

From Informal to Formal: Creating the Australasian Computing Education Community

Judy Sheard

School of Computer Science and Software Engineering
Monash University
PO Box 197, Caulfield East 3145,
Victoria, Australia

Angela Carbone

School of Information Management and Systems
Monash University
PO Box 197, Caulfield East 3145,
Victoria, Australia

{judy.sheard,angela.carbone@infotech.monash.edu.au}

Abstract

The advent of Web technology has enabled new ways in which groups of people may interact, leading to the development of online communities. In an academic environment these virtual communities can facilitate collaboration and provide new ways for educators to communicate and disseminate their ideas and practices. A website designed to support a community of educators interested in scholarship and research in computing education has been developed. We have called this the Australasian Computing Education Community website. In deciding to build an online environment for the Australasian Computing Education Community the challenge we faced was in designing a facility that the members would find useful. In doing this we needed to consider the needs of the Community and the purpose that the website would fulfill. In this paper we explore the concept of community and present an online environment that will facilitate the development of the Australasian Computing Education Community, providing ongoing support for their scholarship and research in computing education.

Keywords: computing education, community, research, scholarship.

1 Introduction

The changing environment in universities in Australia and New Zealand has seen academics under growing pressure to provide innovative teaching programs for an increasingly diverse and physically dispersed student

population. However, with the added burden of heavy teaching loads and large classes, educators have limited time to spend in development, implementation and evaluation of new teaching techniques or resources (Clear 2002). Furthermore, with the current trend to provide learning environments on the Web, many educators do not have the level of expertise or opportunity to develop the skills necessary to produce resources at the level of sophistication afforded by this technology and also expected by the students (King and McSporran 2002; Sheard, Postema, and Markham 2001). In the information technology discipline these problems are exacerbated by the rapidly changing computer technology that necessitates continual upgrade of equipment and software, resulting in courses needing updating more readily than what occurs in other disciplines.

In a collegial and collaborative work environment academics will typically share their teaching experiences and resources. However, academics often work in isolation and the dissemination of ideas and practices amongst academics who are physically separated across different departments, campuses and institutions becomes problematic. Without easy channels of communication, academics are not always aware of the latest educational innovations and technologies and often fall into the trap of 'reinventing the wheel'. These issues were highlighted in a large national project (ICT-Ed) that investigated the ways that teaching and learning are being approached in the information and communication technology (ICT) discipline within Australian universities¹ (Hurst, Lynch, Collins, and Markham 2001). One of the aims of this project was to determine ICT educators' perceptions of factors inhibiting the dissemination of educational innovations and good practice in the ICT discipline. An Australia-wide mini-conference program attended by ICT

Copyright © 2004, Australian Computer Society, Inc. This paper appeared at the *6th Australasian Computing Education Conference (ACE2004)*, Dunedin. Conferences in Research and Practice in Information Technology, Vol. 30. R. Lister and A. Young, Eds. Reproduction for academic, not-for profit purposes permitted provided this text is included.

¹ The authors of this paper were members of the ICT-Ed project reference group

educators was used to gather this information. The academics who participated in these min-conferences claimed that the most effective way to share information was by face-to-face communication of the type that occurs in casual meetings in the workplace or informal events such as in-house workshops or seminars. Communication with peers from other institutions was also valued, although this was seen to happen far less frequently. As one educator explained:

“ . . . if we want to talk about [our innovations] with other people, it needs to be in some kind of forum. If it's a seminar, other people are teaching at that time, you've got to get to a campus, you don't have the audience because everybody's too busy.” (raw data excerpt, ICT-Ed Project)

Conferences provide opportunities for networking across institutions; however, funding for conference attendance is often contingent on paper acceptance and most academics typically attend only one or two conferences per year. Another way of informing and sharing with colleagues is by publishing papers in conferences or journals. However, this was generally viewed as a less effective means of dissemination. Conference proceedings can be hard to obtain without attending the conference. Although journal articles are more accessible, publishing in journals was seen to be difficult. As one academic in the ICT-Ed study reported, to publish in a journal “you have to do your homework” (Hurst et al. 2001).

One of the recommendations from the ICT-Ed study was: “that effective means be developed for the dissemination and diffusion of educational innovations to the ICT education community.” (Hurst et al. 2001), p. xiv). Specifically, it was suggested that efforts should be made to:

- ?? facilitate two-way interaction between those who generate the innovation and those who plan to adopt it
- ?? take advantage of existing relationships between individuals and between institutions
- ?? promote inter-university collaboration and dissemination across the disciplines

Encouraging collaboration and communication between academics engaged in scholarship and research in computing education can be seen as critical to the development and dissemination of innovations and good practice within the ICT discipline. In this paper we explore the importance of community in this process and describe an online facility that is intended to provide a focus for an informal community of ICT educators we have called the Australasian Computing Education Community.

2 Scholarship and Research in ICT Education

Scholarship and research in ICT education is fundamental to the process of developing and promoting innovations in educational practice and technologies amongst ICT educators, and ultimately leading to improvements in teaching and learning. As Trigwell, Martin, Benjamin and Prosser (2000) propose:

“... university teachers must be informed of the theoretical perspectives and literature of teaching and learning in their discipline, and be able to collect and present rigorous evidence of their effectiveness, from these perspectives, as teachers.” (p.156).

Supporting this view, Healey (2000) argues that scholarship in teaching should be conducted within the culture of the discipline in which it is applied. He contends that relatively few discipline specialists publish research into the nature of learning within their own discipline. However, a difficulty facing ICT educators in Australia is the perception that educational research is not valued as highly as other fields of research, and scholarship in teaching is not well supported by universities in terms of allocation of resources and recognition for promotion (Collins and Lynch 2001). As one ICT -Ed participant reflected:

“How many faculty members [do you] actually see going to an educational conference or . . . reading an educational journal as a high priority? We're getting back to this cultural thing in universities that the research is important and I'll go and read 75 journals . . . and I won't open one on education because teaching's only what I do so that I can do research.” (raw data excerpt, ICT-Ed Project)

A more fundamental problem is that many ICT educators lack the knowledge of educational literature and experience in educational research methodology necessary for conducting research in this area (Lynch, Sheard, Carbone, and Collins 2002). Despite these difficulties, there is evidence that research and innovations in ICT education are happening. However, indications from the ICT-Ed study were that these are largely driven by individual motivation and initiative.

“There are very creative people who aren't treated by those agendas but they're driven by a professional, innovative, creative instinct and that's often where the richest innovation occurs”. (raw data excerpt, ICT-Ed Project)

In Australia there are few formal national associations to support computing education scholarship and research, and none that are solely dedicated to this particular field. A couple of universities have their own computing education research groups, for example Monash's Computing Education Research Group (CERG), but these are locally based. However, since 1996, the Australasian Computing Education conference (ACE), formerly known as the Australasian Computer Science Education

conference (ACSE), has provided a forum for academics with an interest in computing education. This conference is primarily for researchers in computing education and for those whose focus is in teaching computing or using computers in their teaching. The conferences have been well attended and the ongoing support from a core group has demonstrated that there is a community, albeit small, of enthusiastic and committed people interested in this field of research and scholarship. Unfortunately though, the conference has not been held on an annual basis. Without regular scheduling, the conference and the community that supports it have been at risk. Concern for the future of the conference led to the formation of an ACE Executive, whose main aim has been to schedule and oversee the organisation of the ACE conference. From discussions within this group the concept of the ACE Community and the idea for a website to support this Community has emerged.

In the following section we explore the concept of community and propose an online environment that will facilitate the development of the ACE Community of academics and provide ongoing support for their scholarship and research in computing education.

3 Communities

Collaboration among a group of people is facilitated and encouraged by the presence of community. Bellah, Madsen, Sullivan, Swindler and Tipton (1985) define community as:

“... a group of people who are socially interdependent, who participate together in discussion and decision making, and who share certain practices that both define the community and are nurtured by it.” (p.33)

Many others have defined the concept of community in similar ways (McLoughlin 1999; Seufert, Lechner, and Stanoevska 2002). The essential element in their definitions seems to be the interconnectedness between individuals with common interests, shared goals and mutual needs. An important point here is that the existence of community does not require the members to be physically located together. The emphasis is on the relationship between people which does not need a physical presence (Rovai 2002).

The importance of communities in an academic context has been reported in the literature. Macdonald (2001) describes a model for teaching communities which have successfully supported staff in reflective practice and the development of their knowledge of effective teaching and learning. Healey (2000) claims that discipline-based communities have a vital role to play in facilitating communication and encouraging university teachers to take a scholarly approach to the way they teach.

The advent of Web technology has led to the presence of communities in an online environment. Extending the

definitions of community previously given, Preece (2000) states that an online community consists of people, a shared purpose, protocols and rules that guide interactions and computer systems. Explaining the formation of online communities, McLoughlin (1999) proposes that online communities may develop on electronic media through the sharing of resources, perspectives and ideas. The communities can then be sustained by an online social environment that is both motivating and supportive. These studies suggest that the Web can be used to enable and encourage the establishment of communities of people who have never met face-to-face.

Taking a different perspective, Bosua and Scheepers (2002) maintain that the Web can facilitate a community, which has been established in a face-to-face setting, by providing an electronic communication and information space. In a case study of an online teaching and learning group in the IT department of an Australian University it was shown that a ‘community of practice’ in which all members worked in close physical proximity had evolved to using email and threaded discussions for much of their communication. Their findings indicate that the social networking that occurs in face-to-face settings can extend to the online environment, and the Web can play an important part in supporting these communities even when the community members also meet face-to-face. These studies show that the Web can provide a virtual space where people can communicate with others with the same interests. However, Conlon (1997) reminds us that although communities may develop on the Web or use the Web, the Web itself is not a community.

While most acknowledge the existence of online communities, understanding how they are created and sustained is more difficult (Hill 2001). Kollock (1998) contends that the process of establishing an online community is poorly understood and claims there is no simple process which can guarantee the establishment of a community in virtual space. However, he suggests that for an online community to be successful it must promote ongoing interaction, members must have information about each other and members must be able to identify each other. Enabling and encouraging interactions between members in online communities is critical to sustaining the community because without these people will not make connections and will tend not to remain in the community.

4 Developing the ACE Community

When considering ways to support the informal group of Australian and New Zealand ICT academics, which we have termed the Australasian Computing Education Community, it seemed reasonable to look to the Web. There are reports of examples of online communities of professionals that have been successfully established using this medium. Bruckman and Resnick (1995) describe MediaMOO, a text based online environment designed to simulate and extend the type of informal

exchanges which happen at conferences. Participants are provided with a virtual place to meet, socialise and discuss research. The Knowledge Management Think Tank,

(<http://www.brint.com/wwwboard/wwwboard.html>) is a virtual community of practice of business, information technology and knowledge managers and professionals in which members can network, share knowledge, and provide and receive advice. In the educational area, TAPPED IN is a technology that enables the establishment of Web-based communities of teachers or researchers. Members are provided with a virtual space, communication tools, and various resources designed to support formal and informal collaborations (<http://www.tappedin.sri.com/>). The ICT-Ed website was developed with the intention of fostering a sense of community among ICT educators who are collaborating to develop innovative or best practice teaching curriculum. The aim of this website is to build a repository of teaching materials on the Web for use by ICT staff (Ellis, Markham, Munro, and Sheard 2002). These examples and other provided the impetus for the design and construction of a website to develop and support the ACE Community.

However, there were reservations about using a website for this purpose. Indications from the ICT-Ed study were that some educators are skeptical about the Web as a mechanism for sharing and communicating ideas and resources (Hurst et al. 2001). Although there is a perception by some that you can do almost anything on the Web, and to disseminate information all you need to do is put it on the Web, effective dissemination requires others to search for and find it. As one participant stated, "... all these huge repositories and all these projects and so on, I'd never think of going there because of the effort". Furthermore, there was a general feeling that using the Web to source resources for teaching is often unsatisfactory. Teaching is a very personalised activity and it is highly individualistic. Material from the Web often has to be adapted and this can be time consuming and difficult. As another ICT-Ed participant explained:

"If you have to go to the formal source it means that you don't know the people, you don't know this, you don't know that, the overhead is so high". However, "if you are in a network you have already established and made possible a lot of the articulation work because you are talking to people ... that's probably the key to it ... find a community of users". (raw data excerpt, ICT-Ed Project)

In deciding to build an online environment for the ACE Community the challenge we faced was designing a facility that the members would find useful. In doing this we needed to consider the needs of the Community and the purpose that the website would fulfill. The next section describes the website and the features it provides.

5 The ACEC Website

5.1 Overview

The Australasian Computing Education Community (ACEC) website aims to provide a focal point for people who teach and/or research in the computing discipline. We have used the term *community* as we feel this reflects the perceived interest of a core group of these educators in communicating, collaborating, and sharing their ideas, experiences and research with their colleagues. Having an online facility will enable and encourage communication beyond what is currently possible with the limited opportunities for face-to-face encounters. It is hoped that the website will facilitate and encourage greater collaboration and dissemination of ideas and good practice amongst Community members.

The website provides communication facilities and resources for the ACE Community. It is an access point for the Australasian Computing Education conferences and abstracts of papers from these conferences may be accessed from this site. Also available are links to journals, conferences and other resources and events of interest to the community.

Another important aspect of the website is that it will record and preserve the short history of the ACE/ACSE conferences, recognising and acknowledging the work of people who have contributed to these events. It will bring together, in one place, valuable resources for the ACE Community members.

5.2 Website Content

The following facilities and resources are provided on the ACEC website:

Home Page: General information, welcome message, news items. (see **Figure 1**)

Australasian Computing Education Executive: Purpose of the executive, history, contact details and short biography of each member.

ACE Conferences: History of the ACE/ACSE conferences, links to the previous ACE/ACSE conference websites, link to the forthcoming ACE conference website.

ACE Abstracts: Abstracts of papers from all previous ACE/ACSE conferences. The abstract details can be downloaded in a format that allows easy referencing. A search facility is provided to access the abstracts.

Other Conferences: A list of upcoming conferences of possible interest to Community members. Links to the conference websites are provided.

Journals: A list of journals that are of possible interest to Community members. Links to the journal websites are provided.

Teaching and Research Interests: Details of the teaching and/or research interests of the ACE Community members. This includes a facility for people to enter their teaching and/or research interests. A search facility is provided.

News: News items about events of relevance to the Community., for example, workshops and seminars.

Useful Resources: Links to organisations, events and resources of interest to the ACE Community.

Mailing List: Email list for the Australasian Computing Education Community. This has facilities to join or be removed from the mailing list.

Site Map: A map of the website

5.3 Design Considerations

The ACEC website was designed by a member of the ACE Executive with input from other members of the Executive and built by a final year Bachelor of Computing industrial experience project group at Monash University. The website has been designed, as much as possible, to be self maintaining; however, there will be a small ongoing administrative load which we anticipate will be carried by a member of the ACE Executive.

The designers see the website as evolving to meet the needs of the ACE Community. In the initial stages this will be determined from feedback gained from Community members in an evaluation after the site has been officially launched.

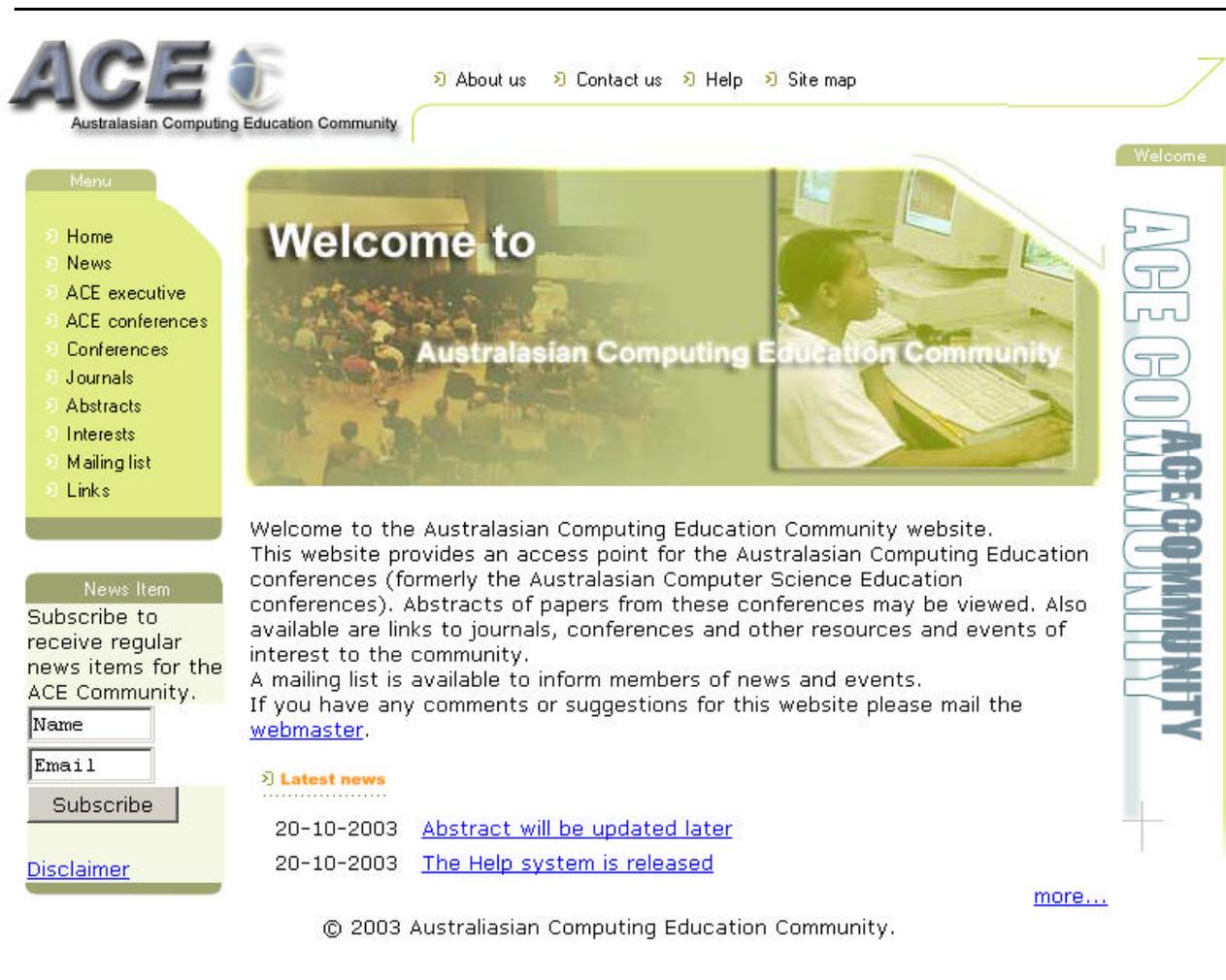


Figure 1 Home Page of the Australasian Computing Education Community Website

6 Conclusions and Future Work

Establishing a website to support the Australasian Computing Education Community has required some effort; but the major challenge has been in designing a facility that will engage Community members and provide a focal point for activities within the Community. The website will be an access point for each forthcoming ACE conference and it is anticipated that this will create an awareness of the website and help to expand the Community. In addition, we have endeavoured to encourage use of the site by providing a range of resources that will be useful to ICT educators and researchers. Our hopes for the ACEC website is that it will establish connections between members who have not met personally and encourage continued communication between those who have met face-to-face. This personal contact, albeit by virtual means, should assist in the dissemination of research and good practice amongst the Community members and to the wider community. In this way the website will become a virtual presence for the ACE Community and will help raise the profile of computing education. The complimentary relationship of face-to-face meetings at the ACE conferences and other events, and virtual meetings via ACEC will sustain the momentum of this evolving and dynamic community. As Kawamura (1999) states:

“... a person may join a community but to truly understand how it feels to be a part of this community a person must be active member to really make the most use of the community.” (n.p.)

The success of the Australasian Computing Education Community website will depend on its usefulness and relevance to the Community and how well it supports the members in their scholarship and research. Measuring the success of the website will form the second phase of this project after the site is officially launched. The evaluation of the site should give insights into how online communities function and what features contribute to their success or otherwise, informing future developments and enhancements to the site and providing a model for the establishment of other online communities.

7 Acknowledgements

The authors would like to thank the third year Industrial Experience project team from the Bachelor of Computing at Monash University who constructed the ACEC website. We would also like to thank the members of the ACE Executive who gave feedback on the website during its development.

8 References

- Bellah, R. N., Madsen, R., Sullivan, W. M., Swindler, A., and Tipton, S. M. (1985). *Habits of the Heart: Individualism and commitment in American life*. New York: Harper & Row.
- Bosua, R. and Scheepers, R. (2002). IT support for communities of practice in organisational settings. *Proc. Enabling Organisations and Society through Information Systems*, Melbourne, Australia, 369-378.
- Bruckman, A. and Resnick, M. (1995). The MediaMOO project: Constructionism and professional community. *Convergence*, 1(1).
- Clear, T. (2002). TEAC research funding proposals considered harmful: ICT research at risk. *Proc. Fifteenth Annual Conference of the National Advisory Committee on Computing Qualifications*, Hamilton, New Zealand, 21 -27.
- Collins, F. and Lynch, J. (2001). ICT education and the dissemination of new ideas: Channels, resources and risks. *Proc. Australian Association of Educational Research*, Freemantle, Australia.
- Conlon, T. (1997). The Internet is not a panacea. *Scottish Educational Review*, 29(1): 30-38.
- Ellis, A., Markham, S., Munro, J., and Sheard, J. (2002). Disseminating innovation and best practice in ICT education: The ICT -Ed database. *Proc. Nineteenth Annual Conference of the Australasian Society for Computers in Education (ICCE 2002)*, Auckland, New Zealand.
- Healey, M. (2000). Developing the scholarship of teaching in higher education: A discipline-based approach. *Higher Education Research and Development*, 19(2): 169-189.
- Hill, J. R. (2001). Building community in Web-based learning environments: Strategies and techniques. *Proc. Seventh Australian World Wide Web Conference (AusWeb 2001)*, NSW, Australia.
- Hurst, J., Lynch, J., Collins, F., and Markham, S. (2001). *Teaching ICT: Higher Education Division, Department of Education, Training and Youth Affairs*.
- Kawamura, C. (1999). *Virtual online communities*. Available: <http://www.soc.hawaii.edu.leonj/409as99/kawamura/report1.html> Accessed, 16 August 2003.
- King, C. and McSparran, M. (2002). Online teaching demands hands-on commitment. *Proc. Fifteenth Annual Conference of the National Advisory Committee on Computing Qualifications*, Hamilton, New Zealand, 49 -54.
- Kollock, P. (1998). Design principles for online communities. *PC Update*, 15(5): 58-60.

- Lynch, J., Sheard, J., Carbone, A., and Collins, F. (2002). The scholarship of teaching: Risky business in ICT education. *Proc. Australian Association of Research in Education (AARE 2002)*, Brisbane, Australia.
- Macdonald, I. (2001). The teaching community: Recreating university teaching. *Teaching in Higher Education*, **6**(2): 153-167.
- McLoughlin, C. (1999). Culturally responsive technology use: developing an on-line community of learners. *British Journal of Educational Technology*, **30**(3): 231-243.
- Preece, J. (2000). *Online Communities: Designing Usability, Supporting Sociability*: Wiley.
- Rovai, A. P. (2002). Building a sense of community at a distance. *International Review of Research in Open and Distance Learning*, **3**(1).
- Seufert, S., Lechner, U., and Stanoevska, K. (2002). A reference model for online learning communities. *International Journal of E-Learning*, **1**(1): 43-54, 66.
- Sheard, J., Postema, M., and Markham, S. (2001). Time versus utility: What IT staff say about the educational use of the Web. *Proc. EdMedia 2001*, Tampere, Finland, 1705-1711.
- Trigwell, K., Martin, E., Benjamin, J., and Prosser, M. (2000). Scholarship of teaching: A model. *Higher Education Research and Development*, **19**(2): 155-168.