out in project workrooms and homes each semester. In an attempt to better understand the reality of the project student's world, Smith and Mann (2005) described the use of a "domestic probe" (Gaver *et al.* 1999) in the form of a disposable camera. It was hoped that use of the cameras to record the events and surroundings of the project would promote critical thought and encourage reflection on the project tasks.

In Canterbury (UK), Knox (2012) is developing a smart-phone based approach to ethnographic study of student communities of practice. Knox is attempting to describe the student experience in terms of "authentic activities – ordinary practices of the (professional) culture". His study recruits students to use the smartphone tool to keep a work diary for periods of up to a week. In Smith and Mann (2005) it was found that most groups did not take any images outside the project room, a statement perhaps of the inwardly focused world of the project students – or perhaps merely that the disposable cameras did not travel far. By contrast, Knox is finding a considerable amount of "work" being carried out in non-traditional settings – at the gym, coffee shop and pub. The learning that goes on in these environments is currently hidden from educational design.

On a related track, the capstone project is increasingly using a wiki based documentation system (Mann *et al.* 2009). Recently we have been encouraging the students to use a micro-test-based development approach to work – "what do I need to achieve this hour? ...what have I done?", recording this on an open wiki. This aims to combine a narrative approach with the test-driven development of Agile Methodologies.

A smartphone application "Squawk" will be built with the intention of encouraging on-the-fly narrative project documentation with value for the students. This will extend the one week survey window afforded by Knox's system to the entire capstone experience. This will provide a wealth of research data and opportunities.

The tool will be accessible via smartphones and prompt users for very small chunks of evidence of their working on the project. This will automatically fill their wiki with appropriately tagged information and provide the basis for their evidence portfolios.

Once the tool is developed and validated, we intend opening up the research protocols to enable a "web scaling" of the research. As with Utting's work, the details of the web-scale research questions will be determined by international collaboration within the bounds of data availability and research protocols.

The first stage of project will be an in-depth analysis of the research protocols. These will be built into the design of the application and supporting data structures. As part of this, the research will undertake appropriate ethics applications.

REFERENCES

- Fincher, S., Petre, M., & Clark, M. (Eds.). (2001). *Computer Science Project Work: Principles and Pragmatics*. London: Springer.
- Gaver, B., Dunne, T., & Pacenti, E. (1999). Design: Cultural probes. *interactions*, 6(1), 21-29. doi: 10.1145/291224.291235
- Knox, D. (2012). *Communities of practice and situated learning in computer science*. Paper presented at the Proceedings of the ninth annual international conference on International computing education research, Auckland, New Zealand.
- Mann, S., Smith, L., & Smith, H. (2009). *Project Wiki*. Paper presented at the Snapshot paper in 22nd Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NZ.
- Thomas, R. C., Karahasanović, A. (2009). Experience with an extensible workspace for analysis of low-level usage data. *Softw. Pract. Exper.*, 39(14), 1185-1213. doi: 10.1002/spe.v39:14
- Smith, L. G., & Mann, S. (2005, July 10-13th July 2005). *Probing Remote Projects: bringing their diaspora home*. Paper presented at the Proceedings 18th Annual NACCQ, Tauranga.
- Utting, I., Brown, N., Kölling, M., McCall, D., & Stevens, P. (2012). *Web-scale data gathering with BlueJ*. Paper presented at the Proceedings of the ninth annual international conference on International computing education research, Auckland, New Zealand.
- von Korsk, B. R., & Ivins, J. (2008). *Assessing the capability and maturity of capstone software engineering projects*. Paper presented at the Proceedings of the tenth conference on Australasian computing education - Volume 78, Wollongong, NSW, Australia.

This poster paper appeared at the 3rd annual conference of Computing and Information Technology Research and Education New Zealand (CITRENZ2012) incorporating the 25th Annual Conference of the National Advisory Committee on Computing Qualifications, Christchurch, New Zealand, October 8-10, 2012. Mike Lopez and Michael Verhaart, (Eds).