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The potential affordances of enterprise wikis for creating community in research networks

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Abstract:

In this paper, we describe some of the affordances, (the specific enabling features or characteristics), of an enterprise wiki to meet the needs of a developing community of practice. The Social Innovation Network (SInet) is a nascent research network that spans the social sciences, education and commerce at the University of Wollongong. It will use the enterprise wiki software Confluence to assist in the development of communities of practice across its groups and sub-groups. This paper, describes some of the features of the software and how it might be used to perform some of the common activities identified by Wenger (nd) as contributing to the development of community.

Introduction

In the words of Etienne Wenger (nd), communities of practice are ‘groups of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly’ (para 3). Clearly, universities are places where academics, professionals, teachers, researchers and students engage everyday in the kinds of mutual learning and collaborative endeavour that form communities of practice. As noted by Wenger:

Communities of practice are everywhere. They are a familiar experience, so familiar perhaps that it often escapes our attention. Yet when it is given a name and brought into focus, it becomes a perspective that can help us understand our world better. In particular, it allows us to see past more obvious formal structures such as organizations, classrooms, or nations, and perceive the structures defined by engagement in practice and the informal learning that comes with it. (nd, para 13)

A key function of a community of practice is for members of various levels of expertise to learn the language of the culture and to absorb strategies that employ the social periphery, a process Lave and Wenger (1991) call *legitimate peripheral participation*. Such participation provides a ‘window onto practice’ (Brown & Duguid, 1993). There is growing evidence that technology can do much to enhance such community building and provide not only the virtual space for a community to function, but also provide a persistent record of knowledge and expertise. As noted by Strand, Utas and Lee (2004), technology alone cannot sustain a community of practice, but it can provide the affordances to enhance the collaborative endeavour of a group.

In this paper, we describe the rationale for the use of technology to facilitate the creation of a community of practice for a newly formed research network at the University of Wollongong: the Social Innovation Network (SInet). In order ‘to create better futures for people’, the members of the Social Innovation Network require time and space to develop new concepts, strategies and tools that empower individuals, communities, profit and non-profit organizations and the government. As SInet is committed to researching and promoting socially desirable outcomes that will improve the quality of life for

Australians, it is essential that strategies are employed that will facilitate the information flow between researchers with similar research interests, and provide support for multiple research projects and grants.

As noted by Owen, Grant, Sayers and Facer (2006), social software supports group interaction, and as SInet wishes to establish a constellation of communities (Wenger, 1998) within its membership, opportunities must be created for SInet members to interact with each other to reflect the pursuit of its joint enterprise – social innovation. The concept of communities of practice, which has evolved from Lave and Wenger's (1991) theory of situated learning, provides a useful framework through which to view and plan participation within the community of SInet. Rather than an individual approach to support and professional development, the focus is on a collective of members—learning as distributed across the diverse membership of the group (i.e., novice, intermediate, expert) (Wenger, McDermott & Snyder, 2002; Smith, 2003). In establishing these communities of practice, SInet members will not only be able to mutually engage in the social production of meaning, but will be able to jointly share in entrepreneurial, socially innovative research. It is evident that a collaborative platform is needed for SInet members to share ideas, concepts, problems, solutions, expertise, and networks within a collaborative online project space. This paper suggests that the use of groupware technologies in the form of an online enterprise wiki will facilitate the potential for SInet members to share knowledge and understanding within and across research nodes, while developing new concepts and expertise for multiple, inter-faculty, interdisciplinary research projects. In this paper, we describe a proposal to use a commercially available product, *Confluence*, to meet the needs of this nascent community, and to suggest the affordances of such a product in meeting a range of needs across the developing communities within SInet.

Social networking online

Lieberman and Grolnick (1998) claimed professional learning networks can link people together to create a sense of shared purpose and support. The Faculty of Education at the University of Wollongong has a history of supporting successful professional networks, largely facilitated through the Janison Learning Management System, such as a network for school counsellors in training. An online support network for beginning teachers known as BEST (*Beginning and Establishing Successful Teachers*) has also been developed, where neophyte teachers have access to forums, resources and the online support of experienced teacher mentors (Herrington, Herrington, Kervin & Ferry, 2006). This site has also been extended and customised to support Physical Education teachers (Herrington, Rowland, Herrington & Hearne, 2007). As SInet is a network that is still being established, the use of an online networking support tool would be significant and helpful to explicitly develop its aims. In addition to supporting specific collaborative endeavours, an online enterprise wiki would also be useful in supporting the sense of community that SInet endeavours to foster amongst its members within and amongst the research nodes of SInet.

The name ‘wiki’ is the Hawaiian word for ‘quick’; a wiki is a website that enables users to quickly contribute content (media, information, and knowledge) as well as read it. Wikis are a class of social software that facilitate online collaborative authorship and so are in principle highly appropriate for research groups. The best known example of the ability of wikis to quickly develop massive repositories of densely interconnected information is Wikipedia. Extending the wiki into an enterprise requires additional features that are also highly appropriate for large scale research networks like SInet. Additional features include: the support of multiple users, groups and teams with ‘fine-grained’ user permissions and privileges so that confidential content remains so, content can be viewed but not altered and so on. As medium and large scale enterprises tend to have IT infrastructure that is heterogenous, enterprise wikis need to be able to access a variety of information sources (email, database, application servers) from a range of vendors. Universities are certainly text book cases of large enterprises from the perspective of IT infrastructure. In addition, enterprise wikis should provide support for web services that enable content to be remotely updated, moved, processed and administered. This kind of functionality can be used in situations where research teams are working in outside organisations and are receiving updated information from the wiki, and are also remotely contributing information using web-enabled devices or laptops.

Using technology to assist the development of the SInet community

In order to meet the needs of SInet as a developing community, and to explore the considerable affordances of social software, the aims of this project are:

- To install and promote the use of *an online enterprise wiki* among SInet members
- To document and report on the diachronic development of a social network
- To research the usefulness and effectiveness of *the online enterprise wiki* in facilitating collaboration between researchers seeking to research and promote socially desirable outcomes.

A perennial problem for time-poor academics is coordinating face-to-face meeting times. An online enterprise wiki would facilitate online synchronous and asynchronous meetings to discuss innovations. This would not only be useful for developing research that relates to social innovation, but will also encourage the sharing of ideas relating to SInet conferences. An online enterprise wiki would allow SInet members to continually discuss what it means to be socially innovative and explore concepts such as ‘better futures for people’, ‘quality of life’, ‘empowerment’, and ‘social harmony’. It would also enable the research nodes within SInet to establish spaces whereby their current and future research can continue to be developed and promoted.

In seeking to develop interdisciplinary collaboration across SInet nodes, the professional software titled *Confluence* appears to provide the facility to provide for all of these needs and more (Clarke, 2006).

This commercial software has been developed and trialled over many years. Not only is it user-friendly, once the academic license is purchased, it enables 500 users to brainstorm new ideas, conceptualise innovations, use graphics to demonstrate mind-mapping, and upload and edit documents. As the *Confluence* software documents itself as all events occur, this project is significant and innovative because it is possible to study how a social network actually develops. It will thus be possible to research and document the development of community within and across nodes of activity within SInet, and to publish the results of how the social network or communication systems have evolved, and how *Confluence* has facilitated interdisciplinary collaboration within SInet.

The installation and proliferation of *Confluence* will be undertaken in several phases. The software will be installed and tested in late 2008, and promoted to SInet members through email, workshops and the regular fora. Important communications and opportunities will be disseminated through *Confluence* to encourage members to use the space initially as the professional development is occurring. Once the *Confluence* website is being used, research will be undertaken to explore its affordances (i.e., the specific enabling features or characteristics) to support communities of practice, and to examine its facility in SInet collaborations. The number of projects initiated and developed because of the connections provided by *Confluence* will be monitored and recorded. The spaces in *Confluence* would be initially constructed in two ways. Each SInet research node would be encouraged to create its own space, whereby the administrator for that node would add users to that space. Secondly, themes would be established, such as the interdisciplinary exploration of *Water*, and underline the problems, issues, and possible solutions within the *Confluence* interface. From there, comments, discussions, and ideas could be added organically and shared in the private, secure online space. This would continue the discussion about how SInet can facilitate interdisciplinary, inter-faculty social innovations.

Clarke (2006) has extensively reviewed the *Confluence* software. His professional report appears to support the proposal that this software will not only meet the various needs of SInet members, but go beyond expectations surrounding the innovations and collaborations that are possible. The *Confluence* website states that “*Confluence* is an enterprise wiki that makes it easy for your team to collaborate and share knowledge. Adding, sharing and finding content has never been easier” (<http://www.atlassian.com/software/confluence/> date accessed 23/5/2008). These two statements directly relate to the specific aims of SInet in order to design collaborative and innovative research projects that create better futures for people.

The features of *Confluence* include:

- Instant online editing of pages
- The use of notices, bulletins, news, and blogs
- The ability to link, tag, index, and cross-reference
- The ability to search everything (including attachments)
- Files are able to be attached and tracked
- Various types of files are able to be embedded with spaces
- Macros allow new navigational content structures to be created programmatically

- Supported by all major web browsers
- Pages can be created to use particular ‘themes’ or ‘skins’
- Qualitative analysis is possible by means of user-definable tags
- Available plug-ins for graphing, mind-maps, instant messaging, ratings, Google maps, invitations, theme builders, metadata, calendar, and more.
- Support of web services
- RSS feeds
- Email updates
- Technical support
- Ongoing software maintenance

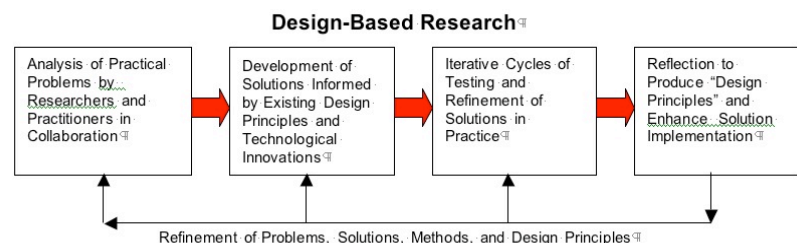
These features are not only sophisticated as well as easy to negotiate, but they will provide SInet users with a sense of purpose and collaboration. This is preferable to using free or shared software available from the web which provides no technical support and may have limitations such as: a lack of capacity to support multiple teams and projects, inability to support rich content or integrate well with other applications, or little or no consideration of how collaborative authorship works as a process (Clarke, 2006). While it may take an initial investment of personal time to learn how to use *Confluence*, it can be taken up very quickly as it has interactive demonstrations, a video tour, a testing space and an intuitive ‘what you see is what you get’ (WYSIWYG) interface.

An online enterprise wiki in use

How might the *Confluence* software support the research and development endeavours of a research network such as SInet? In Table 1, we present typical activities of its use in supporting a research project both within SInet and across nodes. The table provides some of the activities that communities engage in to develop their practice (Wenger, nd), together with some example questions and activities that might be found within a research network such as SInet.

In order to effectively explore the online enterprise wiki in use, we propose to use an iterative approach named Design-Based Research (e.g., Reeves, 2006) to research and evaluate the proposed initiative for SInet community building.

Figure 1: Design-Based Research



It comprises four phases and is conducted over the life of a project. The final outcome will comprise principles for the most effective use of enterprise wikis in community development and support.

Table 1: Example activities of a research network as community of practice

Activity (Wenger, nd)	Question	Use of enterprise wiki
Problem solving	Can we work on a solution to improve the employment opportunities of homeless youth?	Online editing of collaborative pages, searching, brainstorming using mind-mapping
Requests for information	Where can I find some more information on the Millennial Development goals?	Searching, Spaces (Global), Labels Attachments, Email, News Items, Email (Updates), User profiles
Seeking experience	Has anyone applied for a Linkage International grant before?	Searching, Spaces (Global), Labels Attachments, Email, News Items, Bulletins
Reusing assets	Does anyone have an instrument for a website evaluation that I could adapt for my project?	Attachments, Comments, Pages Links
Coordination and synergy	Can we combine our purchase of video analysis software across nodes to achieve a better price for the licence?	Spaces, Space and Page Watch (continually scan spaces and pages for changes and notify), Ping (notification that a another site has connected to a page in your purview), Forums, News Items, Calendar
Discussing developments	What do you think of the Research Online repository for publications? Is it worthwhile?	Comments, News Items, Forums, Ratings
Documentation of projects	We all need access to the documents of this project. Let's put them all online for anyone involved to download!	Space creation/editing, Edit History (Pages, Spaces), Change comments, Labels, Links
Visits	Let's work together to identify visiting scholars to work across the nodes.	RSS feeds, Email, Counters
Mapping knowledge and identifying gaps	How should we be promoting our achievements to the university and public? Who should we be connecting with?	Third party open source software: graphing, mind-maps, Google maps, qualitative theme builders

Potential issues/challenges

One of the challenges we face is whether we will be able to determine whether and how this initiative strengthens SInet. A comprehensive list of key performance indicators has been created to assess the extent and nature of the support provided to the community by the enterprise wiki. For example, we will monitor and assess the training of SInet members, conduct needs analysis for the whole group and each node, develop spaces within SInet to enable collaboration for particular needs, monitor the publication and dissemination outputs of the teams, and create design principles for other similar groups.

Conclusion

The communication needs of a community, and the activities that help to create community, can be facilitated by technology. We agree with Strand, Udas and Lee (2004) who stated that 'the ultimate success of a community of practice will be determined by the people who populate

it' (p. 888). However, we also believe that many of the key functions of community development and maintenance can not only be supported by technology, but also made more efficient and productive—and in the words of Wenger, 'learn how to do it better'. This three year pilot study of the affordances of *Confluence* will add to our understanding of how communities of practice use collaborative wiki software to accomplish their aims.

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