Communities of Practice

A Research Paper Prepared by OER Africa

OER Africa

Building African education capacity through openness

Communities of Practice

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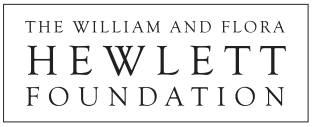

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Executive Summary

OER Africa embarked on a research project to consider the potential of using the concept of Communities of Practice (CoPs) as a strategy to further development of open education resources (OERs) in Africa. The term Community of Practice was coined by Etienne Wenger, who presents a social theory of learning. Wenger regards learning as social participation, a process of being active participants in the practices of social communities and constructing identities in relation to these communities. The term CoP has been used in various ways, and usually refers to informal networks that support people to develop shared meaning and engage in knowledge building.

In collating this research and various definitions of CoPs, the following key elements stand out as defining features: they are usually informal groups, co-located in the lived-in world, self-perpetuated, self-directed and self-motivated, where participants share a passion, common problems, similar goals and interests and hold similar beliefs and value systems. CoPs embody knowledge and facilitate knowledge sharing, where participants develop their shared practice by interacting around problems, solutions, and insights, as well as building a common store of knowledge. Learning is both an individual and social phenomenon allowing for shared, collaborative and democratic learning efforts, and is stimulated through participation, engagement, motivation and ownership. Thus, OER Africa was interested in considering this concept as a way of encouraging learning about OER as well as the development of open educational materials. OER Africa initially decided to explore the concept of CoPs through various case studies, and this paper further seeks to document the findings of research on these case studies and use the lessons gathered to inform OER Africa CoP initiatives.

The paper considers various definitions of CoPs, the history of the concept, and various characteristics of CoPs. Important to note is that CoPs can take different shapes, and vary across a number of dimensions – they can be small and tight knit or large and loosely connected. The paper also explains the process of learning in a CoP through 'legitimate peripheral participation'. In addition, various stages of community evolution are outlined. CoPs have been used in a myriad of ways – from large-scale use in business and organisational settings to use in education, health, and civic life, as well as for specific purposes such as knowledge management and professional development.

The concept of virtual CoPs has gained increasing popularity as technology and the Internet opens opportunities for faster and alternative means of communication. Consequently, researchers have looked at whether virtual CoPs can exist and how they can be used to assist in learning. The literature indicates its increased use in organisations, particularly those that are scattered over broad geographical areas. There are differences of opinion regarding whether web-based and text-based environments are conducive to allowing CoPs to emerge and operate as learning entities. Some authors believe that CoPs cannot be formed without a face-to-face meeting, while others argue that virtual CoPs, in their use of ICT, change the essential nature and character of a CoP, which poses challenges such as developing trust between participants in a context where there is no face-to face interaction and where using technology to communicate may result in the misinterpretation of messages in the absence of visual and verbal cues. Yet others say that virtual CoPs are possible if sufficient scaffolding is provided. These are important considerations given that OER Africa provides a virtual platform for knowledge dissemination and information sharing.

The paper also considers technology used for virtual CoPs and highlights the importance of not confusing the community with the technology platform – communities consist of people, while the platform supports their interaction. The paper emphasises that the focus of technology should be secondary to focusing on social, cultural and organisational issues. Some underlying principles that need consideration when choosing a technology platform are outlined, as well as a description of commonly used tools. The paper also highlights that technology used will depend

on the stage of development of the CoP – and thus technology may need to be adapted as the CoP develops. To be effective, technology needs to be customised and adapted to meet the needs of the CoP. The best tools will not result in a good CoP if members do not use them or find them difficult to use.

Although CoPs have been forming at a much slower rate in the education sector when compared to the business environment, it appears that they are used in a variety of ways in the higher education (HE) sector to achieve different purposes. The paper points to various uses of CoPs in HE, including providing opportunities for developing collaborative learning within higher education institutions (HEIs), between a HEI and the local community, for curriculum planning in the context of cross-border HE, to increase research development at HEIs, to provide a broader disciplinary context to prepare students for the workplace, and to address continuing professional development (CPD) of teachers by creating university–school partnerships framed on CoP principles.

In reflecting on the process of setting up and managing CoPs, the paper highlights differences of opinion regarding whether it is possible to design a CoP. Drawing on available literature, the paper presents key elements to consider in establishing and sustaining CoPs. Based on the research gathered, a number of criteria are identified to evaluate CoPs, incorporating an online element as well as a 'behind-the-scenes' element where the leaders, facilitators, and members are consulted in order to understand how the CoP is developing and specific challenges faced in order to obtain a more accurate holistic understanding of the CoP. These criteria can also be used to track the development of CoPs, and possibly as an evaluation and monitoring tool.

In exploring the concept of CoPs within OER Africa, various case studies were undertaken to determine the circumstances under which CoPs could and would be developed. This paper considers two such case studies: Skills for a Changing World and ACEMaths (see the appendices for detailed overviews of the case studies). Several barriers to participating in CoPs faced by those involved in African HE are highlighted, and the findings of the research point to the importance of a stable technology platform prior to the launch of a CoP, as well as a need to convince academics to use a technology platform – a platform that was new to many. The important lessons learnt were then applied to OER Africa's new attempt to develop a virtual CoP on Facebook. Several recommendations are made for facilitators to note in order to contribute to the success of this virtual CoP.

Communities of Practice

Introduction

Numerous studies have found that people form relationships or communities through informal networks, based on their common backgrounds or where they are located. The word community has become very popular, with every group sharing an interest on a website today being termed a community. However, not everything called a community is a Community of Practice (CoP). A neighbourhood, for instance, is often called a community, but is usually not a CoP.[1] A CoP is a specific kind of community that is focused on a domain of knowledge and, over time, accumulates expertise in this domain.[2] A CoP develops a shared practice by interacting around problems, solutions, and insights, as well as building a common store of knowledge.[3] Much research describes CoPs that have been formed inside large organisations. These are generally made up of groups of people who have worked together over a period and who, through informal discussion, develop a common sense of purpose and a need to share work-related stories and experiences.

In recent years, there has been growing interest in the concept of CoPs. Internet searches on the term CoP reveal its increasing popularity as a term, evidenced by the number of articles, blogs, and forums that such searches yield.

This paper provides various definitions of CoPs in order to develop an understanding of the concept. It describes various characteristics of CoPs, and outlines examples of how the concept is used. It briefly considers how CoPs are being used in higher education. It then considers technologies used to facilitate CoPs, and explores what is involved in their establishment and management. This is based largely on available research on CoPs, but also draws on data gathered from reviewing some virtual CoPs. These are:

- A knowledge management CoP;
- A multi-ethnic professionals CoP; and
- A religious CoP

Based on observing the above CoPs, as well as the desktop research, criteria for evaluating CoPs were developed, which provide a basis for exploring and defining how CoPs can be effectively used to support OER development and HE in Africa. In addition, two case studies of OER projects that are currently placed on OER Africa's site were examined. They form the basis of understanding whether virtual CoPs can be used to support open education resource (OER) development and use in HE in Africa. The limitations that those involved in HE in Africa may face in participating in CoPs were also highlighted, together with some findings on the readiness of African academics to participate in online communities of practice.

Definitions of Communities of Practice

There are many discussions on the definition and existence of CoPs on the Internet. The purpose of this document is not to single out a definition of CoPs, but to note some of the characteristics that, according to the literature, are found in a CoP. The following definitions help us to understand better what this concept means.

The term 'communities of practice' was coined by Etienne Wenger, who defines CoPs as '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'.[4] Wenger adds that CoPs are formed by people who engage in a process of collective learning in a shared domain of human endeavor: for example, a tribe learning to survive, a band of artists seeking new forms of expression, a group of engineers working on similar problems, a clique of pupils defining their identity in the school, a network of surgeons exploring novel

1 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008. from http://www.ewenger.com/tech
2 Ibid
3 Ibid
4 Wenger, E. Communities of practice. Communities of practice: A brief introduction. Retrieved May 21, 2008, from http://www.ewenger.com/theory/

techniques, or a gathering of first-time managers helping each other cope.

There are three important things in this definition: groups of people **[community]**, *domain [a passion for* **something***] and practice [***do** *it better as they interact regularly]. CoPs are not once-off occurrences that happen at meetings or conferences, but they grow and develop over time.*[5]

Johnson-Lenz, from Awakening Technology, defines a CoP as 'a group of professionals, informally bound to one another through exposure to a common class of problems, common pursuit of solutions, and thereby themselves embodying a store of knowledge'.[6]

The Learning through Collaborative Visualization (CoVis) project refers to CoPs as 'groups of people who share similar goals and interests. In pursuit of these goals and interests, they employ common practices, work with the same tools and express themselves in a common language. Through such common activity, they come to hold similar beliefs and value systems.'[7]

An article in FORTUNE Magazine (1996) referred to CoPs as:

Groups that learn, communities of practice, have special characteristics. They emerge of their own accord: Three, four, 20, maybe 30 people, find themselves drawn to one another by a force that's both social and professional. They collaborate directly, use one another as sounding boards, teach each other. Communities of practice are the shop floor of human capital, the place where the stuff gets made.[8]

Bauer from IdeaScope sees a CoP as 'a diverse group of people engaged in real work over a significant period of time during which they build things, solve problems, learn and invent...in short, they evolve a practice that is highly skilled and highly creative.'[9]

Sharp (1997) describes a CoP as a 'special type of informal network that emerges from a desire to work more effectively or to understand work more deeply among members of a particular speciality or group'.[10]

The Improvement and Development Agency in the UK defines a CoP as 'a network of individuals with common problems or interests who get together and explore ways of working to identify common solutions and share good practice and ideas, typically around a specific area of knowledge'.[11]

Tremblay (2004) outlines two other useful definitions:

- CoPs are people who share a concern, a set of problems or a passion about a topic and deepen their knowledge and expertise in this area by interacting on an ongoing basis; and
- A group whose members regularly engage in sharing and learning, based on their common interests.[12]

It is clear from these descriptions that recurring emphasis is placed on two primary characteristics: the informal nature of the relationships and the sharing of knowledge or experience. These communities could be engineers who design brakes, artists who congregate in a café to talk about artistic genres and styles, or nurses who gather at lunch and talk about their experiences. They are typically groups who discuss insights,

5 Sidnick, D. (2008, August 7). Darren Sidnick's Learning and Technology. Retrieved October 22, 2008, from http://darrensidnick.blogspot.com/2008/08/communities-of-practice-cops-with-nancy.html

6 Johnson-Lenz, P. &. T. Community of Inquiry and Practice. *Awakening Technology*. Retrieved June 18, 2008, from http://www.awakentech.com/at/Awaken.nsf/d4cbbb795713bdee882564640074729d/4b21a4c71b4bf809882564a8007baa21!OpenDocument

7 Communities of Practice. CoVis: learning Through Collaboration. Retrieved June 18, 2008, from http://www.covis.northwestern.edu/info/philosophy/communities-of-practice.html

8 Stewart, T. A. The invisible key to success shadowy groups called communities of practice are where learning and growth happen. You can't control them – but they're easy to kill. August 5, 1996. *FORTUNE*. Retrieved June 18, 2008, from http://money.cnn.com/magazines/fortune/fortune_archive/1996/08/05/215440/index.htm

9 Bauer, R. Customer-inspired Innovation: Creating the Future. *ideascope*. Retrieved June 18, 2008, from http://www.ideascope.com/info/resources.aspx

10 Sharp, J. (1997, March 12). Communities of Practice: A Review of Literature. Retrieved May 21, 2008, from http://www.tfriend.com/cop-lit.htm

11 Improvement and Development Agency. Communities of Practice. Retrieved October 15, 2008, from http://www.idea.gov.uk/idk/core/page.do?pageId=8152674

12 Tremblay, D. (2004). Virtual Communities of Practice: Towards New Modes of Learning and Knowledge Creation? Retrieved October 29, 2008 from http://www.teluq.uquebec.ca/chaireecosavoir/pdf/NRC04-05A.pdf

share information, and solve problems collaboratively. In some instances, they may even develop tools and frameworks that become part of the common knowledge of the community, hence building up a shared body of knowledge and a sense of identity. In some cases, CoPs are necessarily multidisciplinary and 'virtual'.[13]

The basic argument made by Lave and Wenger (1991) is that CoPs are everywhere, and we are generally involved in a number of them – whether that is at work, school, home, or in our civic and leisure interests. Lave and Wenger originally described a CoP as 'a set of relations among persons, activity and world, over time and in relation with other tangential and overlapping Communities of Practice':[14]

Being alive as human beings means that we are constantly engaged in the pursuit of enterprises of all kinds, from ensuring our physical survival to seeking the most lofty pleasures. As we define these enterprises and engage in their pursuit together, we interact with each other and with the world and we tune our relations with each other and with the world accordingly. In other words we learn.

Over time, this collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise. It makes sense, therefore to call these kinds of communities, communities of practice. (Wenger 1998)[15]

Much of the literature highlights the many positive aspects of CoPs. However, Wenger (2000) warns that they should not be over romanticised:

They are born from learning, but they can also learn not to learn. They are cradles of the human spirit, but they can also be in cages. After all, witch-hunts were also community practices.[16]

History of Communities of Practice

The term 'community of practice' was coined relatively recently, but the phenomenon it refers to is age-old and social scientists have discussed it in various guises.[17] The term itself was introduced in 1991, when Jean Lave and Etienne Wenger used it to explore the idea of situated learning.[18] They investigated the activities of groups of non-drinking alcoholics, quartermasters, butchers, tailors in Goa, and midwives in the Yucatan. The learning that takes place through working practices is what linked these groups – for example, an apprenticeship where an employee learns skills 'on the job'.[19] This model proposes that learning involves a process of engagement in a 'community of practice'.[20]

In other research it is noted that the concept was pioneered by the Institute for Research on Learning, a spin-off of the Xerox Corporation in Palo Alto, California. The Institute pursues a cross-disciplinary approach to learning research, involving cognitive scientists, organisational anthropologists and traditional educators.[21]

Interest in CoPs grew throughout the 1990s, with several attempts made to re-define CoPs in a way that was suited to the commercial environment.

13 Communities of Practice. Retrieved October 22, 2008, from www.unodc.org/pdf/india/cop.pdf

14 Communities of Practice: a social aspect to virtual worlds? Retrieved May 22, 2008, from http://www-users.cs.york.ac.uk/~kimble/teaching/mis/Communities_of_Practice.html

15 Lave, J., & Wenger, E. Communities of Practice. Retrieved June 17, 2008, from http://www.infed.org/biblio/communities_of_practice.htm

16 Wenger, E. Communities of practice. Communities of practice: A brief introduction. Retrieved May 21, 2008, from http://www.ewenger.com/theory/

17 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech

18 Lave, J., & Wenger, E. Communities of Practice. Retrieved June 17, 2008, from http://www.infed.org/biblio/communities_of_practice.htm

19 Hildreth, P., & Kimble, C. Knowledge Networks: Innovation through Communities of Practice. . Retrieved June 20, 2008, from http://www.chris-kimble.com/KNICOP/Chapters/Introduction.html

20 Lave, J., & Wenger, E. Communities of Practice. Retrieved June 17, 2008, from http://www.infed.org/biblio/communities_of_practice.htm

21 Communities of Practice. Retrieved October 22, 2008, from www.unodc.org/pdf/india/cop.pdf

One of the most widely cited business-related definitions was offered by John Seely Brown and Estee Solomon Gray, in their 1995 article called 'The People are the Company':

At the simplest level, they are a small group of people…who've worked together over a period of time. Not a team, not a task force, not necessarily an authorized or identified group…they are peers in the execution of 'real work'. What holds them together is a common sense of purpose and a real need to know what each other knows.[22]

In 1998, Wenger again began to explore CoPs in business. The results of an ethnographic study of a claims processing unit in an insurance company showed that CoPs were formed through joint engagement in a shared enterprise and that these CoPs exploited a selection of common resources. Wenber claimed that the CoPs he studied arose out of a need to accomplish particular tasks in the organisation, hence providing learning avenues for the people involved. His view of a business is one that constitutes a number of interrelated CoPs that can spread beyond the borders of a company.[23]

With rapid advancements in information and communication technology (ICT), there has been increasing interest in examining how technology might support CoPs, leading to the subsequent development of virtual CoPs. This concept is explored in more detail below.

Characteristics of a Community of Practice

There are three characteristics regarded as crucial in a CoP: domain, community, and practice. It is the combination of these three elements that constitutes a CoP. By developing these three elements in parallel, one cultivates a CoP.[24]

Wenger (1998) explains these three characteristics of a CoP:

The domain: *A community of practice is not merely a club of friends or a network of connections between people. It has an identity defined by a shared domain of interest. Membership therefore implies a commitment to the domain, and therefore a shared competence that distinguishes members from other people. [You could belong to the same network as someone and never know it.] The domain is not necessarily something recognised as 'expertise' outside the community. A youth gang may have developed all sorts of ways of dealing with their domain: surviving on the street and maintaining some kind of identity they can live with. They value their collective competence and learn from each other, even though few people outside the group may value or even recognise their expertise.*

The community: *In pursuing their interest in their domain, members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other. A website in itself is not a community of practice. Having the same job or the same title does not make for a community of practice unless members interact and learn together. The claims processors in a large insurance company or students in high schools may have much in common, yet unless they interact and learn together, they do not form a community of practice. But members of a community of practice do not necessarily work together on a daily basis. The Impressionists, for*

22 Kimble, C., & Hildreth, P. Communities of Practice: Going One Step Too Far? Retrieved June 23, 2008, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=634642#PaperDownload

23 Kimble, C., Hildreth, P., & Wright, P. (2001). Communities of Practice: Going Virtual. Idea Publishing Group. Retrieved June 23, 2008, from http://www.cs.york.ac.uk/mis/docs/kmbmichapter.pdf

24 O'Regan, L., Muireann O'Keeffe, & Cashman, D. Building Communities of Practice (CoP). Retrieved October 16, 2008, from www.intrallect.com/index.php/intrallect/content/download/821/3480/file/Building%20Communities%20Of%20Practice.ppt

instance, used to meet in cafes and studios to discuss the style of painting they were inventing together. These interactions were essential to making them a community of practice even though they often painted alone.

The practice: *A community of practice is not merely a community of interest – people who like certain kinds of movies, for instance. Members of a community of practice are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems – in short a shared practice. This takes time and sustained interaction. A good conversation with a stranger on an airplane may give you all sorts of interesting insights, but it does not in itself make for a community of practice. The development of a shared practice may be more or less self-conscious. The 'windshield wipers' engineers at an auto manufacturer make a concerted effort to collect and document the tricks and lessons they have learned into a knowledge base. By contrast, nurses who meet regularly for lunch in a hospital cafeteria may not realise that their lunch discussions are one of their main sources of knowledge about how to care for patients. Still, in the course of all these conversations, they have developed a set of stories and cases that have become a shared repertoire for their practice.*[25]

Iverson and McPhee (2000) discuss this in more detail:

Mutual engagement *comes from the interaction of members. By interrelating, members are motivated to negotiate their practices and the meanings of their actions. Mutual engagement identifies a condition similar to connection in a network, but describes such relation as grounded in common interest and activity, rather than mere interaction.*

Negotiation of a joint *enterprise gives a sense of coherence and purpose to the community of practice. Members interact to define significance, shape practices, and react to a larger context. This process creates more than just a stated goal, but creates among participants relations of mutual accountability that become an integral part of the practice.*

A **shared repertoire** *is the community of practices set of resources for negotiating meaning. Stories, jargon, theories, forms and other resources form a stock of understood information and techniques that can be utilized by members.* [26]

Rosabeth Moss Kanter (2001) identified seven elements that are contained in the community ideal, which show similarities to the characteristics identified by Wenger:

- **Membership:** When there are members, differences disappear, and connections transcend roles. People feel an obligation to fellow members that they may not feel to fellow workers.
- **Fluid boundaries:** Communities are loose aggregations. There may be a formal core that is organised and firm, but around that core are people who come and go, move in and out, and become more active on some occasions, less active on others.
- **Voluntary action:** There is a voluntary quality to the actions taken by the community members. They do more than in their jobs, because they want to.
- **Identity:** Community is an idea, not a geographical location. A community exists because many people think it does and define themselves as part of it.
- **Common culture:** Shared understandings, a common language and disciplines, permit a relatively seamless interchangeability of one for another.

25 Wenger, E. Communities of practice. Communities of practice: A brief introduction. Retrieved May 21, 2008, from http://www.ewenger.com/theory/

26 Erasmus, R. The impact of communities of practice - on inter-firm alliance research terms. Retrieved June 20, 2008, from http://etd.unisa.ac.za%2FETD-db%2Ftheses%2Favailable%2Fetd-05312006-085451%2Funrestricted%2Fthesis.pdf&ei=PLJbSNSLCYOqigHP4umXDA&usg=AFQjCNF4uP_WdJkHw2B-xuZbkZoZ9-4puw&sig2=wL0oFHCcrS3mF33EerDlPw

- **Collective strength:** Communities tap the power of many.
- **Collective responsibility:** Service to the community as a community can be a unifying force in addition to its pragmatic benefits as a workforce motivator.[27]

Wenger highlights that CoPs can take very different shapes, varying across a number of dimensions. They can be tight-knit and small or loosely connected and large.[28] Others, such as Bolliger, note that a CoP requires a critical number of active members or it will fade away.[29]

CoPs and learning

Lave and Wenger regard a CoP as 'an intrinsic condition for the existence of knowledge'.[30] They see acquisition of knowledge as a social process where people participate in communal learning at different levels, depending on their level of authority or seniority in the group; newcomers learn from old-timers by being allowed to participate in certain tasks that relate to the practice of that community. New members who join may lurk and observe the experienced members by being peripheral participants. Through various opportunities of community engagement in the practice, they begin to acquire the skills, knowledge, and language of the community. Thus, over time, the newcomer moves from peripheral to full participation. Learning does not take place as narrow situated learning but as legitimate peripheral participation.[31] Through mutual engagements, the members appropriate an identity closer to those of the central core members with time.[32]

This concept of 'legitimate peripheral participation' is complex. Lave and Wenger (1991) explain that the three elements – of legitimation, peripherality, and participation – cannot be considered in isolation as they depend on each other. Legitimation is concerned with power and authority relations in the community. In the studies, legitimation is not necessarily formal. For quartermasters, tailors and butchers, for example, there is some degree of formal legitimacy from hierarchy and rank, but for midwives and alcoholics legitimacy is more informal.[33] Legitimation refers to authority and power distribution within a social setting, and indicates that a community is willing to accept a newcomer as a member of the community provided that she or he adheres to behaviour that is expected from a member of the community. However, becoming a member is not a formal process like being appointed, but rather a process of growing into the role of full membership along with its rights, responsibilities and capabilities. This process of growing into the role is supported by starting in the periphery rather than in the centre of activity.[34]

Participation provides the key to understanding communities of practice:

A community of practice does not necessarily imply co-location, socially visible boundaries or a well-defined or identifiable group. It does however imply participation in an activity where participants have a common understanding about what it is and what it means to their lives and community. The community and the degree

27 Erasmus, R. The impact of communities of practice - on inter-firm alliance research terms. Retrieved June 20, 2008, from http://etd.unisa.ac.za%2FETD-db%2Ftheses%2Favailable%2Fetd-05312006-085451%2Funrestricted%2Fthesis.pdf&ei=PLJbSNSLCYOqigHP4umXDA&usg=AFQjCNF4uP_WdJkHw2B-xuZbkZoZ9-4puw&sig2=wL0oFHCcrS3mF33EerDlPw

28 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech

29 Bolliger, E., & Flury, M. (2007). CoP Manifesto. Retrieved October 16, 2008 from http://www.communityofpractice.ch/en/Home/media/CoP%20Manifesto%20Web.Eng.pdf

30 Lave, J and Wenger, E (1991). Situated learning. Legitimate peripheral participation. Cambridge: Cambridge University Press p.98. From Kimble, C., Hildreth, P., & Wright, P. (2001). Communities of Practice: Going Virtual. Idea Publishing Group. Retrieved June 23, 2008, from http://www.cs.york.ac.uk/mis/docs/kmbmichapter.pdf

31 Kimble, C., Hildreth, P., & Wright, P. (2001). Communities of Practice: Going Virtual. Idea Publishing Group. Retrieved June 23, 2008, from http://www.cs.york.ac.uk/mis/docs/kmbmichapter.pdf

32 Meng, K. Y. (2005). Design for a Community of Practice for ICT Heads of Department. Retrieved October 24, 2008 from www.formatex.org/micte2005/228.pdf

33 Kimble, C., Hildreth, P., & Wright, P. (2001). Communities of Practice: Going Virtual. Retrieved October 28, 2008, from www.chris-kimble.com/Publications/Documents/Kimble_2001b.pdf

34 Lueg, C. Where is the Action in Virtual Communities of Practice? Retrieved October 29, 2008, from www-staff.it.uts.edu.au/~lueg/papers/commdcscw00.pdf

of participation in it are inseparable from the practice.[35]

The concept of 'peripherality' should not be viewed as a physical concept as in 'central and peripheral' nor as a measure of the amount of knowledge that has been acquired. The terms peripheral and full participation are used to denote the degree of engagement with and participation in the community. Lave and Wenger (1991) note that peripherality 'must be connected to issues of legitimacy of the social organisation and control over resources if it is to gain its full analytical potential' (Lave & Wenger, 1991, p.37).[36]

According to Leug, the term 'communities of practice' refers to a theory that builds on learning as social participation. From this perspective, social participation is not just engaging in certain activities, such as working in a team, but actively participating in the practices of social communities and constructing identities in relation to these communities. Social participation not only shapes what participants do, but also how they perceive themselves and how they understand what they are doing.[37] Learning in communities of practice is situated learning; it involves learning that is not codified because it occurs at the time and place in which actual tasks are performed. In other words, the social practice and activities that underpin the practice are fundamentally interwoven with cognition and learning.[38]

The new member is able to observe how more experienced members perform tasks and how they deal with problems, but the new member is not yet expected to be able to perform on a similar level. Rather, the new member might work on simplified versions or sub-tasks of complex tasks. It is important that, despite periphery and reduced responsibilities, the new member is participating in ongoing activities.[39] When looking at CoPs in relation to learning, Hara and Hew (2006) note that Wenger delineates four main characteristics that distinguish learning in a CoP: practice, community, meaning, and identity. First, learning takes place in practice. Second, learning occurs by being a member of a community; being a member implies a minimum level of knowledge of that domain – a shared competence that distinguishes members from other people. Third, learning is a part of experience and, as a result, becomes meaningful. Fourth, through practice and meaningful learning in a community, a member of such a community develops an identity. Members of a CoP engage in joint activities and discussions, help each other, and share information. Through such interactions, they form a community around their domain and build relationships with one another.[40]

The literature often refers to lurkers, people who follow Internet discussions in a CoP without participating actively. Whilst initially their role was regarded as negative, it is now recognised that they can convey ideas from the CoP to their colleagues; thus, for example, they can serve a valuable lobbying function for the CoP by taking indirect responsibility for recognition of results.[41]

Stages of community evolution

Wenger sees communities of practice as progressing through five stages – potential, coalescing, active, dispersed, and memorable – with levels of interaction and types of activities varying across the stages. Members' interaction within the community generally increases through the active level and then declines through the

35 Kimble, C., Hildreth, P., & Wright, P. (2001). Communities of Practice: Going Virtual. Idea Publishing Group. Retrieved June 23, 2008, from http://www.cs.york.ac.uk/mis/docs/kmbmichapter.pdf

36 Kimble, C., Hildreth, P., & Wright, P. (2001). Communities of Practice: Going Virtual. Retrieved October 28, 2008, from www.chris-kimble.com/Publications/Documents/Kimble_2001b.pdf

37 Lueg, C. Where is the Action in Virtual Communities of Practice? Retrieved October 29, 2008, from www-staff.it.uts.edu.au/~lueg/papers/commdcscw00.pdf

38 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences.Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

39 Lueg, C. Where is the Action in Virtual Communities of Practice? Retrieved October 29, 2008, from www-staff.it.uts.edu.au/~lueg/papers/commdcscw00.pdf

40 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

41 Bolliger, E., & Flury, M. (2007). CoP Manifesto. Retrieved October 16, 2008 from http://www.communityofpractice.ch/en/Home/media/CoP%20Manifesto%20Web.Eng.pdf 8

dispersed stage, and pretty much disappears at the memorable level, although memories, stories, and artefacts of the community remain.[42]

McDermott views communities as living, human institutions that 'form spontaneously, grow, mature, change, age and die.' He uses this life-cycle perspective to describe five stages of community development, similar to Wenger's model but with more elaboration of the tensions and challenges that stimulate the community to develop and renew itself and eventually lead to the death of the community. Mc-Dermott's series of stages include: plan, start-up, grow, sustain/renew, and close.[43]

Gongla and Rizzuto (2001) define five stages of CoP development, which they refer to as 'community evolution model definitions':

- **Potential:** This is when a community is forming, and it is a 'prebirth' stage, with a core made up of individuals with something in common related to their work or interest, but the individuals have not discovered fully yet what that commonality is or how far it extends. At this stage, the key function is connection. Individuals who form this core must be able to locate one another, then communicate, and form relationships. A small group of individuals is sufficient to start the process and prepare for movement to the next stage.
- **Building:** During this stage, the CoP defines itself and formalises its operating principles. The initial core members, as a group, begin to define what the community is going to be and how it is going to build and they announce its existence. This core group of members begin to create a structure and processes for how the community will operate, and how the members will work together over time. At this stage, context creation and memory are the most important functions. The core members create things together, build a common understanding of what the community is and what it is not, why it is forming, and how it will function. The community then 'remembers' those things, putting them to use over time. Through this process, it begins a shared history. The core group of individuals begin to recognise what it means to be a member of the community and can then, in turn, recognise and reach out to other potential community members.
- **Engaged**: During this stage, the community implements and improves its processes. It operates with a common purpose, and functions on a sustainable basis. The structure and processes designed in the preceding stage are put into action, and the community increases in size and complexity. The primary purpose at this stage is access to one another as community members and to what the group knows are primary functions. Since the community is running, with individuals playing their roles and executing processes, the community is learning a great deal about itself as an ongoing entity and is also learning more about the environment in which it operates. It starts to use what it learns to adjust and improve. At this stage, the community starts to develop its capability to leverage its explicit and tacit knowledge.
- **Active:** During this stage, the community understands and demonstrates benefits from knowledge management and the collective work of the community. The community reflects, analyses, and starts to understand, define, and assess the value of what it is doing and what it is contributing to its membership and to the organisation. The community further extends its membership and builds relationships to other communities. The primary function at this stage is collaboration. Members work together to build and sustain the community, and work together to solve business problems and to exploit business opportunities. They leverage each other's and the community's shared knowledge to carry out work external to the community. It becomes the community's responsibility to pool knowledge and work together to address issues presented to it by the organisation. Community members further collaborate to assess the value of what the community is doing and to publicise it to the larger

42 Gongla, P., & Rizzuto, C. R. (2001). Evolving communities of practice: IBM Global Services experience. *IBM Systems Journal*, *40*(4), 842-862.

43 Ibid

organisation. This promotes an understanding of the need for and distinct benefit from the community's knowledge and work throughout the larger organisation.

- **Adaptive:** During this stage, the community and its supporting organisation(s) use knowledge for competitive advantage. The community moves to a level where it senses and responds to external conditions. It can adjust continuously to create knowledge and to set up the new structures and processes it needs for leveraging its knowledge to compete effectively and to influence – and potentially redefine – its environment. The community may also expand into new environments. At this stage, the community innovates and generates, creating significant new business objects – new solutions, new offerings, new methods, new processes, and new groups. The community identifies, influences, and even creates trends in its area of expertise. The community's innovation affects not just its members and the immediate domain within which it operates, but also other parts of the organisation and external agencies.[44]

Communities may stay at certain stages and not evolve to another level, move 'backward and forward' between stages, have some characteristics of one stage while they are still primarily at another stage, or 'rest' for extended periods at one stage and then suddenly evolve quickly to another stage. The community's evolution through these stages can be advanced or arrested – depending on the attention paid by the group to laying a foundation at each stage of development. Initially, this action may not impact the immediate performance of a community. However, if a community wants to increase its effectiveness or aspires to a more advanced stage, it usually needs to return to restructure or build elements from earlier stages that may have been neglected. Gongla and Rizzuto (2001) hypothesise that few communities ever reach or sustain themselves as a community at the adaptive stage. They argue that, particularly in a business setting, the work being done by the community becomes too important to the organisation for it to allow the CoP to continue as a self-governing body. There is thus a likelihood that the organisation will want more control and essentially convert the community into an organisational unit.[45]

Examples of Application and Use of the Concept of CoPs

The concept of CoPs has found a number of practical applications in business, organisational design, education, and civic life.[46] It is currently being applied in different ways, being experimented with in knowledge management, business and professional associations, and also being used in virtual settings. A search for research on CoPs reveals a variety of setting in which the concept is being used, for example:

To analyse Heplink, a network of hepatitis C workers. Initially established in 1991 as a support group for workers, Heplink grew into a network which shares information and resources, provides learning opportunities, and fosters collaboration. The network currently has over 150 members and an active email 'listerv' which serves as an information exchange and contact point for members:[47]

- To improve the speed and quality of innovations, implement packaging technology, lead cost effectiveness and practice packing synergy across businesses in a packaging community;[48]
- To connect patients in patient communities, for example, 'pro-ana' sites that connect girls with anorexia. This movement believes that anorexia is a lifestyle and not a disease;[49]

44 Gongla, P., & Rizzuto, C. R. (2001). Evolving communities of practice: IBM Global Services experience. *IBM Systems Journal*, *40*(4), 842–862.

45 Ibid

46 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008. from http://www.ewenger.com/tech

47 Communities of Practice. Retrieved October 22, 2008, from www.unodc.org/pdf/india/cop.pdf

48 Murty, K. S. Building and Sustaining Communities of Practice. Retrieved October 15, 2008, from http://www.kwork.org/White_Papers/communities.html

49 http://community.livejournal.com/proanorexia

- To develop an engineering education research CoP through a structured workshop curriculum. The week-long workshops were used as an opportunity to focus on engineering education research questions of personal interest while building a CoP that extended beyond the workshop;[50]
- To facilitate and support lifelong learning activities of employers and employees in small and medium sized enterprises (SMEs) in the tourist sector. The Work & Learn Together (WLT) project developed guidelines in order to support people who have the responsibility to engage SMEs within the hospitality sector in virtual CoPs;[51]
- To nurture a CoP among a group of ICT Heads of Department (HODs) from schools. The National Institute of Education and the Ministry of Education (MoE) Singapore facilitated a CoP among a group of HODs ICT attending the Diploma of Departmental Management (DDM) course.[52]

The following section provides further examples of how CoPs are being used in knowledge management, organisations and businesses, and virtually.

Knowledge management

CoPs have become a feature of knowledge management literature in recent years as their application to business has received greater attention.[53] Increasingly, companies and public institutions turn to the implementation and 'cultivation' of CoPs, both to capitalise knowledge as a 'key to success in a global economy' (Wenger, McDermott & Snyder, 2002) and to improve the experience and knowledge of their employees.[54]

Knowledge is the understanding that people develop as they react to and use information, either individually or as an organisation.[55] Tacit knowledge generally refers to the internal information, thought processes, experiences, and accumulated knowledge (know-how) that is held in the minds of individuals. Explicit knowledge refers to more formally articulated codified information such as books, journals, documents, legislation, visual and audio recordings, digitised text, email, and the Worldwide Web.[56] Tacit knowledge is a vital component of knowledge in any system, and knowledge management is especially interested in turning tacit knowledge into explicit knowledge and back into tacit knowledge in an increasing cycle of growth and renewal.[57] A key challenge in knowledge management is to find ways to structure and record tacit knowledge so that it becomes explicit. This is generally to ensure that significant value is not lost when people move on from an organisation. Knowledge management is the attempt to improve or maximise knowledge usage in an organisation or system,[58] and part of this strategy involves creating CoPs. Thus, CoPs are considered as one method of sharing and consolidating tacit knowledge.

Kimble and Hildreth, who studied CoPs in the context of knowledge management, use the terms hard and soft knowledge and argue that too often knowledge management emphasises hard over soft knowledge. Hard knowledge, they say, is something that can be clearly and fully expressed; it can be formalised, structured, and 'owned' without being used. By contrast, soft knowledge is implicit and unstructured; it 'is the sort of knowledge that cannot be easily

50 Borrego, M., Streveler, R., Chism, N., Smith, K., & Miller, R. (2006). Developing an Engineering Education Research Community of Practice through a Structured Workshop Curriculum. American Society for Engineering Education. Retrieved October 24, 2008 from http://cee.mines.edu/ASEE05_RREE_vfinal.pdf

51 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

52 Meng, K. Y. (2005). Design for a Community of Practice for ICT Heads of Department. Retrieved October 24, 2008 from www.formatex.org/micte2005/228.pdf

53 Hinton, B. (2003). Knowledge Management and Communities of Practice: an experience from Rabobank Australia and New Zealand. In Cancun, Mexico. Retrieved October 16, 2008, from www.ifama.org/conferences/2003Conference/papers/hinton.pdf

54 Daele, A., Deschryver, N., Gorga, D., & Künzel, M. (2007). Managing Knowledge within Communities of Practice: Analysing Needs and Developing Services, eLearning Papers. www.elearningpapers.eu

55 Butcher, N. (2007). Knowledge Management Strategies for Distance Education. The Knowledge Series. Commonwealth of Learning: Vancouver

56 Hinton, B. (2003). Knowledge Management and Communities of Practice: an experience from Rabobank Australia and New Zealand. In Cancun, Mexico. Retrieved October 16, 2008, from www.ifama.org/conferences/2003Conference/papers/hinton.pdf

57 Ibid

58 Butcher, N. (2007). Knowledge Management Strategies for Distance Education. The Knowledge Series. Commonwealth of Learning: Vancouver

articulated. It is about what we do and can only be acquired through experience.'[59] They argue that the two cannot exist without each other, and that knowledge is a 'duality' consisting simultaneously of both hard and soft knowledge. Viewing knowledge in this way allowed them to make a link between knowledge management and CoPs.

Wenger (1998) identifies two key processes that formed a duality: participation and reification. He describes participation as:

The social experience of living in the world in terms of membership in social communities and active involvement in social enterprises.[60]

Reification is defined as:

The process of giving form to our experience by producing objects that congeal this experience into thingness.[61]

These concepts are seen as a way to manage knowledge. In their day-to-day activities, people can participate in shared activities, and present or reflect that participation to the external world by producing artefacts.

Several other authors have used this idea to identify specific quantifiable business benefits that can be associated with CoPs. Bolliger and Flury go so far as to say that knowledge management in a learning organisation is virtually unthinkable without active CoPs, and that the sharing of information, knowledge, and experience that take place in CoPs is vital for an organisation. They also note that CoPs are typically independent of formal organisational structures, transcend hierarchical structures, and frequently include people from outside one's own organisation.[62]

CoPs in the workplace

As highlighted above, CoPs are currently used by business and organisations as a knowledge management tool. CoPs provided a new approach, focused on the social structures that could assume ownership for complex and dynamic knowledge with substantial tacit components. Wenger argues that a number of characteristics make CoPs a natural fit with business.

CoPs are not separate units, but they pervade the organisation, since people belong to CoPs at the same time as they belong to their business units or teams.

They address the informal and tacit aspects of knowledge creation and sharing, in addition to the more explicit aspects.

They allow a much closer connection between learning and doing, while still providing structures where learning can accumulate.

In an era of globalisation, they create connections among people across institutional boundaries and potentially across the globe. This allows the knowledge of an organisation to exist in a number of CoPs each taking care of a specific aspect of the competence that the organisation needs.[63]

To participate effectively in the knowledge economy as 'knowledge workers', individuals need to apply and add to their own bodies of knowledge continuously. They do this by finding ways to participate on a day-to-day basis in a flow of knowledge that consists not only of dissemination of data and printed material, but also through the exchange of ideas with others with experience and skill related to the same area of work. This interaction with others on work-related topics often leads naturally to formation of CoPs. Initially, CoPs tended to emerge from voluntary, informal personal workgroups with specific knowledge.[64] However, as 'companies are beginning to recognise that these communities can be supported and leveraged to benefit the "membership" of communities and the organisation as a whole'

59 Kimble, C., & Hildreth, P. Communities of Practice: Going One Step Too Far? Retrieved June 23, 2008, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=634642#PaperDownload

60 Ibid

61 Ibid

62 Bolliger, E., & Flury, M. (2007). CoP Manifesto. Retrieved October 16, 2008 from http://www.communityofpractice.ch/en/Home/media/CoP%20Manifesto%20Web.Eng.pdf

63 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech

64 Hinton, B. (2003). Knowledge Management and Communities of Practice: an experience from Rabobank Australia and New Zealand. In . Cancun, Mexico. Retrieved October 16, 2008, from www.ifama.org/conferences/2003Conference/papers/hinton.pdf

they are starting to sponsor the formation of communities and to support their ongoing activity on a more formal basis.[65] A review of literature on setting up and maintaining CoPs (discussed later in the report) draws its material from companies that are formally facilitating development of CoPs and have therefore developed guidelines for employees which explain relevant issues such as what CoPs are, what makes a good CoP member, and what makes a good coordinator.

Examples of CoPs are found in many organisations, and have been called by different names at various times, including 'learning communities' at Hewlett-Packard Company, 'family groups' at Xerox Corporation, 'thematic groups' at the World Bank, 'peer groups' at British Petroleum p.l.c., and 'knowledge networks' at IBM Global Services.[66] In some workplaces, these informal meetings are encouraged through provision of kitchen dining areas, coffee machines, and workspace architectures.[67]

In addition, recent developments in workplace learning have focused on relational and social network views of learning that introduce people to the norms, values, and assumptions of the workplace.[68]

There has also been research done on using a CoP framework to explore informal learning, as a way of considering how to enhance working. Leontis et al. used the concept of the CoP to draw attention to many aspects of learning that typically may be taken for granted in workplaces. They found that, whilst there is value in the CoP perspective, it is sensible to be cautious about advocating formal interventions that aim to create such communities. CoPs operate in informal ways, and members often find them of value because they are not part of the formal structure.[69] In addition, Wenger (2001) points out that 'the very characteristics that make communities of practice a good fit for stewarding knowledge – autonomy, practitioner-orientation, informality, crossing boundaries – are also characteristics that make them a challenge for traditional hierarchical organisations'.[70]

In their research paper *Communities of Practice: Going one step too far?*, Chris Kimble and Paul Hildreth consider whether CoPs are really applicable to a business environment. They argue that most organisations view groups as project teams or task groups, brought together and controlled by the larger organisation. CoPs, however, are 'self-directed and self-motivated entities. The engine that drives a CoP is the shared interest of its members, which may not be the same things as the interest of the wider organisation.'[71] They note that these characteristics of a CoP make their contribution to an organisation uncertain and that the role that CoPs can play in business should always remain peripheral. They point out in this study that it is important to gain a more balanced understanding of the strengths and weaknesses of CoPs as a solution to business problems.[72]

Professional development

CoPs have also been viewed as informal networks that support professional practitioners to develop shared meaning and engage in building knowledge amongst members.[73] From a CoP perspective, one's work and professional development are entwined inextricably with who

65 Gongla, P., & Rizzuto, C. R. (2001). Evolving communities of practice: IBM Global Services experience. IBM Systems Journal, 40(4), 842–862.

66 Ibid

67 Hinton, B. (2003). Knowledge Management and Communities of Practice: an experience from Rabobank Australia and New Zealand. In . Cancun, Mexico. Retrieved October 16, 2008, from www.ifama.org/conferences/2003Conference/papers/hinton.pdf

68 Roan, A., & Rooney, D. (2006). Shadowing Experiences and the Extension of Communities of Practice: A Case Study of Women Education Managers -- Roan and Rooney 37 (4): 433 -- Management Learning. Sage Publications. Retrieved June 9, 2008, from http://mlq.sagepub.com/cgi/reprint/37/4/433

69 Leontios, M., Boud, D., Harman, K., & Rooney, D. (no date). Everyday learning at work: communities of practice in TAFE. Retrieved October 16, 2008, from www.avetra.org.au/abstracts_and_papers_2003/refereed/Leontios.pdf

70 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008

71 Kimble, C., & Hildreth, P. Communities of Practice: Going One Step Too Far? Retrieved June 23, 2008, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=634642#PaperDownload

72 Ibid

73 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

one works with.[74] Some studies have considered the use of CoPs for professional development. For example, Riverin and Stacey (2008) examined findings from analysis of a group of educators who were engaged in professional development through use of an electronic network for over a decade. They examined the challenges of maintaining online CoPs for professional learning.[75]

In another study, Hara and Hew (2006) examined the extent to which critical care and advanced practice nurses' participation in an online listserv constituted a CoP, and explored how nurses use electronic media to communicate with one another. Findings suggest that the online listserv environment did function as an online CoP, where participation not only served as an avenue for knowledge sharing situated in the actual context of the nurses' everyday work experience, but also helped to reinforce identity of the nursing practice itself. Motivations to participate included a way to network with others who shared a similar working situation, and an opportunity to learn new knowledge and work practices.[76]

Virtual Communities of Practice

The original concept of a CoP was based on situated learning in a co-located setting, and most studies regarding the way in which people engage in CoPs have focused primarily on face-to-face communication. However, definitions of CoPs do not rule out communication media such as email, discussion groups, or chat rooms as support mechanisms for participation.[77] With continued growth of the Internet, some researchers claim that virtual CoPs exist. Some even claim that a wiki (such as wikipedia.org) is a virtual CoP.[78]

The following definition outlines what a virtual CoP is:

A virtual community of practice is a network of individuals who share a domain of interest about which they communicate online.[79]

Neus (2001) notes that virtual CoPs are becoming more important as a means of sharing information within and between organisations.[80] It has also been noted that, in many cases, those forming the CoP can be scattered over a broad geographical area and use virtual media and/or communication channels to share knowledge and experiences, as well as operating as a social network that does not depend on the variables of time and space to communicate.[81]

There has been much discussion, and differing opinions, about whether web-based and text-based environments are conducive to allowing CoPs to emerge and operate as learning entities. Some researchers believe that a CoP cannot be formed without face-to-face meetings, with many leading thinkers stressing the importance of this face-to-face contact and communication. Some argue that a virtual CoP, in its use of ICT, changes the essential nature and character of a CoP.[82] According to Hara and Hew (2006), Haney's research in one of the most technologically sophisticated firms in the world suggests that, despite elaborate, sophisticated, and expensive

74 Schlager, M. S., & Fusco, J. (2003). Teacher Professional Development, Technology, and Communities of Practice: Are we Putting the Cart before the Horse? *The Information Society*, 203-220.

75 Riverin, S., & Stacey, E. (2008). Sustaining an Online Community of Practice: A Case Study. *Journal of Distance Education*, 22(2), 43–58

76 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

77 Virtual community of practice - Wikipedia, the free encyclopedia. Retrieved June 22, 2008, from http://en.wikipedia.org/wiki/Virtual_Community_of_Practice

78 Ibid

79 Gannon-Leary, P., & Fontainha, E. Communities of practice and virtual learning communities: benefits, barriers and success factors. Retrieved June 23, 2008, from http://www.elearningeuropa.info/files/media/media13563.pdf

80 Neus, A. (2001). Managing Information Quality in Virtual Communities of Practice. In *Proceedings of the 6th International Conference on Information Quality at MIT*. Boston, MA: Sloan School of Management

81 Carvajal, A., Mayorga, O., & Douthwaite, B. (2008). Forming a community of practice to strengthen the capacities of learning and knowledge sharing centres in Latin America and the Caribbean: a Dgroup case study. Knowledge Management for Development Journal, 4(1), 71–81

82 Virtual community of practice - Wikipedia, the free encyclopedia. Retrieved June 22, 2008, from http://en.wikipedia.org/wiki/Virtual_Community_of_Practice

technology, no discernable online CoP was observed. [83]

Others are confident that virtual CoPs are conducive to develop and function as learning entities, provided that support is available in the form of extensive scaffolding. Wenger suggests that 'there is the potential for professional associations to facilitate and enhance informal learning by providing opportunities for the development of online communities of practice'.[84] Recent research has produced evidence that virtual CoPs can increase sharing of tacit knowledge. This is what is sometimes referred to as 'community-driven knowledge management' or 'community-based knowledge management', where CoP and virtual CoP theory is harnessed, encouraged and supported within a broader organisational setting.[85]

A study by Hildreth et al. (2000), describing a distributed but partly co-located group of IT professionals, concludes that a CoP can function in distributed environments but that face-to-face contacts remain important as they are necessary to evolve the community quicker. Lueg emphasises that, even though the platform is virtual, learning and doing is still situated in the real world. Thus, whilst the community may be physically distributed and communication is partly maintained via electronic media, members of the community interact with the real world and learning takes place in the real world, so the overall situation is real, not virtual.[86] In other words, the community may be real, but the form of communication is mostly, if not entirely, via computers through email and other methods of communication.[87]

Schlager and Fusco (2003) argue that, whilst a lot of emphasis has been placed on online communities of education professionals, these communities tended to have been created in isolation from existing local professional communities within which teachers practise. They highlight that there is a need to use online technology to help support and strengthen CoPs within which people work, rather than creating new online CoPs in isolation from existing non-virtual ones.[88]

According to Pickle (2003), an online community has three main objectives:

- It has to supply content to the user;
- It has to encourage members to participate in the community by contributing; and
- It has to facilitate communication and interaction between them.[89]

Gannon-Leary and Fontainha (2007) distinguish between virtual CoPs and virtual learning communities. Essentially, they argue that virtual CoPs are more informal, sharing news and advice of academic or professional interest, whilst virtual learning communities' main purpose is to increase the knowledge of participants via formal education or professional development. Virtual learning communities could have learning as their main goal or the e-learning could be generated as a side effect.[90]

Virtual CoPs have been identified as having a number of benefits for sharing and learning. These benefits are very similar to those of CoPs that are not virtual, for example, in that they encourage collaborative learning, sharing, the opportunity for neo-apprenticeship style learning

83 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

84 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. p.24. Retrieved October 16, 2008 from http://www.ewenger.com/tech

85 Virtual community of practice – Wikipedia, the free encyclopedia. Retrieved June 22, 2008, from http://en.wikipedia.org/wiki/Virtual_Community_of_Practice

86 Lueg, C. Where is the Action in Virtual Communities of Practice? Retrieved October 29, 2008, from www-staff.it.uts.edu.au/~lueg/papers/commdcscw00.pdf

87 Virtual community of practice – Wikipedia, the free encyclopedia. Retrieved June 22, 2008, from http://en.wikipedia.org/wiki/Virtual_Community_of_Practice

88 Schlager, M. S., & Fusco, J. (2003). Teacher Professional Development, Technology, and Communities of Practice: Are we Putting the Cart before the Horse? *The Information Society*, 203–220

89 Kondratova, I., & Goldfarb, I. (2004). Virtual Communities of Practice: Design for Collaboration and Knowledge Creation. In *Proceedings of the European Conference on Products and Processes Modelling (ECPPM 2004)*. Istanbul, Turkey: National Research Council of Canada, Institute for Information Technology e-Business, Canada

90 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index.php?page=doc&vol=5&doc_id=10219&doclng=6

(through legitimate peripheral participation) and development of identity formation for newcomers (although this factor has been criticized since it may result in the perpetuation of communities and commonality, rather than supportive of growth, change and diversity). One of the specific reported benefits for virtual CoPs is that they can develop based on interests rather than on physical proximity, enabling collaborations, sharing of specialist interests and affording access to mentors and like-minded individuals. In addition, there is no natural hierarchy except that which evolves from participation, so 'natural' experts can emerge. This allows for greater access to information, academics can strengthen their authority in their field of work, and their work is made increasingly visible to others.[91]

Virtual CoPs often operate through discussion lists. They afford opportunities for collaboration which have been facilitated by networked technology such as email, which many academics use regularly. Discussion lists may serve as virtual CoPs since they enable interested professionals and academics to engage in discussion and debate; give others the benefit of their experience, and often save themselves reinventing the wheel by finding out what others have done when faced with particular problems.[92]

Although the potential for virtual CoPs through email discussion lists and discussion boards would seem enormous, Gannon-Leary and Fontainha's experience in setting up and moderating such a list, coupled with the comments derived from academics trying to sustain discussion boards, suggest that this potential is not being realised. Their experience was that announcing the introduction of a new list, with its aims and scope, resulted in many would-be members from all over the world signing up and, by so doing, indicated an interest in the list theme. However, few of those who registered subsequently made an active contribution. As list members included international experts in the list topic, with much valuable experience which they could share with others, this lack of exchange or interaction was an issue of concern.[93]

According to Gannon-Leary and Fontainha (2007), other barriers that virtual CoPs face are:

1. **Personal trust**. Virtual CoPs lack the opportunity for face-to face interaction and socializing which can consolidate group membership. As a result, individuals may fail to engage in the CoP, preferring to work autonomously. Building trust is vital for sharing, and primarily develops through face-to-face interactions. In the virtual environment, identities can remain hidden and members may adopt different personae.
2. **Trust at an institutional level**. Crossing virtual boundaries between institutions can result in institutional-related problems, especially legal issues (for example, data protection, intellectual property, and so on).
3. **Misinterpretation of messages**. The use of technology to bridge the geographical gap can lead to misinterpretation of messages as non-verbal cues can be missing from the communication. ICT lacks the richness of face-to-face interaction.[94]

Technology and Communities of Practice

As highlighted above, the Internet has radically reshaped what a CoP can be. However, it is important not to confuse the community with the platform. Communities consist of people, while platforms support their interactions. Just because a platform is provided, it does not mean that there will automatically be a community.[95]

According to Wenger, experience has repeatedly shown that the success of a CoP is primarily associated with social, cultural, and organisational issues, and secondarily only with technological features. Therefore, it is more important to address the social, cultural, and organisational

91 Ibid
92 Ibid
93 Ibid
94 Ibid
95 Sidnick, D. (2008, August 7). Darren Sidnick's Learning and Technology. Retrieved October 22, 2008, from http://darrensidnick.blogspot.com/2008/08/com

issues rather than endlessly search for the perfect technological platform. Nevertheless, given that an increasing number of CoPs are geographically distributed, they rely on some kind of technology to keep in touch.[96] Technology tools support people connecting across distance, facilitating a greater diversity of thought which can enrich a community. Communities can share what they know and connect to other communities and the world, which can deepen their learning.[97] Even people who are co-located often need to keep in touch between meetings and to create a repository for their documents. So technological issues are relevant, and it is worth asking what technology can do to facilitate CoPs.[98]

This section will not focus on specific products that are available as these are continuously changing. It does, however, consider underlying principles and factors that need to be considered when deciding on a technology platform, and it further considers some tools commonly used in CoPs. This section draws largely on the work of Wenger (2001), which provides a comprehensive survey of community-oriented technologies.

Wenger highlights that a technology platform for a CoP should be:

- Easy to learn and use because CoPs are usually not part of people's main job;
- Easily integrated with other software that members of the community are using for their regular work so that participation in the community requires as few extra steps as possible; and
- Not too expensive, because, if it requires a lot of up-front investment, potentially useful communities will not be able to take advantage of the platform.[99]

According to Wenger, the most common online facilities that CoPs use include:

- A home page to affirm their existence and describe their domain and activities;
- A conversation space for online discussions of various topics;
- A facility to post questions to the community;
- A directory of membership with some information about members' areas of expertise in the domain;
- In some cases, a shared workspace for synchronous electronic collaboration, discussions, or meetings;
- A document repository for their knowledge base;
- A search engine that is adequate to retrieve things members need from their knowledge base;
- Community management tools, mostly for the facilitator but sometimes also for the community at large, including the ability to know who is participating actively, which documents are downloaded, how much traffic there is, and which documents need updating; and
- The ability to initiate sub-communities, subgroups, and project teams.[100]

Based on a review of some CoPs, the following tools have been identified as being frequently used in CoPs:

- **Blogs** – a personal diary, reflecting the thoughts and activities of the author. The CoP can include functionality to receive the latest comments on a blog entry in which a person is interested.
- **Forums** – an interactive platform for holding discussions and posting user generated content. Forum participants do not have to be online at the same time; they suit short posts, which request a response from others. In CoPs, forums can offer an 'email notification' feature. There should also be a way of searching through previous forum threads so that members do not initiate a new thread which has the same content as a previous thread.

96 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech

97 Sidnick, D. (2008, August 7). Darren Sidnick's Learning and Technology. Retrieved October 22, 2008, from http://darrensidnick.blogspot.com/2008/08/communities-of-practice-cops-with-nancy.html

98 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008

99 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech

100 Ibid

- **Notice boards** (could take the form of a forum – although it may not necessarily have an in-depth discussion focus) where thoughts, ideas and questions are shared. For example, this can be used to alert colleagues to a new article that has been published, or job openings.
- **Feedback and help** – to allow participants to discuss technical problems and content related issues. This can also include a 'Frequently Asked Questions' feature.
- **Tags** – one-word descriptors that can be assign to blog and forum entries to help organise and remember the information. More than one tag can be applied to an item. These are used to form a 'tag-cloud', which gives a visual indication of the type of information in the community.
- **Wikis** – a web application that allows multiple authors to add, remove, and edit content. The CoP wiki can provide a system where authors can review changes to pages and revert to older versions if this is appropriate.
- **Events calendar** – where members can post or view any event that is relevant to the community.
- **Find a community** – if there are several communities in one space, there can be a function where users can access the different communities under a 'Find a Community' function. This could be listed on the Home Page, with the most active communities listed first.
- **Email alerts or RSS feeds** – these can be used to notify a member if new items are added to the forums, events, blogs, wikis, or document libraries. Usually users can choose whether they would like to receive a notification, and in which areas.
- **Sign-in features** – some CoPs are only open to select members, so members need to sign in each time they access the CoP. This involves passwords. CoPs usually include an option of sending a reminder for a person's password to their email address if they forget their password.
- **Document library** – allows members to upload files to share with other members. Members can comment on files and give them a usefulness rating.
- **Personal profile** – allows members to add personal and professional details as well as a picture so that people can identify them at face-to-face events.
- **Option for setting up your own community** – this usually involves sending an email to the organisers.
- **Other Web 2.0** tools like podcasts, video conferencing, and chat rooms.

In deciding which technology to use, Wenger poses a number of questions that are important to consider (contained in Appendix A). He also outlines eight categories of related products that have relevance in considering technologies for CoPs (See Appendix B).

It has been proposed that some functionality should be provided to 'push' content to members in the design of a virtual community space. 'There are a multitude of techniques for pushing content to and from members but the aim is for members to generate as much content between them as possible' (Pickles, 2003).[101] These 'push' functionality features include Really Simple Syndication (RSS) feeds, Newsletters, News Feeds/ Alerts, Instant Messaging, Email and Webcasting. Other features serve a means of 'pulling' content from members of online communities. This is a style of network communication where the initial request for data originates from the client. Examples of these are the use of forums, member directories and member reviews.

Technology that might be relevant to a CoP obviously depends on its stage of development. Initially, the technology focus may be on:

Technology that facilitates communication such as

- Telephone and conference calls;
- Electronic mail;
- Chat rooms;
- Electronic messaging systems;
- Forums; and
- Bulletin boards

101 Kondratova, I., & Goldfarb, I. (2004). Virtual Communities of Practice: Design for Collaboration and Knowledge Creation. In *Proceedings of the European Conference on Products and Processes Modelling (ECPPM 2004)*. Istanbul, Turkey. National Research Council of Canada, Institute for Information Technology e-Business, Canada

Technology that helps to identify individuals and groups according to their domains of knowledge and expertise including tools such as

- Online directories;
- Skill and resumé databases; and
- Search engines.

A collaborative work facility can help the CoP to have a place to organise and share its work.

Using e-meeting technology to design processes jointly can also be helpful at a later stage.

CoPs may use various tools to support ongoing evaluation, including:

- Electronic surveys;
- Polling; and
- Measurement-gathering and analysis tools.

As the knowledge base of the CoP grows, technologies that help with customised searches are valuable. For example:

- A web page can be helpful for individuals who are joining the community and need assistance with access;
- A 'yellow pages' for the community helps to keep track of the membership; and
- Cross-national and multilingual CoPs may include language translation capabilities.

As the CoP develops, it may start using:

- E-meeting technologies which enable the community subgroups to move forward with their collaborative work; and
- A discussion facility focusing on specific issues, which can aid the groups in coming to decisions, as well as recording and retaining, for future reference, the arguments and discussion that led to the decision.

Other analysis and decision support tools may be introduced as they relate to the problem area being worked on. As users become more sophisticated, they begin to place more requirements on technology developers to enhance the current tools and implement new technologies.[102]

To conclude, it should be noted that excellent technology will never make a CoP, but bad technology can break a CoP.[103] To be effective, technology should be adapted and customised to meet the needs of the community. The best tools are not worth having if members do not use them or find them difficult to use.

Higher Education and Communities of Practice

Wenger notes that CoPs have been formed at a much slower rate in the education sector than the business environment. He attributes this to the fact that knowledge sharing is already the main activity in the education sector, and thus using CoPs as a knowledge development mechanism may not necessarily be considered a natural option.[104] In addition, Hodgkinson-Williams et al. (2008) note that HEIs are largely established on the assumption that learning is an individual process best encouraged by explicit teaching,[105] and thus CoPs may not be usually considered as a form of learning. Lave and Wenger also note that the education sector, whilst providing opportunities for ownership, discourse, and active involvement, provides limited exposure to CoPs in the real world and little exposure in terms of being a home for individual professional identities.[106] Thus, adopting CoPs as a basic organising principle in the education context requires a rethinking of their structure. Wenger hopes that CoPs will be useful in bringing the educational experience closer to everyday life along three dimensions:

102 Gongla, P., & Rizzuto, C. R. (2001). Evolving communities of practice: IBM Global Services experience. *IBM Systems Journal*, *40*(4), 842–862

103 Trayner, B. Communities of Practice and their Technologies. Retrieved November 22, 2008 from http://www.slideshare.net/bevtrayner/communities-of-practice-and-their-technologies/

104 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech

105 Hodgkinson-Williams, C., Slay, H., & Siebörger, I. (2008). Developing communities of practice within and outside higher education institutions. *British Journal of Educational Technology*, 39(3), 433–442. doi: 10.1111/j.1467-8535.2008.00841.x

106 Zhu, E., & Baylen, D. M. (2005). From learning community to community learning: pedagogy, technology and interactivity. *Educational Media International*, 42(3), pp.251–268

- **Internally:** How to ground institutional learning experiences in practice through participation in communities around subject matters;
- **Externally:** How to connect the experience of students to actual practice through peripheral forms of participation in broader communities beyond the walls of the institution;
- **Over the lifetime of students:** How to serve the lifelong learning needs of students by organising CoPs focused on topics of continuing interest to students beyond the study period.

From this perspective, HEIs are not the privileged locus of learning. They are not a self-contained, closed world in which students acquire knowledge to be applied outside, but form part of a broader learning system. Schools, classrooms, and training sessions still have a role to play in this vision, but they have to operate in service of the learning that happens in the world.[107]

Gannon-Leary, and Fontainha note that the concept of a CoP is becoming prevalent in HE discourse by practitioners in emergent areas of networked learning. They argue that, whilst the notion of CoPs may not have produced a new pedagogical approach, it has provided an analytical view of learning, questioning the place of formal learning. It has contributed to the shifting emphasis from abstract bodies of knowledge taught in formal education towards 'situated learning' that occurs as people engage with real-world problems.[108] The concept of CoPs also provides a way of conceptualising how students from HEIs can engage in social participation as a process of learning and knowing,[109] and provides the opportunity for students to learn from each other, the community and their relationship to society when they work together. [110]

Gannon-Leary and Fontainha (2007) note that virtual CoPs and virtual learning communities are becoming widespread within HEIs, thanks to technological developments which enable increased communication, interactivity among participants, and incorporation of collaborative pedagogical models, specifically through ICT. They afford the potential for the combination of synchronous and asynchronous communication, access to – and by – geographically isolated communities and international information sharing and CoPs in HE can develop a sense of connectedness, shared passion, and a deepening of knowledge from ongoing interaction, and allowing knowledge development to be continuous, cyclical and fluid. Gannon-Leary and Fontainha also identify several critical success factors for virtual CoPs in HE: the usability of technology, trust in and acceptance of ICT in communication, a sense of belonging among members, paying attention to cross-national and cross-cultural dimensions of the CoP, shared understandings, a common sense of purpose, use of netiquette and user-friendly language, and longevity. The authors recognise enormous potential for development of CoPs through email discussion lists and discussion boards, but have personal experience of the difficulties intrinsic to initiating such communities.[111]

CoPs have been used in HE in a variety of ways. In a South African example (recorded in a research article), the authors illustrate how the e-Yethu project – a collaborative effort between lecturers and students, teachers from the local community, the provincial Department of Education, and a non-governmental organisation – developed into a virtual and physical CoP which facilitated ICT take-up in a number of schools. They used the concept of CoP, particularly Hoadley and Kilner's C4P Framework for CoP, to demonstrate how ICT can

107 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech

108 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index php?page=doc&vol=5&doc_id=10219&doclng=6

109 Hodgkinson-Williams, C., Slay, H., & Siebörger, I. (2008). Developing communities of practice within and outside higher education institutions. *British Journal of Educational Technology*, 39(3), 433-442. doi: 10.1111/j.1467-8535.2008.00841.x

110 Zhu, E., & Baylen, D. M. (2005). From learning community to community learning: pedagogy, technology and interactivity. Educational Media International, 42(3), pp.251-268

111 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index. php?page=doc&vol=5&doc_id=10219&doclng=6

provide opportunities for developing collaborative learning within HEIs, as well as between an HEI and the local community. C4P stands for content, conversation, connections, (information) context, and purpose. Hoadley and Kilner developed a model to explain how learning takes place in knowledge-building communities According to the C4P Framework, 'knowledge is generated and shared when there is purposeful conversation around content in context'.[112]

In another example in Australia, the concept of CoPs was explored in the context of cross-border HE. Academics belong to a range of CoPs including their disciplinary research community, their family and social communities, and the community of teachers in higher education, but many do not identify themselves as members of the professional community of teachers. They also note that development of professional expertise in teaching until recently has been under-valued in HE because traditionally the key measure of success is an academic focus on research completed. The authors note that, whilst quality of teaching in higher education generally is under scrutiny, there is more emphasis placed on encouraging and improving teaching, including in transnational programmes.[113]

According to Dunn and Wallace (2005), curriculum planning and review is a natural place to start a CoP as this is the heart of the teaching and learning process in any educational programme. They note that it is logical to start inclusive collegial contact at the planning or review stages of designing culturally responsive curriculum and learning materials. They further point out that it is unlikely, because of geographical distance, that teachers in all countries involved in a transnational programme will have regular opportunities for encounters in the staff room or corridors where much professional social learning takes place. A meaningful structure and process for collegial contact is needed in order to facilitate the formation of professional communities.[114]

Dunn and Wallace highlight the complexities that must be negotiated before two groups of teachers from different educational backgrounds and cultural environments can work together in an inclusive and egalitarian way, including:

- Intercultural understanding – participants need to enter a dialogue to build 'emergent understandings and new frameworks rather than [submit] to imported wisdom' (Wang, 2004, p.5);
- Unequal power relationships between those who are likely to 'in charge' of a unit of study and the local teachers (who are likely to be their tutors);
- A common vision and goals of the partnership; and
- Institutional support and teacher commitment – CoPs should be built around existing work and they should not be costly to maintain. They will wither away unless supported by their institutions and viewed by participants as enchancing teaching and improving student learning outcomes.[115]

Although written in an Australian context, these research findings are of some relevance to OER Africa. Australian and international quality assurance literature cites a number of concerns about the quality of transnational higher education programmes, including the perception that some are 'degree mills' or 'accreditation mills'. CoPs are regarded as a solution to this problem, and the authors of that study propose institutional support for development and maintenance of programme-based inclusive CoPs. In the transnational context, membership should include teachers in all countries associated with a programme, as a way to improve quality of transnational higher education programmes. Most of each community's interactions would be via well-designed and moderated online communication. Such communities would not be costly, would be immediately useful to universities and teachers involved, and would facilitate improved work practices rather than adding to teaching workloads.[116]

112 Hodgkinson-Williams, C., Slay, H., & Siebörger, I. (2008). Developing communities of practice within and outside higher education institutions. *British Journal of Educational Technology*, 39(3), 433-442. doi: 10.1111/j.1467-8535.2008.00841.x

113 Dunn, L., & Wallace, M. (2005). Promoting communities of practice in transnational higher education. Retrieved October 16, 2008, from www.odlaa.org/events/2005conf/ref/ODLAA2005Dunn-Wallace.pdf

114 Ibid

115 Ibid

116 Ibid

In their article, Zhu and Baylen discuss three pedagogical approaches – learning community, community of practice, and community learning – and analyse their significance for knowledge acquisition and construction in higher education. They see these approaches as allowing students to learn in broader contexts, beyond the academic environment, and to interact with peers, instructors and practitioners. They point out that studies show that learning in CoPs helps students gain practical knowledge, which is often profession-specific and useful to deal with complex and risky situations.

Indeed, we can teach students the facts, concepts and conceptual frameworks of physics but cannot make the student a physicist. [117]

Zhu and Baylen regard CoPs as an indispensable component to learning, and recommend that lecturers bring CoPs to their learning activities to produce graduates who can deal with the demands of the workplace. Thus, they regard CoPs as providing a disciplinary context. They cite as an example the University of Michigan where undergraduate physics course professors encourage students to engage physics research projects and to interact with physicists who are invited to visit the classroom on a regular basis. It should be noted that whilst the authors considered the combined results of utilising the three different pedagogic approaches (and not just CoPs), they found that collaboration improved student performance, prevented attrition and built students' confidence.[118] Their findings support Wenger's vision of using CoPs externally to connect the experience of students to actual practice through peripheral forms of participation in broader communities beyond the HEI.

Another example of using CoPs externally was noted by Maistry, who used CoPs to address the area of continuing professional development (CPD) of teachers in South Africa. The author drew upon the CoP framework to analyse the development of CPD CoPs, and argued that HEIs, through their community outreach initiatives, can play a positive role in advancing teacher CPD by creating and strengthening teacher CoPs. The author noted that partnerships between schools and universities (framed on the principles of CoPs) have the potential to advance the CPD agenda. The article proposed that HEIs explore the possibility of university–community partnerships to provide more meaningful experience for in-service teachers.[119]

The positive effects of CoPs in online learning have been noted in a study by Ó Murchú and Sorensen, which explored the extent to which collaborative learning in CoPs developed through the learning process in the implementation of two online programmes in humanities and education. They studied two online courses from two different Masters programmes – one in Ireland and the other in Denmark. The main objective was to investigate and measure the quality of the two courses and the extent to which it was possible to identify the establishment of CoPs in mutual learning. The preliminary results of the research showed that online learning CoPs build on the ability to work together, pool resources and accelerate learning within courses. The study also showed that online CoPs helped provide solutions to real issues, and inspired students and lecturers to learn in collaboration.[120]

Another study in South Africa focused on developing research capacity at HEI by using CoPs.[121] The study worked from the notion that research can be best characterised by the concept of CoPs, and recommended that more attention be given to building engaging intellectual communities. The study looked at mentoring in research, and the authors initiated support, reading groups and mentoring at a number of HEIs to facilitate the establishment of small CoPs.

117 Zhu, E., & Baylen, D. M. (2005). From learning community to community learning: pedagogy, technology and interactivity. *Educational Media International*, 42(3), pp.254

118 Zhu, E., & Baylen, D. M. (2005). From learning community to community learning: pedagogy, technology and interactivity. *Educational Media International*, 42(3), pp.251–268

119 Maistry, S. (2008). School-university CPD partnership: Fertile ground for cultivating teacher communities of practice. *South African Journal of Higher Education*, 22(2), 363–374

120 Ó Murchú , D., & Sorensen, E. K. (2003). 'Mastering' Communities of Practice across Cultures and National Borders. 10th Cambridge International Conference on The future of Open and Distance Learning, Cambridge, UK

121 Christiansen, I., & Slammert, L. (2006). A multi-faceted approach to research development (II) Supporting communities of practice. *South African Journal of Higher Education*, 20(1), 15–28

The outcome of this exercise was positive in terms of helping research communities develop, and participants reported positively on the sense of belonging achieved. In addition, directly measurable outputs, such as an increase in the number of publications, formulation of additional research projects, increase in postgraduate degrees among staff, and the development of a number of patents, were noted. Christiansen and Slammert thus argue that within the HEI setting, although incentives and outputs are important and relevant elements of research development and management, these factors should not take place at the expense of supporting CoPs.[122]

Thus, although CoPs have formed at a much slower rate in the education sector compared with the business environment, it appears that they are being used in a variety of different ways in the HE sector to achieve different purposes.

Setting up and Managing Communities of Practice

There are two schools of thought about whether it is possible to design a CoP. Some say that a CoP, even online, should emerge organically, whilst others claim that it is possible to design a CoP. Proponents of the former position point out that it is not possible to insist that people join a CoP. Further, given that CoPs are typically emergent and goals are continually negotiated by participants, it is not possible to design a blueprint for forming and supporting CoPs and therefore they cannot be created. It is argued that a better approach is to create conditions in which a CoP can emerge and flourish and to facilitate the informal learning processes that already take place.[123]

Those who claim that it is possible to design a CoP argue that they do not just start or continue automatically, but need to be championed and nurtured.[124] The literature is full of 'one-size-fits-all' advice on how to launch and sustain CoPs. With few exceptions, the literature treats all CoPs as similar, with undistinguishing features and undifferentiated identities.[125] However, some authors do acknowledge that every CoP is different, but claim that starting a community typically involves preparing for, launching, developing, and sustaining it, as well as closing it down when appropriate.[126]

Wenger notes that creating a CoP is not always as simple, fast, and successful as is put forth in theory. Real-world conditions pose challenges, for example, when dealing with individuals from different cultures and addressing needs specific to the contexts in which they interact.[127] Nevertheless, numerous articles focussing on a range of CoPs provide suggestions on how to set up and manage CoPs under different circumstances. The articles consulted for this paper are primarily based on documented practical experiences of the establishment and management of CoPs, mostly in business settings. In the following section we highlight some key elements to consider in establishing and sustaining CoPs, drawing on the literature review.

Preparation

It is a common assumption that a CoP can be launched by merely creating a website or inviting people to a meeting. However, the success of a CoP depends on preparation and involves consideration of a number of key aspects.

Identify the scope and focus of the CoP

The value of a community needs to be clear so that people will take the time and effort to participate. Thus, in identifying the scope of the CoP it may be useful to consider the value proposition of a CoP, as

122 Ibid

123 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. . Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

124 Murty, K. S. Building and Sustaining Communities of Practice. Retrieved October 15, 2008, from http://www.kwork.org/White_Papers/communities.html

125 Bourhis, A., Dubé, L., & Jacob, R. (2005). The Success of Virtual Communities of Practice: The Leadership Factor. *The Electronic Journal of Knowledge Management*, *3*(1), 23–34

126 Carvajal, A., Mayorga, O., & Douthwaite, B. (2008). Forming a community of practice to strengthen the capacities of learning and knowledge sharing centres in Latin America and the Caribbean: a Dgroup case study. *Knowledge Management for Development Journal*, 4(1), 71–81

127 Ibid

well as its value to participants. A helpful question to ask is whether there is a group of people who want to and will interact and learn together over time? If not, another form of knowledge sharing could be considered, such as creating a network or a site where people can search for related content, or creating a workshop or forum which may also (or better) meet the information needs for the topic area.[128]

It is also valuable to identify areas of interest (knowledge domains). According to McDermott, if the aim of the CoP is trying to 'prove' a concept, it is best to start with topics that are close to the core work of the potential community members. This will allow the domain itself to invite involvement from community members.[129]

It is also important to investigate whether there is an existing CoP that fills the need, and then consider the value proposition of setting up a new CoP that may complete with existing CoPs.

The following questions are useful in defining the scope and focus of the CoP:

- Is there a genuine need for a CoP?
- What is the rationale for developing the CoP?
- What are the core issues which need to be addressed
- What work has been done on this theme to date?
- What do you want to achieve?
- Who are your audience?
- What benefits can the community offer – to members, to the OER movement as a whole?
- What will be the outputs and outcomes of the community?

Build a case for action

In order to encourage participation, it is important to build a case for action that takes into account the potential change that developing a CoP can create. Although this overlaps with defining the scope, it will give visibility to a problem that communities will be able to resolve. The following questions are useful to consider in this regard:

- What is the purpose of the CoP?
- What are the deliverables for the first one or two years?
- 'What's in it for the OER movement?' How will the CoP satisfy the expectations of the OER movement?
- 'What's in it for me?' How will the CoP fulfil the expectations of the members?[130]

Identify a CoP facilitator

An important factor in ensuring community success is the engagement of the community facilitator. Since people's sense of community tends to rely on relationships, it is important to involve a potential facilitator at the very early stages of development of the CoP.

In selecting a facilitator, the following factors should be considered:

- The facilitator should have the capacity and time to provide facilitation and support, especially in the launch phase.
- Facilitators should be highly motivated and show a creative and positive attitude toward working with users.
- A good facilitator has curiosity, endurance and the willingness to let all participants express themselves. S/he has expertise on the theme of the CoP.
- The responsibilities of a facilitator (note that these could be shared with other CoP members) could include:
  - Organising meetings/teleconferences;
  - Maintaining distribution lists;
  - Ensuring the maintenance of shared information/knowledge resources; and

128 The Australian Government Information Management Office Archive. (no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

129 McDermott Consulting – Community Builders' Toolkit: Start–up. Retrieved October 15, 2008, from http://www.mcdermottconsulting.com/startup.shtml

130 Murty, K. S. Building and Sustaining Communities of Practice. Retrieved October 15, 2008, from http://www.kwork.org/White_Papers/communities.html

Monitoring the effectiveness of the CoP and stimulating and prodding CoP members when ropriate. [131, 132, 133]

The facilitator could consider the following key questions to help determine how the CoP will function:

- How will you attract interest?
- How will you engage participants?
- How will you develop your community?
- How will you interact, learn and share?
- What should be the guiding principles underpinning the community?
- What are the values of the community and how will it work?
- How can the community be encouraged to work together most effectively?
- What modes of communication will be set up within the community?
- How should the community be structured?
- To what extent should the community be in the public domain?
- What are the main risks to the success of the community and how will these be managed?
- How will communication with stakeholders and others be effected?
- How will clear policies be developed (policies for membership, codes of conduct, community governance, security, level of free speech, privacy, copyright)?[134, 135, 136]

Identify potential members

Creating a CoP is a human process, and thus depends to a large extent on participants in the community. Therefore, the CoP should involve the best people to develop the area. It may be useful to first gather a list of potential participants, and then ask these individuals to recommend others to participate. One may consider a broader membership to introduce diversity. It may also be useful to consider whether the CoP will benefit from having members not closely associated with the domain of interest in order to bring in a different perspective.[137]

According to Hara and Hew (2006), one of the success factors that has helped sustain an online CoP is having a 'self selection type of membership'

Such type of membership helps establish a sense of culture and identity among the members. However, it also does more than just that. Because self-selection means that members choose to contribute to the community entirely on their own accord, members feel no sense of being pressured to participate. Contribution to the online community of practice thus proceeds informally and naturally. [138]

In the case of self-selection membership, the scope of the CoP needs to be explained so that prospective members can self-select on the basis

131 The Australian Government Information Management Office Archive. (no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

132 Collison, C. (no date). Keys to Successful Communities of Practice (Networks). Retrieved October 20, 2008 from www.chriscollison.com/l2f/documents/KMnetworks.doc

133 Carvajal, A., Mayorga, O., & Douthwaite, B. (2008). Forming a community of practice to strengthen the capacities of learning and knowledge sharing centres in Latin America and the Caribbean: a Dgroup case study. *Knowledge Management for Development Journal*, 4(1), 71–81

134 These questions are drawn mainly from an article found on the Internet – however, it was not possible to trace who authored this document – No author. No date. Setting up, cultivating and managing a community of practice. Retrieved October 15, 2008, from http://www.improvementservice.org.uk/library/download–document/1003-cop-set-up-guidance/

135 Improvement and Development Agency. Communities of practice. Retrieved October 15, 2008, from http://www.idea.gov.uk/idk/core/page.do?pageId=8152674

136 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

137 Collison, C. (no date). Keys to Successful Communities of Practice (Networks). Retrieved October 20, 2008 from www.chriscollison.com/l2f/documents/KMnetworks.doc

138 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences

of the relevance of the CoP to them.[139] A critical success factor for the CoP is that participants have to experience the relevance and perceive the goal(s) of the community as useful.[140]

In the case where CoP membership is by invitation, the following questions are useful to consider in identifying potential members:

- Who can make a major contribution to this community?
- Who are the subject experts?
- Who are the possible coordinators or facilitators?
- Will membership be open or by invitation only?
- What skills and experience are needed in the community?
- Will there be different levels of participation? If so, how will this be managed?
- How can stakeholders be involved in the community?

It has been noted previously that a CoP should be large enough to deliver value, but small enough to allow for effective communication. There are differences of opinion regarding the optimal size of a CoP, as this depends on the nature, needs and purpose of the community as well as factors such as whether it will be a virtual CoP.

In an online CoP, the main barriers to participation are usually lack of access and time coupled with technical difficulties. Thus it may be useful to:

- Estimate the level of commitment and contribution of participants to the potential CoP. It may also be useful to determine the level of knowledge and expertise of members in relation to the topic, and their willingness to share with each other.[141]
- Consider whether potential participants will have the time and access to interact, particularly online.[142] Time is required both for communication and to establish and build trust, rapport and a true sense of community. Participants should have enough time (ideally taken from working time, if the topic of learning is linked to work) to enable them to contribute and learn.[143]
- Consider whether potential members of an online CoP have regular access to the Internet, and how cultural factors may impact on the use of ICT.[144] Participants' experience with online activity and online learning should be taken into account to determine the level of technical support necessary to ensure that technical difficulties do not inhibit participation.
- Consider the existing relations, contacts and shared information between potential participants and the face-to-face and on-line collaboration and activities already taking place.[145] Where an existing face-to-face relationship exists, consider whether or not an added online layer is necessary.

Highlight the benefits of joining a CoP to potential members

The potential benefits of joining a CoP could include:

- Supporting faster problem solving;
- Reducing or eliminating duplication of efforts;
- Finding joint responses to a challenge within a short time – such success with regard to dealing with content also builds the team;
- Enhancing abilities to develop and share new ideas and strategies;
- Allowing all members to use their expertise;
- Receiving peer recognition and

139 The Australian Government Information Management Office Archive. (no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

140 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

141 The Australian Government Information Management Office Archive. (no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

142 Sidnick, D. (2008, August 7). Darren Sidnick's Learning and Technology. Retrieved October 22, 2008, from http://darrensidnick.blogspot.com/2008/08/communities-of-practice-cops-with-nancy.html

143 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index.php?page=doc&vol=5&doc_id=10219&doclng=6

144 Ibid

145 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. . Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

acknowledgement when experiences and project outcomes are used by others;

- Ensuring that sound knowledge is accessible while avoiding the risk that data remain unused;
- Providing a platform that connects people;
- Providing potentially endless access to expertise;
- Helping overcome the challenges of geographical boundaries (virtual CoPs);
- Making meaning of learning as participants apply it to lives/work/tasks; and
- Contributing to personal growth, new knowledge, and improved work performance.[146, 147, 148, 149, 150]

As a starting point, a participatory approach can be adopted to understand the needs, motivations, interests, and challenges of potential stakeholders. In addition, communication with participants of the proposed CoP needs to be clear with regarding to what a CoP is, how it operates, and what are its characteristics, advantages, disadvantages, commitments and possible outputs.[151] Interviewing potential members (in the form of discussions) is useful to discover shared issues and opportunities to leverage knowledge. Interviews also provide an opportunity to introduce the notion of a CoP and its potential value to individuals and the OER movement.

Identify potential knowledge to share

During preliminary interviews, community members often identify knowledge that would be useful to share.

Decide on an initial technology platform

Most CoPs require a technology platform for sharing ideas and/or storing documents from the inception of the CoP.[152] Participants will also require the necessary understanding and expertise to use the technology.[153] It is useful to consider what existing tools, such as email and telephone, are available to all members.

Consider how the CoP will be governed

The following questions are useful to consider in determining how the CoP will be governed:

- What will be the methods of decision-making and accountability?
- What is the organisational context around the community?
- What are the resources available to the community?
- What are the key milestones and deadlines?
- Who are the key stakeholders?
- What are the interests and views of each stakeholder?
- How supportive and influential is each stakeholder?

Whilst presented as part of the 'preparation phase', it is important to note that these deliberations overlap with the 'starting phase'.

Starting a CoP

As with the preparation phase, starting a community is not a single event but a set of activities. There is an overlap between the preparation and starting phases as preparation for

146 Communities of practice for local government - Frequently asked questions. Retrieved October 22, 2008, from http://www.communities.idea.gov.uk/faq/faq-index.do

147 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. . Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page.

148 Bolliger, E., & Flury, M. (2007). CoP Manifesto. Retrieved October 16, 2008 from http://www.communityofpractice.ch/en/Home/media/CoP%20Manifesto%20Web.Eng.pdf

149 Sidnick, D. (2008, August 7). Darren Sidnick's Learning and Technology. Retrieved October 22, 2008, from http://darrensidnick.blogspot.com/2008/08/communities-of-practice-cops-with-nancy.html

150 Improvement and Development Agency. Communities of practice. Retrieved October 15, 2008, from http://www.idea.gov.uk/idk/core/page.do?pageId=8152674

151 Carvajal, A., Mayorga, O., & Douthwaite, B. (2008). Forming a community of practice to strengthen the capacities of learning and knowledge sharing centres in Latin America and the Caribbean: a Dgroup case study. *Knowledge Management for Development Journal*, 4(1), 71–81

152 McDermott Consulting - Community Builders' Toolkit: Start-up. Retrieved October 15, 2008, from http://www.mcdermottconsulting.com/startup.shtml

153 Carvajal, A., Mayorga, O., & Douthwaite, B. (2008). Forming a community of practice to strengthen the capacities of learning and knowledge sharing centres in Latin America and the Caribbean: a Dgroup case study. *Knowledge Management for Development Journal*, 4(1), 71–81

the CoP will help identify key areas for discussion and decision-making with members during the starting phase. The starting phase usually involves launching the CoP, outlining key roles and responsibilities of members, and defining ways of working.

Launch the community

Many communities begin with an event such as a meeting or workshop at which members can meet, begin to develop relationships and together explore and agree on the purpose, terms of reference and ways of working. Members can decide what practices to share, who to include, how to connect, roles and responsibilities, what events to have, their expected value, and the behavioral norms that will govern members' conduct.[154] It is also important to include a social activity to build relationships and trust, particularly if most of the interactions are likely to be via e-mail or telephone.

It may be useful to start with some sort of icebreaker or a 'getting to know you' activity to break down barriers and create a team spirit among participants. This can pre-empt members dropping out of the group. The facilitator can ensure that all participants meet, are acknowledged and feel comfortable to participate. Participants can be provided with an opportunity to introduce themselves. At the same time, introductory activities at the launch need to be goal-oriented and promote interaction. A useful activity is to get each participant to ask a few questions of other members to introduce the idea that participants should be engaging with each other and not just with the facilitator.[155]

If a survey has been carried out of the goals and expectations of potential members, the results can be presented at a first meeting for discussion and agreement. Once agreed, goals and terms of reference can be published on a web page and periodically reviewed in consultation with members.[156]

Community charter

During the launch, it is good practice to create a community charter. This is a tool used to introduce new members and align them quickly with the 'old timers'.[157] Many of the issues covered will already have been considered during the preparation phase, but in the launch phase these ideas are shared with participants for their input and revision. The community charter may include:

- Rationale and scope for the network;
- Key roles of CoP members (explored further below);
- Expectations in terms of time commitments;
- A 'code of conduct' – how members will work together, and key processes/tools,[158] including:
    - How often should people meet? Where will they meet?
    - What will be the main means of communication – face-to-face meetings and/or 'virtual' contact through email, video, telephone conferences, Intranet etc?
    - Do members need specific skills or training for this way of working, including training for using the tools as well as general team-working skills?
    - How will external orientation be built into the teamwork? For example, inviting speakers from outside the community to elaborate on emerging topics at meetings, or allocating responsibilities to team members to do investigation outside of the CoP and report interesting developments to the community.[159]

154 McDermott Consulting – Community Builders' Toolkit: Start-up. Retrieved October 15, 2008, from http://www.mcdermottconsulting.com/startup.shtml

155 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

156 The Australian Government Information Management Office Archive. (, no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

157 Catteeu, M. Retrieved October 27, 2008, from http://marnixcatteeuw.spaces.live.com/recent/

158 Collison, C. (no date). Keys to Successful Communities of Practice (Networks). Retrieved October 20, 2008 from www.chriscollison.com/l2f/documents/KMnetworks.doc

159 Murty, K. S. Building and Sustaining Communities of Practice. Retrieved October 15, 2008, from http://www.kwork.org/White_Papers/communities.html

Defining deliverables, which give shape to the strategic justification for the CoP and provide a sense of purpose, progress and achievement to members – ideally, a mix of long-term purpose and near-term value.[160]

The rules, defined according to the needs and context of the CoP, for example:

- At least one new lesson from each meeting;
- Privacy and confidentiality within the community;
- Views expressed are those of individual members; and
- After each meeting, a summary of the discussion is circulated to members.[161]

Determine community roles

The roles and responsibilities of all involved in the CoP need to be made clear from the start: for example, the sponsor, the leader (responsible for creating the conditions to let the CoP emerge and develop, monitoring its added value and strategic relevance, and ensuring its visibility), the facilitator (responsible for moderation/facilitation), subject matter experts (provide an overview of the knowledge domain and responsible for answering questions), event coordinator (provides access to the CoP and organises network events), participants, and where necessary, ICT experts (responsible for monitoring and maintenance of the CoP).[162]

The following questions are useful to consider in determining roles and responsibilities:

- What should be the roles and responsibilities within the community?
- Who will organise and coordinate the community's interactions and activities?
- Who will facilitate the interactions within the community, such as face-to-face meetings?
- What should be the role of each stakeholder and how should they be engaged and involved?

In studying how organisations may support their CoPs, Fontaine (2001) identified 11 formal and informal roles needed to keep communities afloat (see Table 1, page 31).

Initiate community events and spaces

Immediately after the launch, most CoPs begin implementing knowledge-sharing events like weekly meetings, teleconferences, or web events in order to tap the energy generated during the launch.[163]

Build a core group

When a CoP first starts, facilitators are often tempted to spend time recruiting new members or involving the less active members. However, one of the most important things a facilitator can do is to develop the connections between a small core group of members who are very interested in the topic. It is through the collaboration, thinking, and sharing of the core group that the community discovers its value. Sometimes, one person inserting something provocative can catalyse and generate discussion.[164] A 'hot' discussion among core members often lights a fire that attracts others.[165]

Find the knowledge worth sharing

A CoP can help validate members' practice and can also support its members to engage in knowledge building.[166] As CoPs develop, they usually discover what knowledge and what level of documentation

160 Ibid

161 The Australian Government Information Management Office Archive. (no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

162 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

163 McDermott Consulting – Community Builders' Toolkit: Start-up. Retrieved October 15, 2008, from http://www.mcdermottconsulting.com/startup.shtml

164 Campbell, N., & Salokhe, G. Setting up and maintaining Community of Practice. . Retrieved October 23, 2008, from http://www.km4dev.org/wiki/index.php/Discussion_Report_19_Natalie_Campbell_-_Setting_up_and_maintaining_Community_of_Practice

165 McDermott Consulting – Community Builders' Toolkit: Start-up. Retrieved October 15, 2008, from http://www.mcdermottconsulting.com/startup.shtml

166 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

are worthwhile. This also involves looking for how to apply knowledge shared, its value, and potential. Communities approach this in many ways, with some assigning teams to develop procedures, while others post material from their personal files in a common community space. One very useful way is for community members to begin helping each other solve everyday work problems.[167]

Identify useful ways to share knowledge

Communities differ widely on methods for sharing knowledge. Early in the CoP's life, it may be useful to try different methods for sharing knowledge, such as teleconferences, local meetings, and threaded discussions.[168]

Table 1: Typology of community roles (adapted from Fontaine, 2001)[i]

	Role	Description
Knowledge domain roles	Subject matter expert	Keepers of the community's knowledge domain or practice who serve as centres of specialised tacit knowledge for the community and its members.
	Core team members	Looked upon for guidance and leadership before or after a leader emerges or is selected; guidance includes developing the community's mission and purpose.
	Community members	Take active ownership in the community by participating in its events and activities and driving the level of commitment and growth of the community.
Leadership roles	Community leaders	Provide the overall guidance and management needed to build and maintain the community, its relevance and strategic importance in the organisation and level of visibility.
	Sponsors	Nurture and provide top-level recognition for the community while ensuring its exposure, support, and strategic importance in the organisation
Knowledge Intermediary Roles	Facilitators	Network and connect community members by encouraging participation, facilitating and seeding discussions and keeping events and community activities engaging and vibrant.
	Content coordinators	Serve as the ultimate source of explicit knowledge by searching, retrieving, transferring and responding to direct requests for the community's knowledge and content.
	Journalists	Responsible for identifying, capturing, and editing relevant knowledge, best practices, new approaches and lessons learned into documents, presentations and reports
Community support roles	Mentors	Act as community elders, who take a personal stake in helping new members navigate the community, its norms and policies and their place in the organisation.
	Administration / events coordinators	Coordinate, organise and plan community events or activities.
	Technologist	Oversee and maintain the community's collaborative technology and help members navigate its terrain.

i Bourhis, A., Dubé, L., & Jacob, R. (2005). The Success of Virtual Communities of Practice: The Leadership Factor. The Electronic Journal of Knowledge Management, 3(1), 23–34

167 McDermott Consulting – Community Builders' Toolkit: Start-up. Retrieved October 15, 2008, from http://www.mcdermottconsulting.com/startup.shtml

168 Ibid

Collect examples of value

In order to demonstrate the value of the community, it may be useful to start collecting stories or examples of value from the start. Because community members generally have so much unorganised information, they sometimes think it is key to document the community's knowledge. However, at the start, community members often do not know what knowledge is worth sharing. Heavy documentation responsibilities can easily sap the community's energy. For this reason, communities frequently emphasise networking at the beginning and incorporate more documentation as the bonds of the community increases.[169]

Focus on developing the bonds of community members

Setting up and launching a CoP takes time, especially in the case of virtual CoPs with no face-to-face component. Thus, it should be recognised that it is a time-consuming, slow process to build trust and commitment and facilitate the emergence of a common identity.[170] Effective leadership is a critical factor in achieving and maintaining the success of a CoP during launch and as it develops.[171]

Sustaining the CoP

Although there has been some research on CoPs, the process of how to nurture communities is not yet fully understood. It has been argued that, whilst there is a need to recognise and respect evolutionary processes, there is also a need to establish appropriate structures and processes to facilitate engagement within the community.[172] Generally, more facilitation support is required during initial stages, but as the CoP matures and becomes increasingly self-sufficient, facilitation and support is increasingly shared by members. Over time, as goals are achieved, the CoP enters a post-maturity phase when evaluation is needed to establish whether it should close or refocus on more relevant issues.[173]

Sustaining a CoP involves maintaining the dynamic energy of the established system.[174] Factors that could assist in sustaining a CoP are documented in the following sections.

Developing and maintaining trust and commitment

Communication is regarded as fundamental in the development of trust and the community. Participants must trust themselves as well as their colleagues so that they can contribute actively to online exchanges without fearing criticism of what they have written.[175] Regular face-face meetings, as well as communication using a technical platform, assist in developing trust and commitment in a CoP.[176] Blending face-to-face activities with online activities helps participants to get to know each other and assists in building trust. In such a context, participants can use the virtual component of the CoP to prepare for or report on meetings, presentations, or workshops. If possible, a virtual CoP should be implemented within the context of an already existing environment, for example, an existing CoP which has not used a virtual environment yet.

169 Ibid

170 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

171 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index.php?page=doc&vol=5&doc_id=10219&doclng=6

172 Meng, K. Y. (2005). Design for a Community of Practice for ICT Heads of Department. Retrieved October 24, 2008 from www.formatex.org/micte2005/228.pdf

173 The Australian Government Information Management Office Archive. (, no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

174 Stuckey, B., & Smith, J. D. Sustaining Communities of Practice. Retrieved October 15, 2008, from http://www.bronwyn.ws/publications/papers/sustaining.pdf

175 Tremblay, D. (2004). Virtual Communities of Practice: Towards New Modes of Learning and Knowledge Creation? Retrieved October 29, 2008 from http://www.teluq.uquebec.ca/chaireecosavoir/pdf/NRC04–05A.pdf

176 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index.php?page=doc&vol=5&doc_id=10219&doclng=6

Some scholars argue that trust is a crucial prerequisite to help build strong ties among members in order to motivate them to share knowledge. Trust seems to be embedded in two critical success factors: a non-competitive environment and contributions from well-known and respected individuals with regard to sharing best practices in the field. Moreover, strong ties among participants do not necessarily mean that participants are more inclined to share information in an online environment. Constant et al. found that information providers gave useful advice and solved the problems of information seekers despite having a lack of personal relationships with them.[177]

Several other factors can assist in developing and maintaining trust and commitment:

- Provide a means by which the group can meet at regular times;
- Participants need to know that their participation is valued by other participants both because of the knowledge they bring to the community and because of their way of working and communicating.
- Conflicts must be dealt with in a timely and respectful manner. The solution of a conflict is not seen as a victory or loss for individual participants but rather as a learning opportunity for the community as a whole;
- Conclusions should be drawn in a collaborative way and the opinions of all participants respected. Conclusions should not be imposed by the facilitator;
- CoP members should experience the community as a safe environment in which they can express opinions and positions without fear, feel free to ask questions and to explore non-conformist solutions and creative ideas; and
- CoP members must have a sense of belonging, of being an insider. There is a need to pay attention to cross-national, and cross-cultural dimensions in international online communities add to the complexity and challenges of, but also value in, such an accomplishment.[178, 179]

Focus on facilitation and encouraging participation

At the start of the CoP, the facilitator will need to be very active. However, over time, participants within the CoP will gradually take over the tasks of facilitation. A facilitator needs to guide discussion without being too dominant or imposing unnecessary rules. S/he should try to actively influence the balance between contributing to and benefiting from the community by inviting participants who seldom contribute to do so. Regular attention needs to be paid to motivation of participants. Providing ICT support can help to ensure that participants are able to focus quickly on sharing information and collaboration instead of on technology-related issues. It should be noted that some participants may be less familiar with technology tools used within the virtual environment and may initially feel uncomfortable using those tools.[180]

Lack of active participation can be highly problematic and it was widely held, until recently, that peripheral participants or 'lurkers' were a detriment. Some recent studies have examined more closely the benefits of both active participation and peripheral participation. These studies concluded that 'lurking' is the 'norm' in many online communities and only a few members post regularly. Lurking becomes a threat when too many members choose to lurk rather than actively post messages.[181]

177 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

178 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index.php?page=doc&vol=5&doc_id=10219&doclng=6

179 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

180 Ibid

181 Riverin, S., & Stacey, E. (2008). Sustaining an Online Community of Practice: A Case Study. *Journal of Distance Education*, 22(2), 43–58

The following approaches can be used to assist with facilitation:

- Introduce new and challenging perspectives from time to time, either from within the community or from external experts;
- Recognise and reward individuals within the CoP;
- Work on a calendar of activities;
- Support online CoPs using collaborative working tools with the potential to extend functionality as a community becomes more developed;
- For an online CoP, the facilitator can act as a sieve or filter to screen all messages before they are posted on the listserv; the facilitator helps keep the online communication focused on its core objectives;
- By acting as a 'watchdog' of netiquette rules, the facilitator can encourage user-friendly language and help keep the online communication civil and pleasant; and
- The facilitator can also focus on creating a non-competitive environment. [182, 183, 184, 185, 186]

The role of the facilitator in ensuring good netiquette, modelling good practice and practicing the guidelines about conduct in a virtual CoP is especially important in the case of 'neo-apprentices' in virtual CoPs, who may be wary about contributing because they feel that what they have to say is not sufficiently worthy or weighty. Seeing other people send abusive emails on virtual CoPs is likely to inhibit contributions from reputed members. [187]

Facilitators can pose stimulating questions and be persistent in sticking to the topic. They can allow all participants to express themselves and take an active and activating role themselves, without forcing their own agenda on others.[188]

A paper by Stuckey and Smith reported on activities and practices of leaders whose efforts to sustain their successful communities of practice have lessons for practitioners and researchers:

- To preserve the quality and focus of the discussion is vital for most communities, and leaders participate actively in the life of their communities. One of the key activities of community leaders is to sensitively and systematically gather feedback from members at the centre and periphery. Sustaining a CoP involves deliberately responding to change in a community's life together.
- Maintain boundaries around the community that are clear, permeable, and meaningful. Just as a community's identity is formed and sustained around the life inside the community, maintaining appropriate boundaries is a key leadership task that sustains a community's identity. At the same time as they sustain the clarity and integrity of their community's boundaries, community leaders deal with and actually promote change in those boundaries.
- Carefully draw nourishment from the environment and respond to environmental challenges creatively. Both the community and its leaders need resources to sustain the community's work, so drawing appropriate

182 Lesser, Fontane and Slusher 'Knowledge and Communities'. Retrieved June 17, 2008 from http://communityspace.globebyte.uk/ekm.nsf

183 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

184 Work & Learn Together (WLT) project. (2007). Implementation guidelines for Communities Of Practice within the hospitality sector. . Retrieved October 15, 2008, from http://www.worklearntogether.org/wiki/index.php/Main_Page

185 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index.php?page=doc&vol=5&doc_id=10219&doclng=6

186 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

187 Gannon-Leary, P. M., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. eLearning Papers. Retrieved June 17, 2008, from http://www.elearningpapers.eu/index.php?page=doc&vol=5&doc_id=10219&doclng=6

188 Bolliger, E., & Flury, M. (2007). CoP Manifesto. Retrieved October 16, 2008 from http://www.communityofpractice.ch/en/Home/media/CoP%20Manifesto%20Web.Eng.pdf

nourishment (i.e. new topics or new blood and probably new money) from the environment is a key consideration for community leaders.[189]

Publicity

It is useful to regularly update stakeholders and the extended network about what is happening in the CoP. The CoP can be publicised by using communications media, for example, writing a short news article which describes the CoP and its aims.[190]

Technology and its usability

Virtual CoPs need to make use of available Internet technologies such as discussion lists, bulletin boards, and accessible web technology. In addition, as highlighted above, there is a need to ensure that participants have technological provision and necessary IT skills to support mutual engagement. Technology needs to be regarded as an accepted and transparent means of communication. According to Hara and Hew (2006), the asynchronous nature of the online communication medium affords a convenient avenue for members to communicate with one another at any time and any place.[191]

One of the challenges of sustaining an online CoP, as highlighted by Riverin and Stacey, is that as use of the Internet has become more widespread this has resulted in information overload, which affects participation in online activities.[192] As highlighted above, this challenge can be overcome if the objectives are considered fundamental to achieving learning – if a participant can see the benefits of participating on their development, they are more likely to engage in an online CoP.

Renew commitment

It is useful to ensure that there is ongoing recruitment and that new members are welcomed and integrated into the community. Collison suggested that, to renew relationships, face-to-face meetings should be maintained to introduce any new members. For large CoPs, emails could be sent to existing members reminding them to send notice if they wish to be removed from the list. It is better to have a smaller group of committed members than a larger group with variable commitment.[193]

Evaluation and measurement

Seeking regular feedback from members and periodically evaluating outcomes can be a useful means of measuring the 'health' and relevance of a CoP, allowing for identification of emerging issues through these processes. It has been suggested that within six months of the launch of a CoP a 'health check' should be conducted to assess the:

- Internal value the CoP is delivering to its members;
- External value that the CoP is delivering to the OER movement;
- How satisfied members of the CoP are with:
  - The knowledge assets / content developed and shared;
  - Processes adopted by the community; and
  - Support of the champion and the leader.[194]

Standard, internal monitoring can focus on:

- Levels of participation in email discussion, presentations and meetings:
- Frequency of contribution;

189 Stuckey, B., & Smith, J. D. Sustaining Communities of Practice. . Retrieved October 15, 2008, from http://www.bronwyn.ws/publications/papers/sustaining.pdf

190 Collison, C. (no date). Keys to Successful Communities of Practice (Networks). . Retrieved October 20, 2008 from www.chriscollison.com/l2f/documents/KMnetworks.doc

191 Hara, N., & Hew, K. F. (2006). A Case Study of a Longstanding Online Community of Practice Involving Critical Care and Advanced Practice Nurses. In 39th Hawaii International Conference on System Sciences. Retrieved October 28, 2008 from http://csdl2.computer.org/comp/proceedings/hicss/2006/2507/07/250770147a.pdf

192 Riverin, S., & Stacey, E. (2008). Sustaining an Online Community of Practice: A Case Study. Journal of Distance Education, 22(2), 43–58

193 Collison, C. (no date). Keys to Successful Communities of Practice (Networks). Retrieved October 20, 2008 from www.chriscollison.com/l2f/documents/KMnetworks.doc

194 Murty, K. S. Building and Sustaining Communities of Practice. Retrieved October 15, 2008, from http://www.kwork.org/White_Papers/communities.html

- Frequency of response;
- Number of unanswered questions; and
- For larger networks, the number of joiners/ leavers.[195]

Attendance at meetings;

- Outputs achieved, such as better practice checklists and toolkits; and
- Evaluation of the uptake and usage of these checklists and toolkits.[196]

Closure of the CoP

CoPs do come to an end, and this is not always a bad thing. There are several reasons why CoPs close:

- The group is no longer active.
- It has achieved its primary purpose.
- The particular area of interest reaches a conclusion.
- It has been assessed by the lead agency as no longer serving its original purpose, is no longer considered to be an organisational priority, or has drifted from its agreed mission.
- It has failed to become self-supporting.[197]

Whatever the reason, it is important to celebrate the achievements of a CoP when it closes, and more importantly, to ensure that the relevant body of knowledge is captured and/or transferred.[198] As long as learning is captured and redistributed, the success of the collaboration can inform other ventures in the future.[199]

Relevant issues to consider in closing a community are:

- Consulting members regarding closing the CoP;
- Recognising the group's achievements;
- Acknowledging members' contributions; and
- Notifying members that the CoP is closed, via email and at meetings as appropriate.[200]

In conclusion, it should be noted that a CoP cannot depend on formulaic recipes or quick-fix solutions. Virtual CoPs, in particular, need to work hard to maintain energy and a high degree of participation, given their shifting membership. Individual members of a virtual CoP must engage with it in order that it may develop and grow and have meaning. As pointed out earlier, the ability to sustain the community is largely determined by strong leadership which, in the case of a CoP, may be a moderator, facilitator or list owner, and thus attention must focus on ensuring that the facilitator has adequate support to perform his/her functions effectively.

Criteria for Evaluating CoPs

Based on the research, a number of criteria have been identified to evaluate CoPs. These can also be used to track the development of CoPs (perhaps as a monitoring and evaluation tool). In compiling this list, it was realised that the criteria should not only focus on an online review of measurable aspects of the CoP, but should also incorporate a 'behind-

195 Collison, C. (no date). Keys to Successful Communities of Practice (Networks). Retrieved October 20, 2008 from www.chriscollison.com/l2f/documents/KMnetworks.doc

196 The Australian Government Information Management Office Archive. (no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

197 Ibid.

198 No author. No date. Setting up, cultivating and managing a community of practice. Retrieved October 15, 2008 from http://www.improvementservice.org.uk/library/download-document/1003-cop-set-up-guidance/

199 Improvement and Development Agency. Communities of practice. Retrieved October 15, 2008, from http://www.idea.gov.uk/idk/core/page.do?pageId=8152674

200 The Australian Government Information Management Office Archive. (no date). Guidelines for Establishing and Facilitating Communities of Practice. Retrieved October 15, 2008, from www.agimo.gov.au/archive/communties_of_practice/guidelines

the-scenes' element where the leaders, facilitators, and members are engaged in order to obtain an understanding of how the CoP is unfolding and specific challenges faced. This will provide a more accurate holistic understanding of the CoP. There is an overlap in the areas highlighted, as this will allow for the data obtained to be triangulated.

In considering this list, one should also keep in mind that community development is not a 'one-size-fits-all' process, and each community has its unique 'personality,' strengths, and challenges.

The criteria are presented in a tabular form, together with specific areas of observation for on-line CoPs as well as specific questions that are considered useful to ask facilitators, leaders, and members of CoPs.

Table 2: Criteria to Evaluate CoPs

Criteria	Online Observations	Interview With Facilitators And Leaders	Interview With CoP Members
Membership	Number of participants in the CoP Is membership registration voluntary or compulsory? Is participation voluntary or compulsory? Is membership such that anyone can become a member (open membership) or are there selected members only (closed membership)? Is there an observable member selection process?	Who are the CoP participants? How many members are there? Is membership voluntary or compulsory? Is participation voluntary or compulsory? Are members provided with incentives to participate? Is the membership relatively stable and permanent? Have there been fluctuations in membership numbers? What is the process for recruiting members? What is the process when new members join? Are they inducted/mentored to take on more active roles? What is the geographic dispersion or physical location of members? Have members had prior community experience? (Was the CoP created from an existing network, or is this a new community assembled for the first time?) Describe the level of commitment from members.	Is participation in the CoP voluntary or compulsory? Can anyone become a member (open membership) or are there selected members only (closed membership)? Did you go through a member selection process? What was the process of becoming a member of the CoP? What motivated you to join the CoP?
Establishing and maintaining the CoP		How was the CoP launched? Describe the process. Was the CoP orchestrated (top-down) or spontaneously created by interested members (bottom-up)? What have been the challenges in setting up and maintaining the CoP? What have been the main successes in establishing the CoP?	How was the CoP launched? Describe the process.
Purpose and objectives	Is it easy to identify the: • Purpose • Scope • Objective • Goal, and • Mission? Is the purpose of the CoP clear?	What is the purpose of the CoP (does it match what the online purpose appears to be?) What is the advantage of the CoP to the participants? Is the topic of the CoP relevant to members? Is there a broad theme or objective that is relevant to members' daily work? Is the CoP achieving its purpose and objectives? Please explain.	What is your understanding of the purpose of the CoP? Do you think that the CoP is achieving its purpose and objectives? Please explain. Is the CoP relevant to your work? Please explain.
Rules and procedures	Are there visible rules and protocols developed to support the CoP? Are these rules and protocols visible and easily accessible to new members?	What are the rules, procedures and protocols developed to support the CoP? Explain the process for developing the rules.	Are there specific rules and protocols developed to support the CoP? Please explain. Explain the process for developing the rules.

Criteria	Online Observations	Interview With Facilitators And Leaders	Interview With CoP Members
Technology	What kinds of technology tools are available to the members? Which tools are mostly used?	What kind of technology tools are available to the members of the CoP? How has the technology been used? What is the level of ICT accessibility for members? Do members have the means for interaction? What have been the challenges with using the technology? How comfortable are member to use the tools available? Have they had experience using ICT?	What kinds of technology tools are available to you in the CoP? Which tools do you mostly use? Do you have regular access to ICT? What have been the challenges with using the technology? How comfortable are you to use the tools available? Have you had experience using ICT?

Criteria	Online Observations	Interview With Facilitators And Leaders	Interview With CoP Members
Participation	How often do participants contribute (number of interactions)? How many 'threads' are there in forums? How many resources are there in the document library? External resources Resources that were created) How are resources managed? (are there visible processes in place to manage and measure them)? Is it clear who is facilitating the CoP? (Note that this could also be indicative of the stage of evolution of the CoP.)	How is communication organised? What is the main mode of communication? Describe the participation levels of members. Do certain members contribute more than others? Provide possible reasons for good or poor interactions. What are the barriers to participation? Do you think that there needs to be an incentive to participate? What incentive should be provided? What (additional) support is required to facilitate participation?	How often do you contribute to the CoP? What prompts you to participate in the CoP? How often do you contribute resources to the resource library? Are these resources original pieces of work or external resources? What do you think about the facilitation of the CoP? What is the main mode of communication in the CoP? Do certain members contribute more than others? Provide possible reasons for good or poor interactions. What benefits do you see arising for your participation in the CoP? What are the barriers to participation? What have been the challenges in participating in the CoP? What have been the main successes in participating in the CoP? What have you learnt or gained from participating in the CoP? Do you think that there needs to be an incentive to participate? What incentive should be provided?
Life span of the CoP	When did the CoP start? Does the CoP have a definite end date?	When did the CoP start? Is it a temporary CoP created with a specific purpose or a permanent CoP (with an undefined time span)? At what stage is the CoP currently?	When did the CoP start? When did you become a member? Does the CoP have a definite end date?

Criteria	Online Observations	Interview With Facilitators And Leaders	Interview With CoP Members
Impact of CoP		How has the CoP environment supported members and their learning? What skills have member acquired through participation in the CoP?	How has the CoP environment supported you and your learning? What skills have you acquired through participating in the CoP?
Resource management		How are resources managed?	How are resources managed? Explain the processes in place to manage resources. What have been the challenges in managing the resources?
General (areas specific to OER Africa)		How do you think CoPs can be used effectively to benefit of OER development? What do you think are the limitations of participating in a CoP (from an African perspective)? What further support is needed to encourage participation? What do you think about the quality of the materials produced? What are your thoughts around issues of copyright and intellectual property? How do you feel about having your resources accessible to all, and open to feedback and criticism?	How do you think CoPs can be used effectively to benefit OER development? What do you think are the limitations of participating in a CoP (from an African perspective)? What further support is needed to encourage participation? What do you think about the quality of the materials produced? What are your thoughts around issues of copyright and intellectual property? How do you feel about having your resources accessible to all, and open to feedback and criticism?

Relevance of CoPs to OER Africa

OER Africa was established in 2008 under the auspices of the South African Institute for Distance Education (SAIDE).

OER Africa has been established in the belief that Open Educational Resources [OER] have a tremendously powerful positive role to play in developing and capacitating higher education systems and institutions across Africa. The project has been set up to ensure that the power of OER is harnessed by Africans for Africans to build collaborative networks across the continent.[201]

In understanding the relevance of CoPs to OER Africa, two case studies of CoPs previously available on the OER Africa platform were analysed: Skills for a Changing World (SFCW) and ACEMaths (see Appendix C and D for detailed case study overviews). The aim of the SAIDE ACEMaths project was to pilot a collaborative process for the selection, adaptation and use of OER materials for teacher education programmes in South Africa. The Skills for a Changing World (SFCW) programme seeks to provide educational opportunities for those who are currently excluded from post-schooling education both at FET and HE levels. In addition to preparing students for further study, the programme further aims to prepare students for the world of work by focusing on the development of generic skills that are essential for successful functioning in the current economy.[202]

The rationale for choosing to highlight these case studies was that they were the first CoPs to be established on the OER Africa website, (with SFWC serving as the pilot project and lessons learned from this pilot applied in the ACEMaths CoP). Consultations were held with the project managers and some participants of both these CoPs. In addition, an OER Africa representative involved in setting up the online CoP spaces was interviewed to obtain her perspective on setting up the technological platform of the online CoP, and the Knowledge Management and Information Technology Director at the Commonwealth of Learning (CoL) was interviewed to obtain his perspective on CoPs, based on his experience in the HE field. It should be noted that both CoPs studied were based in South Africa and thus the findings are biased towards a South African perspective. Nevertheless, the perspectives from South African academics do shed some light on the possible challenges facing other academics in Africa.

The criteria for evaluating CoPs (described earlier) formed the basis of these consultations. Prior to the interviews, it was clear that the virtual CoPs on OER Africa were not active as there was little evidence of interaction on the OER Africa site. The consultations aimed to understand the nature of the barriers faced by CoP members in using the OER Africa platform, and revealed a number of limitations on academics participating in CoPs.

Barriers faced by those involved in African HE in participating in CoPs

Lack of access to ICT infrastructure and insufficient bandwidth

The case studies revealed insufficient bandwidth as an area of concern, with participants in the SFCW programme noting that the lack of sufficient bandwidth at the UFS resulted in frustration in uploading and downloading project documentation. In addition, it was also noted in the SFCW case study that many academics do not have Internet access at home, and given that online CoPs necessitates the use of Internet, participants were required to use the Internet connection at work. Although not noted as a major limitation in South Africa, the CoL representative pointed out that, in other parts of Africa academics may not necessarily have their own computers and Internet access.

Time constraints

Findings from the ACEMaths and SFCW case studies revealed that academics reported a lack of time to contribute to online CoPs. The CoL representative also noted that, in the African context, there is generally a lack of skills and capacity, resulting in those that have the capacity being involved in a number of projects and therefore placed under a great deal of pressure.

201 About OER Africa. http://www.oerafrica.org/

202 OER Africa Communities of Practice. http://www .oerafrica.org/Default.aspx?alias=www.oerafrica.org/cop

This impacts on levels of participation in online CoPs as academics usually viewed participating in CoPs as additional work. This observation was echoed by a participant in the SFCW programme, who pointed out that those who are most skilled tend to have less time to participate actively in a CoP:

The basic problem with virtual CoPs in my context and in my opinion is that people do not have the time for it. This is a function of operating in a developing country with scarce skills. People with competency are doing much more than their job in higher education. (SFCW Module coordinator)

Given that participating in CoPs is seen as extra work over and above their usual pressured jobs, participants did not prioritise spending time participating in an online CoP.

Lack of familiarity with using Web 2.0 technology

The ACEMaths project manager felt that academics and those involved in HE in Africa are not familiar with using technology and 'they find computers alienating'. Participants were not confident in using technology that was new to them. Participants in both SFCW and ACEMaths noted that they were not 'technologically advanced' and the idea of using the online tools available on OER Africa was a new concept for them.

In the SFCW case study, it was felt that participants and the facilitator may have had a 'mental block' or resistance towards using technology. One of the SFCW module coordinators pointed out that some participants lacked sufficient technological proficiency and the willingness to use such a platform to communicate and discuss ideas:

Not all people involved are computer literate. We do not stick to computers like other people. (SFCW Module writer)

The CoL representative and ACE Maths project manager noted that in an online CoP, usually few members are active participants – most remain 'lurkers' on the periphery:

Usually in a group of 40 people, only four will contribute – these are people who have time and energy to do that (CoL Representative)

They [participants] seemed to have an aversion anyway to technology and weren't likely to try out things for the first time and not waste time to try something new. They seemed anti-technology and conservative, so they may have been the wrong group to work on initially. (SFCW Module coordinator)

It was also pointed out, that in SFCW it took more time to understand the technology and try to use it than to actually develop the materials, and thus the process was regarded as time-consuming and difficult. One participant noted that the time and resources spent on the technology would have been better spent on developing materials:

It added extra work. The perceived value was not great enough to warrant additional effort to put work in it. (SFCW Module coordinator)

Technical problems

The SFCW programme faced a number of technical glitches (recognising that this was the first programme to use the online CoP space on OER Africa). Initially, several challenges were faced including difficulties with signing in, the procedure for uploading resources, and easily locating resources (see case study for more details). These technical problems served to discourage participants from using the online space, and highlight the need for a smooth-running platform for communication from the start. As the SFCW CoP was the first pilot, lessons learnt from setting up the technical platform for this CoP were then applied to the ACEMaths CoP, where no technical problems were noted.

Readiness of African Academics to Participate in Online CoPs

Whilst limited to the South African context, the research revealed that academics were not keen

or ready to participate in online CoPs. In addition to the lack of time, work pressures, and a lack of familiarity in using Web2.0 technology, the need for incentives to participate, appreciate the value of an online space and develop an online identity were regarded as important considerations in addressing African academics' willingness to participate in online CoPs. These findings are discussed below.

Incentives to facilitate and participate in CoPs

The research revealed that African academics require incentives to participate in CoP, with the primary incentive being the CoP fulfilling a core need or function of their work or facilitating their work.

It was also felt that if engaging in an online CoP formed an essential part of participants' jobs, then the online space would be utilised. It was suggested that participating in the CoP should form part of academics' formal work or they should be paid to participate. According to the CoL representative, people that are motivated to participate in online CoPs are usually paid for their participation:

Basically you are asking busy professional people to participate in something where they are not being paid (ACEMaths Content specialist)

The ACEMaths interviewees recommended that facilitators be paid to facilitate the CoP as there is a need to drive the direction of the CoP and motivate participation. Thus, for facilitators, support was regarded as integral, particularly if it is an online CoP and the facilitator is not familiar with the tools used. It was also suggested that facilitators receive funding so that they can dedicate time to driving the CoP and becoming proficient in the tools available. It was highlighted that if facilitation does not form part of their core job description it is unlikely that facilitators will drive this element.

The CoL representative also noted that there was a need to provide other incentives for African academics to participate in OER projects and CoPs – for example, participants could be provided with laptops for the duration of the project, with the requirement that if they contribute online they can keep their computers.

Motivation to use the online space

Consultations revealed that face-face workshop and meetings were vital in creating CoPs. In both case studies, the workshops were regarded as integral to achieving the outcomes, with little online participation having occurred subsequently. From the CoL representative's experience of having set up and run a number of communities, CoPs are usually active around the planning and momentum towards a face-to-face activity, and activity declines between these events. The online space is chiefly used for communication between activities – or during an activity to inform other members who are not physically present of the discussions taking place in a live face-face meeting. This was regarded as important so that when people meet, 'they meet productively and they know each other'. In materials development, most of the work was conducted in face-to-face interactions as after the engagement, people returned to their other commitments. The CoL representative noted that after the face-to-face discussions, people did not respond well to online requests for feedback due to time pressures and other work-related pressures. This was also evident in the ACEMaths project, where participants engaged during the workshop but seldom responded to emails or provided feedback between the workshops. Both case studies pointed to the importance of face-to-face meetings, and suggested that CoPs on OER Africa include a face-to-face component.

The OER Africa representative and project managers in both case studies noted that there was a need to stimulate discussion to motivate participation in online discussions. The CoL representative advised that motivation be first provided in a face-to-face environment and that the online platform be introduced and activated during the workshop. He suggested that even during workshops participants be required to use the online facility to save and share their work.

Necessity of online tools not recognised

Related to participants being insufficiently motivated to use the online space was the fact that they did not see the necessity of using online tools. Case studies revealed that most discussions took place through face-to-face meetings, or the use of email and telephone. Participants did not

see the necessity of using the online facility when their needs could be met through other forms of communication with which they were more familiar and which they regarded as more efficient. As online communication is not a familiar everyday occurrence, instead of exploring and using the space to upload resources, participants preferred to call or send an email:

Tremendously busy people…want to communicate effectively and quickly. I want to discuss…telephone conference, meeting. But not a virtual meeting, especially if the platform is not stable from the start. (SFCW Module coordinator)

I was so swamped with working I used email and phone. (SFCW Module coordinator)

It was more efficient to email links and documents and talk to people on the phone. A virtual CoP doesn't beat that in terms of efficiency. (SFCW Module coordinator)

Why go to that community, when I can go next door and ask what do you think of that paragraph? (SFCW Project Manager)

Whilst email and telephone conversations were regarded as more time efficient, the reluctance of participants to explore the new tools on the OER Africa site could also be due to a lack of familiarity in using the technology, apprehension and fear in using new tools. According to an OER Africa representative, the SFCW facilitator was resistant to using the technology and was thought to have communicated the same sense of resistance to other participants in the programme.

It is possible that participants would have taken the time to use the tools if they could see the direct relevance and benefit of using the tools. In both case studies, engaging in an online CoP was not regarded as 'part of core business' nor fundamental to achieving the work required. In the SFCW programme, it was noted that participants focused on what they had to do – produce materials – and online collaboration was not seen as integral to this process (it also acknowledged that most of these participants were located in close proximity, and thus an online platform was not so important).

The SFCW project manager pointed out that for people to use the tools, they need to see their value – such as reducing their workload and making their work easier. It was further pointed out that discussions would not occur simply because there was a tool available to discuss issues on the website. As highlighted in the literature, excellent technology will never make a CoP and the best tools are not worth having if members do not use them or find them difficult to use.

In addition, it was noted that an online platform would most likely work if many rather than few people are collaborating (as was the case in both case studies). It was noted that there is a need for many participants as it is likely that not all members will actively participate in online CoPs.

Developing an online identity

It was pointed out that engaging in online CoPs requires a lifestyle change, and needs to form part of a person's daily routine and identity:

Your way of relating to the world has to change…what I need to do is to develop an identity that incorporates this (ACEMaths Project manager)

Not part of what people do every day. People don't blog and forum. They email and work (SFCW Module coordinator)

People who participate in CoPs, live in an online world…Africa is not an online society (CoL representative)

It was pointed that participants do not necessarily have an online life:

Life is face-to-face, not online (CoL representative)

The expectation of an online CoP is too high…expect to convert lifestyle into an online lifestyle (CoL representative)

Thus, it was felt that African academics may not be ready to participate in online CoPs as they have not adopted an online way of relating to the world.

Conclusion and Recommendations

The concept of CoPs has influenced theory and practice in many domains, notably in business settings, with increasing use in the HE sector as well. The knowledge created and shared by a CoP differentiates it from other communities. CoPs enable expertise to be shared and best practices to emerge, freely and informally.

The concept of virtual CoPs has opened up an opportunity for collaboration across boundaries of time and space. In African HE, its potential role is very promising and accords well with OER objectives of enhancing collaboration and opening education beyond formal institutional boundaries. The case studies and consultations revealed that there was some support for using CoPs to support OER development and HE in Africa. In the ACEMaths project, for example, participants were also educated about OERs and appreciated the opportunity to engage in a structured project that pooled different ideas in order to create learning materials that were relevant and easily accessible in their context. Whilst the potential of OER Africa to meet the need of geographically dispersed people to communicate and collaborate was also noted, face-to-face CoPs were more valued by participants than virtual CoPs.

From an OER perspective, the focus was on providing an online space for interaction. However, as highlighted in the literature, it is important not to confuse the community with the platform – communities consist of people, while platforms support their interactions – just because a platform is provided it does not mean that there is automatically a community. This was clearly the case in OER Africa, where the provision of a platform did not result in the development of communities.

In considering barriers to participation, these closely mirrored the barriers outlined in the literature including insufficient access to technology, participants' limited experience in engaging in online activities, the actual time required to engage in such activity and participate, and technical difficulties encountered. The constraints faced by academics in Africa (particularly in South Africa), specifically the lack of interest and reluctance to use Web2.0 technologies, coupled with time constraints, suggest that perhaps African academics are not yet ready to engage in using online CoPs. The findings suggest that in a South African context, Web2.0 platforms for collaboration are a fairly new phenomenon in the HE field. A further factor was the work pressures on African academics, and this endorsed the view that structured projects in which CoPs form an integral part of job descriptions are more likely to promote and facilitate the use of online CoPs. These findings suggest that CoPs need to viewed as essential to core job functions in order for their benefits to be realised.

In the context of lack of access, the following areas need consideration:

1. It is clear that engaging in the development and support of CoPs requires dedicated support and facilitation. Further investment is required to capacitate and support facilitators so that they can champion and nurture CoPs. For example, funding and time needs to be allocated to capacitating facilitators so that the maintenance and support of the CoPs form part of their job function rather than an additional voluntary task. It is unlikely that CoPs would work in an HE setting without a dedicated budget and facilitators to drive the process. If this route is pursued, it is possible that in time participants will become more familiar with Web 2.0 technologies and recognise their value, and as Internet access improves, engaging in such activities could become part of their daily routine.
2. Face-to-face CoPs are perceived as having greater value than online CoPs, and therefore careful consideration needs to be given to how an online space can be used to complement face-to-face interactions rather than the online space being the focus or central point of a CoP. For example:

    - The online space can fulfil the function of sustaining or creating a continuation of the CoP in between meetings by allowing communication with members, providing updated information and allocating tasks or work to members.

- During face-to-face meetings, participants can use the online facility to save and share their work.
- Another way of encouraging participants can be to use the online space (rather than emails) to post relevant information on the forums, where participants receive an email alert , but they need to go online to access the content information.

Thus, attention could focus on how technology can enhance the CoP.

1. In recognising the practicalities of academic life, such as competing responsibilities and resultant time pressures, as well as reluctance to engage in Web 2.0 technologies, attention needs to focus on understanding what would make members want to contribute to an online CoP. The topic of the CoP should be seen as core to participants' work, and collaboration needs to become an integral part of the work being done by teams in order to motivate participants to use the CoP.
2. In recognising the technological challenges faced, it is vital to ensure that technological platforms work well, and that they are tested well in advance of launching a CoP. The platform must be user-friendly so that participants who may already be fearful of using new technologies are not further discouraged.
3. Potential participants need to be informed that they may be required to invest up-front time in familiarising themselves with how the tools work. Furthermore, prompt technical support should be provided to participants who experience difficulties to avoid frustration and to encourage participation
4. Where a CoP already exists (as in the case of ACEMaths), it will be important to consider whether or not OER Africa can support and add value to the CoP by providing a technical platform. It will also be important to think about whether or not the additional online layer is in fact a necessary component of the COP.

Developing online CoPs requires dedicated time and commitment, and does not just involve the provision of an online platform. It is recommended that the CoP spaces on OER Africa be discontinued as there is no evidence of CoPs actually existing on the website. The following specific recommendations in this regard are made:

1. Given that the 'CoPs' on OER Africa cannot be described as CoPs in terms of existing definitions, it is recommended that this section be re-titled 'OER Projects' (It is noted that this change has already been made on OER Africa). However, this does not exclude the possibility of CoPs being developed, encouraged and promoted under these projects should OER Africa continue to pursue this.
2. The 'OER Projects' space should be used to clearly display the OERs created and available for use by African academics. In addition, there could be a focus on marketing materials that are available on the OER Africa site. In this regard, it is imperative that the search facility functions efficiently.
3. Experience in the SFCW programme pointed to the need for greater advocacy and lobbying for academics to 'buy into' the concept of OERs. In addressing OER Africa's primary objective of harnessing OERs to develop African academics, attention should focus on greater advocacy to change mindsets around developing OERs at a grassroots level.
4. Participants should be able to navigate the OER Africa site using low bandwidth.
5. OER Africa should focus on creating or customising tools that are essential for the materials development processes, that do not exist elsewhere and add value to the creation of OERs, such as:
    - Develop a writing tool;
    - Create a repository of useful material on how to write OERs;
    - Provide an online tool to register OERs;
    - Create a link to a citation tool to record references and bibliographies; and
    - Include a step-by-step guide on how to upload materials on OER Africa.
    - It is essential that these tools work efficiently before they are introduced to participants.
6. In understanding whether people have accessed and downloaded the OERs developed, OER Africa may wish to consider

installing a counter for monitoring. There could also be a facility where participants can add adaptations that they have made to content, in one easily identifiable repository. Facilities to rate the materials using a star rating for each resource as well as a facility to comment on the downloaded materials would be useful to gain feedback.

OER Africa embarked on developing a presence on Facebook[203] in March 2009. This is an open group where anyone can join and invite others to join. As of July 2009, the space had 239 members. This space provides the potential to function as an online CoP. The principles and lessons learnt from the CoP research are therefore being applied to the Facebook space to provide guidance on how to grow this CoP systematically.

Based on the findings of the research and a review of the OER Africa Facebook space, a number of recommendations are made. These recommendations focus more on the initial stages of developing a CoP (most importantly facilitation and encouraging participation) given the early stage of its development:

Whist the main page introduces the notion of OER Africa, there is still a need to clearly define and articulate the scope and focus of the space (the domain). In deciding this, OER Africa may wish to consider what the space should achieve and how this space will benefit the OER movement and participants. There is thus a need to obtain a clear sense about what can be learnt through participating in this CoP.

Regarding membership, there appears to be a self-selection type membership as the space is open and accessible to the public. OER Africa may wish to consider which type of members it is attracting and who they wish to attract. In order to obtain a clear sense of membership, a brief check can be done on who current members are, noting who contributes regularly to determine what purpose the space plays for frequent contributors

It was also noted that there as yet has not been much activity or discussion on the space, which raises the issue of facilitation. While there are five 'administrators' on the space, it is not clear who the facilitators are, and there appears to be a need for clarity on who the facilitator(s) is/are, will there be a primary facilitator, and how will facilitation between the facilitators be shared if there is more than one facilitator. Importantly, the facilitator should have the time and capacity to facilitate discussions. Drawing from the lessons learnt in the case studies, there is a need to ensure that the appointed facilitators(s) have the necessary capacity and support so that they can champion and nurture the CoP and perform his/her functions effectively.

Given that this is still the starting phase of the space, there is a need for more active facilitation to promote collaboration and sharing. Specifically, it is recommended that the facilitator(s) respond promptly to questions, queries, suggestions and responses. In addition, there is a need to drive discussion by asking provocative questions to stimulate discussion. As participants see increased activity on the space, they are more likely to contribute.

Given that the space aims to function as a virtual CoP, attention should focus on the development of trust and commitment, which are vital for sharing. Strong and consistent facilitation needs to be placed on developing the bonds of the community to allow participants to achieve a shared sense of purpose. As a virtual CoP, facilitators will need to work hard to maintain energy and a high degree of participation, and it is recommended that attention be given to user-friendly language and netiquette.

With regard to the tools available on Facebook, there is a need to decide on which tools to use to support specific purposes. For example, to increase participation, members could have the option to receive updates or recent posts on the space into their inbox (if this is possible?), as this will allow them to be informed easily about current discussions.

As interaction and participation grows, there is a need to focus on publicising the space, perhaps on other OER sites, or through other avenues where OERs are promoted.

203 http://www.facebook.com/home.php?#/group.php?gid=75250821322

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Appendix A

Questions to Consider when Deciding on which Technology to Use in a Community of Practice

(Source: Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008 from http://www.ewenger.com/tech)

What types of communities are you trying to support?

It is crucial to understand the kind of communities you want to support and the kind of activities they engage in and relationships they develop.

- How well defined is the domain of knowledge?
- How tightly knit is the community?
- Are they likely to know each other? To have established reputations?
- What is the main goal of the community?
- How much common knowledge are they building?
- How much work are they doing together?
- Are interactions mainly discussions, such as expressing opinions?
- How important are documents, tools, and other artefacts?

These questions will help you think through the product categories best suited for these communities and the best entry point into the development of a technology platform for communities of practice. For instance, if the communities mostly want to have good conversations online and share a few documents, fairly cheap solutions can be developed easily and made available for wide use at low cost.

What are you trying to accomplish with technology?

You need to decide which community success factors you are trying to prop up and then evaluate your choices of technologies accordingly.

- What aspects of the life of a community does technology need to enhance?
- What is the practice of the community and how can technology support it?
- Does the design of the system address the necessary success factors appropriately?
- How well do the pieces together?
- How easy is it to integrate potential new pieces?

Do you want technology to modify behavior?

You also need to decide what the system says about the place and role of communities in the organisation. An aspect of this question is how much behaviour modification you want to promote. All technologies to some extent influence behavior by placing emphasis on or facilitating certain processes, but some companies also take intentional steps to make their technologies reflect some principles or processes and influence behavior accordingly. Some systems are designed as general utilities and some are designed to encourage certain behaviours. Some are meant to blend seamlessly into the way people behave already, for instance by using email a lot. Others are meant to encourage specific behaviours, such as logging on to a distinct community space or reflecting on a model of how a community behaves.

- How well is the system integrated into how people work?
- What model of collaboration does a system reflect?
- How much work will the behavioral modification require?
- Is it worth the trouble?

How well are the community-oriented facilities integrated with existing systems that provide some of the needed functionality (e.g., databases, document management, enterprise systems and portals)?

What are the effects of pricing structures?

Considering pricing structures is important because the pricing structure of a system has direct implications on its usability as a general platform for communities of practice, in terms

of both community development and individual participation:

While some communities of practice are very formal from the start, others begin informally, with little or no support from the organisations they are in.

While some have a clear idea of the value they will provide to the organisation, others are much more tentative.

Most communities need to have flexible boundaries, supporting multiple levels of participation, including very peripheral. Whether the systems are hosted as ASP (Application Service Providers) or licensed/sold, the market offers four main types of pricing structures.

- **Per community** (e.g., Communispace – with limited membership, RealCommunities – without limit): good when communities have a clear sense of value and when boundaries do not need to be too open.
- **Per seat** (e.g., Intraspect, Orbital, DocuShare): good when the whole organisation has the system so communities can be started anywhere and anyone can participate at the level they choose.
- **Per volume of activity** (e.g., Webcrossing, eCircle): good for general platforms, especially when communities may start without having to demonstrate value up front. Allows peripheral participants to be included without 'taking up' a seat. Good for interorganisation communities.
- **Outright purchase** without limitation on usage (e.g., Webboard, UBB, and most licensed systems beyond a certain usage): ideal for general platforms, but is usually true of small, inexpensive off-the-shelf systems or of expensive 'unlimited usage' level licenses. It also requires in-house ability to handle issues of maintenance and technical support.

Questions regarding pricing would include:

- How many communities are expected?
- How formal do you want the launch of a community to be?
- How much peripheral participation should the system support?
- How many and what kinds of boundaries are communities expected to cross?
- Who will pay for the technology?

What are the requirements of the technology?

- **Support**. You need to consider the requirement for local support. For instance, some systems require a thick-client component on local machines, which must be installed by an IT department, while increasingly common browser-based or thin-client applications do not require local technical support.
- **Programming.** You need to consider the requirement for programming skills. For instance, ACT is free, but unless you hire the services of ArsDigita, using the system requires a group of skilled programmers who are interested in joining the ArsDigita community.
- **Systems requirements.** In this report, I have not addressed issues of systems requirements, such as supported hardware and software platforms as well operating systems and database compatibility. These issues are of course important in the selection of particular products, though the trend towards ASP and the increasing use of open standards like Java and XML may decrease the prominence of these types of question.

Appendix B

Functional Components for Communities of Practice

The actual products are not listed here deliberately, but their typical features are included so that a conceptual understanding can be gained.

Relevant functional components for CoPs[204]

Category	Typical Features
Desktop: complete portal-like applications for managing participation in multiple groups	Customizable desktop Management of multiple views onto relevant sources of information Full-text, full-index search engines Subscription and notification Conversation spaces Project management capabilities Underlying ontology
Online project spaces for team work	Workspace management: membership, access rights, customisation Team calendar Team management facilities: adding members, access control Project management facilities: status, milestones Task management facilities: assignment, scheduling, monitoring Folder structure for sharing project-related documents Search mechanism Check-out and version control for working on common documents Notification of events, deadlines, changes News board Discussion board Instant messaging Presence awareness Polling and voting

204 Wenger, E. (2001). Supporting Communities of Practice: A survey of community oriented technologies. Retrieved October 16, 2008. Retrieved October 16, 2008 from http://www.ewenger.com/tech

Category	Typical Features
Website communities, such as customer communities, where the management of membership is important	Member identification, directories, and profiles Asynchronous discussion boards Chat Presence awareness Instant messages Document folders Feedback and rating mechanisms Customisation of community space Sub-communities E-commerce facilities Calendar of events Administration console Activity analysis and management tools
Discussion groups typically targeted at communities of interest with little commitment to a shared practice	User-oriented features Asynchronous conversation spaces Threaded and/or streaming discussion Indication of 'new' entries Bookmark for messages Sub-communities for sub-topics Public user profiles User preferences for viewing and selecting postings Navigation facilities among topics File upload with postings Search mechanisms for discussion postings, but not for uploaded files Some email support Administrator-oriented features Simple authentication capabilities Posting management facilities: editing, clean-up, archive Profanity filters Monitoring and administration facilities, such as traffic analysis, setting privileges Customisable user privileges such as opening new topics Customisable look and feel

Category	Typical Features
Synchronous meeting facilities, online auditoriums, conference rooms, and chat	The feature sets are somewhat different for the various perspectives, but the most common features include: Presentation facilities Application sharing Web tours (visiting sites as a group) Audio streaming Video streaming Whiteboard Chat User reaction indicators (e.g., mood indicators) Polling and voting Presence awareness (participants list) Automated invitation Meeting access control (participant password) Minutes-taking and action-items facilities Recording/archiving Attendance reports
Community-oriented e-learning systems	The feature sets vary greatly for the various perspectives. Storage of content material Open and directed ways for students to discuss content Synchronous and/or asynchronous delivery process Multimedia presentations Recording and broadcasting of classroom sessions
Access to expertise, through questions or expert profiles	Question-asking facilities Profiles of experts Feedback mechanisms Reputation builder Automated ranking of experts Automated ranking of responses Automated access to databases of frequently asked questions

Category	Typical Features
Knowledge repositories	The feature sets vary greatly for the various perspectives. Storage facilities Security and access control Knowledge object types Organisation of objects according to a taxonomy of content areas Document check-out Version control Search across document types Indexing Cataloguing Summary document previews Creation and use of meta-data Recovery of deleted information Integration of disparate data sources Document conversion Subscription Administration facilities (e.g., account management, usage reports, etc.)

Appendix C

Community of Practice on OER Africa – Case Study One: Skills for a Changing World (SFCW)

This case study report is based on various consultations held in March 2009 with people involved in the Skills for a Changing World (SFCW) programme. Interviews were conducted with:

- An OER Africa representative involved in setting up the online CoP;
- The project manager for SFCW;
- Two module coordinators;
- A module writer; and
- A graphic designer and critical reviewer.

Based on observation of the online activity during and prior to the consultations, it was evident that there was no vibrant online CoP on the OER Africa space, and the research sought to determine the reasons for this lack of participation. In addition, the consultations were aimed at determining whether a CoP has arisen from other face-to-face interaction between participants that was not evident online. Based on participants' experience of engaging with this project, the relevance of CoPs to the higher education context and achieving OER Africa objectives were also explored.

Background to the SFCW Programme

The SFCW Programme started in the Free State Province, South Africa, with funding received from the Ford Foundation in 2007 to develop a 'foundation' course for learners who were unable to gain entrance into higher education (HE) or find a job. The need for such a programme flowed from project planning for three campuses by the Free State Higher Education Consortium (FSHEC) in 2005. The consortium consisted of three member institutions at that time – University of Free State (UFS), Central University of Technology (CUT) and the Free State School of Nursing (FSSON). A needs analysis done by FSHEC revealed that the core skills students lacked when they started university or began work were literacy, numeracy, life skills, dealing with diversity, and consciousness of the world around them. The consortium therefore decided to develop a programme focusing on these core areas in recognition of the need for such skills for people to function effectively in the world of work.

According to the OER Africa representative, one of the aims of the OER Africa project is to bring together people that have a common interest in developing higher education resources in Africa. In realizing this, OER Africa had identified a few pilot CoPs and had set up virtual spaces for these CoPs on OER Africa with the objective of initiating a process of sharing resources and materials developed between higher education institutions (HEIs) in Africa. In addition, the funder of the SFCW Programme wanted to make the materials available as OERs, and given that the content covered the HE sector, OER Africa decided that this project fitted well with their objectives. The SFCW programme was one of the first CoPs set up on OER Africa, as a pilot CoP to help the OER team to understand what is needed to set up and manage CoP platforms.

Overview of the process of starting the CoP

A SFCW Committee was established, with representation from all FSHEC members. These representatives were responsible for identifying potential participants for the project from their respective institutions . The following people were involved in the SFCW project:

- Project manager;
- Module coordinators (for each identified module), involved in coordinating the work of the writers in their team;
- Module writers, involved in writing the materials;
- Reviewers; and
- OER Africa representatives who provided training in the use of the online space.

In developing the online space of SFCW on OER Africa, the SFCW project manager provided the OER Africa representative with her ideas about the community space, and a concept paper was developed subsequently. The paper covered issues

such as: the purpose of the project and the space on OER Africa, the vision of how it would function and enhance project activities, the identification of tools, suggestions for how tools could be utilized and customised based on SFCW requirements.

Curriculum development process

The curriculum development process for the programme involved two workshops (a two-day and a four-day workshop), which brought together all participants to discuss the project. At the latter workshop, the OER Africa platform for the SFCW CoP was introduced and launched.

These workshops resulted in a draft curriculum framework outlining issues such as the approach to material development, the teaching and learning approach, and the assessment strategy.

Module coordinators prepared a module outline and a further workshop – a 'writing workshop' was convened at which different module teams shared their plans with other teams, with the aim of facilitating integration of course materials across modules. After this workshop, teams then worked on writing their modules.

A materials review workshop was held subsequent to this, at which participants from various teams shared their materials. Writers of different modules were paired up to review sections of other modules. In addition, participants were shown how to use the different tools on the OER Africa site, and they were encouraged to upload their draft work onto the system.

Participants spoke very highly of the benefits of the workshops, highlighting in particular that facilitators were well organised and that the areas discussed were directly relevant. The structure and approach of the workshops was also rated as very helpful and far more effective than the virtual platform. In particular, participants commented on the benefits of collaboration in the face-to-face forum, including the valuable input received from other writers and the opportunity provided to share materials and get feedback. In addition, the module template developed as a result of the first two workshops was regarded as valuable and beneficial, as it provided participants with a structure to work from, and was regarded as a good tool to develop learning materials.

At the time of the research, the project was still in process – with most of the core materials written and module coordinators consolidating the material. However, the material still needed review and the project manager was engaged in the process of identifying appropriate reviewers – subject reviewers to review the content, reviewers to look at materials from a teaching and learning perspective, and language reviewers. For the review process, the project manager was to print out the modules, submit them to the reviewers, who would then complete a form and email this back to the project manager. In some instances, reviewers would also provide written comments on the hard copy of materials.

In addition, a mini-pilot was planned for the last weekend in March 2009, to cover a section of the four core modules. The aims of the pilot were: to test the material, the presentation and integration of content; to assess whether the outcomes were achieved and if materials were 'user friendly'; and to identify support that would be required for facilitators.

The SFCW programme is linked to the South African Qualifications Authority's (SAQA) National Qualification Framework (NQF) Level 5. There are plans to accredit the programme as a higher certificate in the longer term, and in the interim the possibility of registering the programme at the UFS as a Short Learning Programme is under consideration.

Membership

All participants interviewed reported that their participation in the SFCW programme was voluntary. At the outset, participants decided that they would like the online CoP group to be a closed group, and that it would be opened at the end of the process.

Participants were remunerated for their work and attendance at the workshops. Writing the materials was compulsory as participants were paid to attend the workshop and write the materials. Participants were also informed that their work would be OERs and licensed under Creative Commons.

According to the project manager, the intention was that each module would be written by a

large team with representation from each FSHEC institution. However, this proved to be a challenge and most teams were quite small – some dwindling to just one person by the end of the project. Due to changes in the consortium, in the end almost all members were based in one geographical location, and the three external writers, geographically dispersed, were all working on the same module.

One of the module coordinators reported that his group of writers had differing levels of experience, with some having been involved in materials development for a long time and others having had less experience. In this instance, two of the less experienced members left the project due to other work pressures. In addition, due to the non-response of one of the contributors, the module coordinator co-opted another member to join the team. This module coordinator reported that he found it difficult to manage such a large group with diverse perspectives, and indicated that this made the process more 'problematic' as all the writers 'did their own thing'. There was thus little collaboration between members in the development of the materials. Module writers sent their courses to the module coordinator who, together with one of the writers, reviewed the contributions and rewrote them to integrate the contributions.

The project manager noted that all participants were very committed and spent a lot of time on developing the material. She pointed out that this work was not their primary commitment, and that their official jobs took priority. She also noted that the teaching load of lecturers at UFS was large as there is a parallel medium of instruction (each lecture is delivered in both Afrikaans and then in English), and there are also evening classes. The lack of time available to participants was therefore regarded as impacting on the extent to which a community was able to develop (this is discussed in more detail below).

Collaboration in the development of materials

According to the project manager, there was little collaboration – outside of the workshops –between participants within each module as well as between module teams in the developing materials . As highlighted earlier, this could have been due to the small size of the module teams – in two of the modules there were only two participants in each module, and in one module, there was only one meeting held outside of the structured SFCW workshops, and the writers did not work together. However, the module writer who was interviewed noted that she asked a writer from another module to review her materials for grammatical errors as English was not her first language. Two participants noted that language was an area of concern, particularly in the writing of academic materials where the precise use of English is required, and therefore the review process was regarded as particularly important.

It was also noted that at one of the workshops there was an opportunity to ask other participants for advice, and the module writer noted that she collaborated around integration issues – asking others where they were situating certain tasks and placing her tasks at a similar stage. She mentioned that this was the first time that she had been involved in writing material with others and she had enjoyed this process:

It was nice to see how other people see their module. I got to talk to other people, get new ideas, think differently. (Module writer)

The project manager also observed that it was easier for one person to write a section than for teams to decide who, what or how to write, particularly in a HE setting where people often have strong theoretical viewpoints and approaches. She further noted that in one of the modules some participants did not follow the outcomes decided upon.

Several reasons for this lack of collaboration were noted:

- Time constraints – for many, this work was done after hours, in the context of many work pressures. It was noted that if this project or material development constituted someone's full-time job, then perhaps interaction and the level of collaboration would have been different.
- Participants focused on the production of materials, and collaboration was not seen as integral to this process.
- For large groups collaborating in which members have strongly differing opinions,

facilitating a group discussion was regarded as counterproductive in achieving set goals within the required timeframes.

- One of the participants pointed out that many participants do not have Internet access at home, and that the work they were doing was mostly conducted after hours. It therefore took a shorter time to work on their own and email the completed work than to upload their modules and collaborate with others in writing the material.

Communication

According to the project manager, most communication with participants was via email and telephone calls. Participants echoed this, noting that they largely used email and telephone calls to communicate with other team members.

People are not afraid of email, but they will not surf, log in. Basically they use email. (Module writer)

I never used the blogs and forum. Why would I? I don't want to chat, I don't have the time. I would rather pick up the phone. (Module coordinator)

Technology and tools

The following technology tools were available to members: forums, discussion lists, resource uploads, resource searching and blogs. The project manager reported that she was unsure about the extent to which these were working.

All participants had access to ICT, although the project manager reported that bandwidth at UFS was a problem. She reported that in general participants were comfortable using computers but noted that one participant was not (his assistant typed his section for him). She reported that participants were familiar with certain programmes like word processing, and email, but using the OER platform and an online way of working was new to the majority of participants.

As pointed out at the outset, participants did not appear to use the technology and technical platform provided for the online CoP. It was clear from the consultations that the online space for collaboration on the OER Africa site was not widely utilised, and in cases where it was utilised, this was minimal. Despite a workshop held to encourage online participation, the situation did not improve. Several reasons for the lack of utilisation were offered:

1. According to one of the module coordinators, most participants were based in Bloemfontein and in close proximity to one other, and there was therefore no need to go online to communicate. Email and telephone calls were regarded as a more efficient and quicker method of communication. As the project manager noted:

Why go to that community, when I can go next door and ask what do you think of that paragraph?

One participant noted that perhaps the value of online participation could be seen if members were situated in different parts of the world, but in this case the module would take longer to develop. It was also suggested that using tools such as Skype to discuss issues would be more effective. However, even in the instance where module writers were not closely located geographically, it was reported that it was more efficient to email and call fellow writers:

If we were eight people working together... then we may use it. Actually we will probably use email. (Module coordinator)

2. Some participants may have had a 'mental block' about using technology. One of the module coordinators pointed out that some participants lack sufficient technological proficiency and the willingness to use such a platform to communicate and discuss ideas. In addition, some were reportedly 'scared' of the Internet. According to one participant, the people that constituted most of the writing group were older people who preferred using email to posting the material online. In addition, as online communication is not a familiar everyday occurrence, instead of exploring and using the space to upload resources, participants preferred to call or send an email:

Not all people involved are computer literate. We do not stick to computers like other people. (Module writer)

They [participants] seemed to have an aversion anyway to technology and weren't likely to try out things for the first time and not waste time to try something new. They seemed anti-technology and conservative, so they may have been the wrong group to work on initially. (Module coordinator)

Not part of what people do every day. People don't blog and forum. They email and work (Module coordinator)

3. Alternate forms of communication were regarded as more viable and effective:

I was so swamped with working I used email and phone (Module coordinator)

It was more efficient to email links and documents and talk to people on the phone. A virtual CoP doesn't beat that in terms of efficiency. (Module coordinator)

4. Some participants reported time constraints with learning how to use this new online resource:

The basic problem with virtual CoPs in my context and in my opinion is that people do not have the time for it. This is a function of operating in a developing country with scarce skills. People with competency are doing much more than their job in higher education. (Module coordinator)

Tremendously busy people…want to communicate effectively and quickly. I want to discuss…telephone conference, meeting, but not a virtual meeting, especially if the platform is not stable from the start. (Module coordinator)

I don't know what is happening in other sites…no time…I do what I need to do. (Module writer)

It was also pointed out that it took more time to understand the technology and try to use it than to actually develop the materials, and thus the process was regarded as time consuming and difficult. One participant noted that the time and resources spent on the technology would have been better spent on developing the materials:

It added extra work. The perceived value was not great enough to warrant additional effort to put work in it. (Module coordinator)

One participant noted that she did not use such sites regularly, and when she went onto the OER site, she forgot what she needed to do. Due to time constraints, she did not have time to 'figure out' what to do:

A lot of programmes I have, I use once in six months. When I do I can't figure [how to use it]. I don't have time. The whole point is time. (Module writer)

5. Another indicated that due to her team consisting of just two people, a technical platform was unnecessary:

The purpose was not right for me – it was just me and another person. It was not suited for my purpose at this stage. (Module writer)

6. The value of the platform was not evident to participants. The project manager noted in order for people to use tools, they need to see their value. If tools reduce their workload, and technology makes their work easier, then there will be more incentive to use them.
7. When items were posted, there was little or no response from other participants, which demotivated those who did attempt to use the online space. One participant, who drew the SFCW logo, posted the logo and asked for feedback. She was disappointed because nobody responded. She also reported that she would like to use the blogs and forums, but did not think that people would contribute – 'Why must it be uploaded when no one would use it?'

In addition to these reasons, from a project management point of view, the project manager reported that using the online CoP took a huge amount of her time, which was a matter of concern as it had been presumed that the technology would be a supporting resource. As she was new to the process of facilitating and setting up an online CoP, she was required to grapple and learn new conceptual issues such as having to develop a taxonomy. She noted that initially she required

a lot of support to use the system. She also noted that one of her biggest challenges was the amount of time required to check errors. She further observed that when working with people who do not have a technology background, translating ideas to developers is sometimes difficult and therefore the end product may not represent what was initially visualised.

In addition to these barriers to using the technology available, several other reasons were provided including a number of technical issues faced, which further exacerbated lack of online participation.

Technical issues

According to the project manager, participants did not use the system from the outset as the technology did not work. The project manager reported that the system was not simple to use and 'didn't do what it needed to do'. As reported earlier in this case study, a workshop was held to introduce participants to OER Africa and the CoP space on the OER platform. The project manager reported that by the end of the workshop many participants were excited, but even during the demonstration at the workshop technical problems were experienced.

Participants reported that they tried accessing the website a few days after the workshop, but faced problems such as difficulty logging in (problems with passwords). The project manager noted that whilst some members did try to log on, others did not attempt to do so. There was a problem with the passwords and password reminders, and the project manager reported that she had to reset four or five participants' passwords. In addition, in some instances, participants persevered – they tried a few times but after repeated failure in uploading their resources they 'gave up' and resorted to emailing materials to the project manager.

The OER Africa representative noted that it took between two to three weeks to fix the errors reported, but by then participants may have lost interest and momentum in using the online space. For example, when the module names needed to be changed, these were sent to the technical team, but it took a few weeks to set this up. The initial 'teething' problems with the technology were 'frustrating' and 'turned people off' using the website, and despite the workshop to encourage online participation, this did not improve.

The project manager reported that participants did not find the CoP space intuitive and most of them did not persevere when they experienced problems. It was also reported that navigation on the site was confusing, and hence it was difficult and frustrating to find what one was looking for. One participant reported that she could not 'find' her resources. In particular, the main search bar does not only relate to SFCW, and therefore it was very difficult for participants to locate the materials.

It is frustrating to navigate. You are looking quickly for information, and it is not intuitive that these are the modules. (Module coordinator)

Another participant noted that she found the home page very intimidating. The print is very small, and there is a lot of text to read – 'I don't know where to look, it is very busy'. It was also noted that the site had changed several times, and one participant found it difficult to find where SFCW was located. Participants noted that it took a long time to upload and download resources. The project manager did note that this could be due to slow bandwidth at the university.

The module writer interviewed noted that when she returned to the site after it was fixed she had forgotten how the site worked. One of the module coordinators also noted that the online platform was difficult to use; for example, the process to capture resources is long, difficult and cumbersome. It was also noted that the process of uploading the material is a bit 'technical' – 'if you don't tick a particular box, it may end up somewhere else', and sometimes when material was uploaded it did not upload in 'the right place'. In addition, the resource upload requires that participants uploading go through a number of steps. Participants also reported that they could not remember how to upload resources, or were frustrated with their resources not uploading successfully, and therefore emailed the resources to the project manager to upload.

Other technical glitches were reported, including the fact that the resource search, using different searches (keyword search and topic tree search), would result in accessing resources. While this may have been a small technical error to resolve, the problem was regarded as 'a big deal if people are busy'. During the interviews, one of the participants demonstrated the difficulties she had with locating resources. When entering the name of the module she was trying to access using the search facility, the search results indicated that the item was not found, even if the exact name of the resource was typed in, let alone the tag. The only way she was able to find the resource was if she checked the resources that she had uploaded.

It was pointed out that if someone searches for the maths modules, then these should appear as the top resources, but when a search is conducted, unrelated resources appear. In addition, when doing a general search for 'ICT' a number of general resources, not directly relevant to the ICT module displayed; in fact none of the ICT materials developed were found.

A module coordinator who used the CoP space to upload all his documents, noted that the data was lost by the developers and he therefore had to waste time reloading all of his work and material as there had not been a backup of the material.

The project manager noted that the main functionality needed was email distribution so that they could track communication. She suggested that better results would have been achieved if emails were integrated into the system. However, this system never worked (the emails went to some participants but not all). There was also an attempt to integrate forum posts with email but this also did not work. She noted:

If from the very first time things were working, we would have had more use for it. (Project manager)

The project manager also reported that she did talk some people through how to use the site, so participants were willing to try, but they gave up when things did not work. All of these factors resulted in participants rarely using the site. The following recommendations to make the site more 'user-friendly' were provided:

For closed communities, it was suggested that after a person selects the community that they are interested in, they should be then required to login.

It should be made clearer where to search for materials under each module.

Each participant should be provided with a handout (or email) with a step-by-step guide on how to upload documents. One of the module writers noted that if this had been provided, may have uploaded her materials. (The project manager noted that in fact she did send out an email containing this information.)

A navigation tool (like the Windows help file) should be included as a constant tool bar once a person logs in, to assist with site navigation.

The OER Africa CoP space should post essential material, and email should be used for the rest of the communication.

Resource management

The project manager noted that although the resources required for writing were online, when participants needed these they asked her to email resources to them. It was also noted that the modules and their different versions were not uploaded on the CoP space, and only the final version will be uploaded. This was partly because there was no version control (technical version control system), so participants had to mark their work 'Draft 1' and 'Draft 2'. In addition, the system of emailing the project manager was regarded as being quicker and easier as searching for resources did not work properly so people were not able to find what they were looking for.

Community of practice

The consultations revealed that there was no clear CoP that developed or arose as a result of collaborating on writing materials. According to the project manager, during the workshops there was a strong sense of community and commitment

from participants. This 'scholarly exchange' was regarded as much more useful than online communication:

Just typing stuff, especially quickly doesn't have a human feel. (Module coordinator)

We want to have meetings [where we] all come together and raise questions. This is easier because we don't have the time [to use online communication]. (Module coordinator)

Given that participating in the development of this material was an addition to their usual job meant that the sense of community did not extend beyond the workshops. Module writers appeared to have worked independently on the development of materials, with only a few instances of collaboration noted.

According to the project manager, when she sought feedback on the process, writers said that they had learnt a lot from this project and it was an interesting way of writing materials. They further reported that they could use the materials in teaching and learning as the topics were all directly relevant to members' daily work:

It has helped me with my classes, to see how to work in content-based instruction (Graphic designer/critical reviewer)

It exposed me to experts outside my field, which is of particular benefits for those who are new to materials development. (Module writer)

Through this process I learnt a lot. Because from searching something I found this [resource] in excel. For every section there was something that I learnt. (Module writer)

In addition, participants reported that learning of Creative Commons licensing for the first time was valuable information:

I was introduced to the world of Creative Commons and Open Courseware and what's available for free. This is valuable for anyone at university that does teaching and learning. (Module coordinator)

Participants also reported a change in perspective, and exposure to different methods of presenting material and a different way of facilitating in the classroom.

Relevance of SFCW to OER Africa objectives

The OER Africa representative saw SFCW as realising the key objectives of the OER Africa project in bringing together African HE academics to work on developing African OER HE materials. The project manager for SFCW also saw the OER materials developed as linking SFCW and OER Africa. The potential to realise OER Africa objectives was recognised, particularly on projects involving institutions located across Africa in which the online space would provide a useful tool. There has already been interest expressed in using the English materials at the University of Kinshasa, and parts of the ICT material have been used at University of KwaZulu Natal by Postgraduate Certificate in Education (PGCE) students. While these initiatives did not arise from the materials' accessibility on the OER Africa space, with marketing it is possible that more institutions would consider using the materials.

One of the valuable lessons learnt by some participants was the realisation that there is insufficient open source material that is relevant and accessible, and that their work has contributed to a growing pool of freely accessible material. It is hoped that this process will serve to further motivate academics to share other resources.

According to the OER Africa representative, participants expressed concern about issues of copyright and if their modules were placed on an open community the fact that other universities would be able to use them before they could. Their concerns were linked to securing future funding for projects. The project manager noted that initially participants struggled to understand the logic behind OERs, but through lobbying and addressing sensitivities (resulting in the decision to make this a closed online community), participants appeared

to have 'bought' into the idea of creating OERs. Thus, one of the valuable outcomes of the project was raising awareness of copyright issues.

Whilst all participants responded very positively towards contributing to OERs, some concerns were raised around the use of copyright of materials:

Copyright for non-commercial use...what does it mean? I get paid to write materials, students pay for the courses. (Module writer)

Creative Commons is another concern. How can you use copyright materials in stuff that is not copyright? They gave us a document to read, but I don't have time to read it. I only want to know this is my problem. (Module writer)

Other questions raised included: whether permission is required to use publicly available data from corporate companies; if material is licensed by Creative Commons but is a different version, are writers able to use material with different restrictions as their own content? The need for a copyright 'expert' and clarity on such matters with regard to material development was expressed.

The OER platform was regarded as not adding sufficient value to the material development process. It was further noted that other facilities, such as Googledocs, were much simpler to use:

The time spent on maintain...was out of proportion to the value we derived from it...I feel it's just too cumbersome. There are not enough writing tools to warrant using OER Africa platform for writing and a development platform. Nothing added to the value of writing materials by doing through OER Africa. (Module coordinator)

It was also felt that just talking about OERs is not sufficient. In order for CoPs to develop on the OER Africa space, there needs to be a compelling reason for participants to use the online space, more than merely downloading material. At the time of the research, tools such as blogs and wikis were used, and it was pointed out that these tools were easily accessible elsewhere on the Internet. It was further pointed out that there is a need to customise, develop and offer unique tools on OER Africa in order to add value. The following suggestions were made in this regard:

- Develop a writing tool;
- Create a repository of useful material on how to write OERs;
- Provide an online tool to register OERs;
- Create a link to a citation tool to record references and bibliographies; and
- Include a step-by-step guide on how to upload materials.
- The project manager highlighted the importance of tools working efficiently before they are introduced to participants.

Conclusion

The findings from the case study revealed the following important considerations for setting up and maintaining CoPs on the OER Africa platform:

- For CoPs to succeed, collaboration needs to be integral part of the work carried out by teams.
- There is a need to take cognisance of the practicalities of academic life, such as competing responsibilities and resultant time constraints, and reluctance to engage in Web 2.0 technologies.
- There is a need for lobbying around the value of OERs and the value of online communication, clearly highlighting how and why these can help with workload.
- The technical platform for an online CoP needs to be tested for its functionality well in advance of launching a CoP.
- The platform must be user-friendly and easy to use so that participants, who may already be fearful of using new technologies, are not further discouraged.
- The value of the CoP to participants needs to be clearly articulated; it should not merely serve as a space for uploading documents to share.
- Participants who are not familiar with Web 2.0 technologies should be warned that they may need to invest time initially in familiarising themselves with how the tools work.
- In order to encourage and facilitate participation, prompt technical support should be provided to participants who experience difficulties.

Appendix D

CoP on OER Africa – Case Study Two: ACEMaths

This case study report is based on consultations held in March and May 2009 with the following key people involved in the ACEMaths programme:

- An OER Africa representative involved in setting up the CoP;
- The project manager/facilitator of the ACEMaths project, a senior programme specialist at South African Institute of Distance Education (SAIDE);
- A CoP member involved in collating and adapting the content as well as research and advocacy in relation to the project as a whole (a content specialist).

Based on observation of the online activity prior to the consultations, it was evident that there was no active CoP on the ACEMaths space OER Africa website, and the research sought to understand the reasons for this. In addition, consultations were aimed at determining whether a CoP had arisen from face-to-face interaction between participants that was not evident online. Based on participants' experience of engaging with this project, the relevance of CoPs to the higher education context and achieving OER Africa objectives was also explored.

Background of the ACEMaths Project

The ACEMaths project started in 2006, when the Department of Education (DoE) approached higher education institutions (HEIs) to conduct teacher professional development. The Deans' Forum subsequently approached SAIDE to assist in this process. The focus of this project was to:

- Locate existing Maths materials;
- Invest time in adapting these materials rather than in developing new materials;
- Pilot the idea of increasing collaboration between institutions in material development;
- Make resources available for institutions to use and adapt for various courses.

Thus, the project piloted a collaborative approach to sourcing, adapting and publishing (as OERs) suitable materials for use in teacher education programmes.

The ACEMaths material is based on content developed by the University of South Africa (UNISA), which had given permission for the use and adaptation of materials. The process involved the project manager contacting a number of HEIs in South Africa, inviting them to attend a workshop to discuss a number of issues, including OERs, collaboration and licensing. Participants were introduced to the idea of being involved in adapting Maths materials for the ACEMaths course.

Through these workshops, a community of practice (CoP) was formed. The initial workshops focussed on the basic text (the UNISA material), as well as other material added to the 'pool' by participants, and looked at how these could be adapted and combined to form a new guide. The content specialist then used the ideas generated to create the revised material.

Research was then conducted on how the materials were used by the institutions, and based on these findings, the materials were revised. To date, six institutions have utilised the materials in a variety of different programmes (in most instances the material produced by SAIDE was used). According to the project manager, the aims of the ACEMaths project have been achieved.

The materials were subsequently made available on OER Africa in order to 'extend the life of the project' by making materials more broadly available than the existing CoP so that a wider audience would be able to benefit and access the content easily.

In addition, a series of workshops was held at a number of South African HEIs as part of a 'road show' to market the materials. To facilitate use of the materials for people with low bandwidth or irregular Internet connectivity, a CD-ROM was produced containing the module materials and the project documents. It is not known exactly how many people are using the materials, although

it was reported that a few new institutions have contacted the content specialist and reported on how they have used the materials. The project manager noted that there is huge interest in the materials created, and she has been invited to present the ACEMaths project on several occasions.

It was pointed out that the increased use of the materials was as a result of the 'road show' rather than availability on OER Africa. However, the advantage of having the materials available on the OER Africa website was recognised as the project manager is able to use this to show the materials to interested parties.

Membership and participation

The members of the ACEMaths CoP were academics – mostly Maths lecturers, and two lecturers who teach Special Education needs. The aim was to create inter-institutional professional conversations about teaching Maths to diverse learners, and it was felt that Maths academics would be the most suitable members. According to the project manager, 14 participants were involved in deciding on the source material, and planning how to adapt the material, and revise it after the pilot. Membership was relatively stable over the duration of the project, with several 'drop-outs at the start and one institution joining later in the process. At one institution, the participants who represented their institution differed at different workshops. Nevertheless, the commitment from the institutions was consistent throughout the process. By the end of the project, the content specialist reported that there were 11 participants.

Participation in the CoP was voluntary. Participants participated in this project 'over and above' their jobs. They were not paid for their time to participate, but all overhead costs for attendance at the workshops were covered by SAIDE. Requirements for participation in the CoP were that participants had to attend the workshops, use the adapted materials resulting from their inputs, and allow the content specialist (who was doing her Master's research on ACEMaths) to observe how they used the material in sessions. The promise of the materials at the end of the process was regarded as the primary incentive to participate.

Community of practice

The ACEMaths CoP was a temporary CoP, with a specific lifespan and specific goals – to adapt materials, for institutions to use the materials and to collaborate in developing the materials. It was not reported if members of the CoP are still in communication with each other. The content specialist indicated that there may have been some contact between members as a result of the collaboration, but this was probably infrequent. The project manager noted that ongoing communication between participants was unlikely.

They are not continuing to converse. They relied on us to bring them together to converse (Project manager)

According to the project manager, during the course of the project – particularly during workshops – there was 'huge positive engagement' from participants. The advantage of the CoP to participants was that they left the CoP with a 'ready pack' of resources, made friends, and came to understand 'diversity and inclusivity in education'. Participants also needed relevant coherent and comprehensive materials, as prior to the CoP they were involved in presenting isolated or individual lectures. Participation in the CoP offered them a set of materials that brought together different approaches and examples. Based on the findings of her research, the content specialist noted that participants reported that sharing ideas had affirmed that what they had been doing at their institutions in isolation was similar to what other Maths education lecturers in South Africa were doing.

The CoP was a closed community, limited to people in the collaborative team, and limited to the lifespan of the project (the material development process). The content specialist noted that all participants did what they had committed to do, but due to their high workload there was not much feedback between the workshops. She noted that when communicating via email, some responded quickly while others took long to respond. In addition, she indicated that some participants were hesitant to share their feedback with all members, and in mailing replied only to the content specialist rather than all participants. (The content specialist

noted that this could have been due to participants not hitting the 'Reply to all' button although she regarded this as unlikely). Nevertheless, she indicated that all participants were very responsive.

Regarding the online space, the project manager noted that there is no critical mass for people to contribute voluntarily to the online CoP. It was pointed out that as there were few participants in this CoP, there is a need to establish a greater base of participants to use the materials, as was attempted during the road shows. It was further pointed out that every available opportunity is used to market the ACEMaths materials.

The content specialist indicated that she would like to see the CoP continuing (particularly the online CoP), but there is a need for someone to drive this process, to maintain the site and to promote the material. She pointed out the need to strengthen the relationship and sharing between participants, and to provide an opportunity for them to engage. However, she noted that participants were very busy and she was unsure if they would have time for this interaction.

Communication

Communication between the institutions and the project manager and content specialist was mostly done via email or telephone calls. According to the content specialist, she kept in touch with the institutions via email. The project manager indicated that she and the content specialist 'don't engage with the site', and 'we don't know how many people have been there'. She also pointed out that the contact details of the project manager and content specialist were not available on the website.

Use of the materials

The use of the materials was regarded as 'phenomenal'. Although workshop participants were only required to use the materials in the first year (2007), they continued to use them in 2008 and 2009. It was also pointed out that more people at HEIs are using the materials in different kinds of ways. The content specialist noted that there is one person who has adapted the materials for further education and training (FET) use, but has not yet shared the materials. It was, however, pointed out by the project manager that the original intention was to release the materials as OERs rather than promote further development of the materials and therefore institutions are not expected to share their adapted material.

Resource management

The content specialist noted that the content that she wrote for the OER Africa site was emailed to the project manager, who posted the content on the OER Africa site. She also noted that she wrote each of the case studies for each of the institutions and then emailed them for approval before submitting to the project manager to post on the OER Africa site.

According to the project manager, she is not keen to manage the resources on the OER platform

I don't want to have to manage that. [I will do it] if it is another project (Project manager)

Technology and tools

The ACEMaths community became one of the first communities featured on OER Africa, and SAIDE worked with the OER Africa team to design the site to be used not only as a repository for the material, but also as a place where conversations could happen around the materials and their various adaptations. The OER Africa site provided the following technology tools: forums, discussion lists, resource uploads, resource searching and blogs. It was pointed out that the only tool used was the resource uploads (by the project manager) and that there has been only one forum discussion. The project manager noted that this forum was established during a workshop at which the discussion started and other participants responded. Case studies of adaptation were also posted on the site. However, according to the OER Africa representative, for ACEMaths, OER Africa serves primarily as a repository for materials in order to demonstrate the potential of OERs to help academics and HEIs.

The project manager and content specialist reported the following challenges which prevented people from using the technology:

- **Time constraints.** The content specialist noted that she hardly ever used the website due to time constraints and that she communicated with participants via email rather than the website as this was more efficient.
- **Lack of familiarity** with using Web 2.0 technology. It was pointed out that engaging in online CoPs requires a lifestyle change:

Your way of relating to the world has to change…what I need to do is to develop an identity that incorporates this (Project manager)

According to the project manager, in her view, people were not familiar with using technology and 'they find computers alienating':

People that do engage, engage in trivial issues. People that do have things to contribute don't have the time. At workshops, they engage (Project manager)

I think all of us are new to the idea of cyberspace CoP use. None of the users are sufficiently technologically advanced (Content specialist)

The content specialist also noted that one of the users reported that she could not get onto the site (on a few occasions), but when the content specialist tried, she could, and therefore she emailed the documents to the user.

- **Engaging in an online CoP is not seen as 'part of core business'.** It was felt that if people were paid to facilitate the online CoP, and engaging in the online CoP was an essential part of participants' jobs, then the online space would be used:

You have to have a reason to get on there, not for the fun of it (Content specialist)

Basically you are asking busy professional people to participate in something where they are not being paid (Content specialist)

- **The project is over and there is no pressing need for people to visit the site:**

People don't look at it. Nobody goes there. They haven't built it into their routine (Project manager)

The content specialist felt that there was a need to activate and stimulate discussion.

When we do presentations, they are all very excited, but they don't carry on. (Content specialist)

She pointed out that discussions would not occur merely because there was a tool available to discuss issues on the website. This view was echoed by the project manager:

The site on its own doesn't do the work. The things around it [for example workshops and road shows] make it work. (Project manager)

The OER Africa representative also noted that there is a need to prompt people to use the tools available:

People don't relate to the other stuff on the project. They don't think they need to write up about it on the space. If you don't have that active engagement, people tend to forget (OER Africa representative)

The project manager noted that it was possible that there could have been more attention placed on stimulating discussion, but due to financial and time constraints this was not a priority. She pointed out that any discussion would need to be managed, and she indicated that she would consider getting more involved in such an endeavor if there was a project dedicated to it. There is a need for funding 'to manage the process and get people to use the website. It is not self generating'. To facilitate participation in an online CoP, the content specialist recommended that she receive training on how to manage the site.

In addition, it was suggested that a newsletter be sent to relevant stakeholders at HEIs to inform them of the materials and direct them to the website. The content specialist echoed this sentiment, adding that funding was needed in order for this to work.

Technical issues

No technical problems were reportedly faced by ACEMaths, and it was reported that the website was always functioning when needed. All

participants reportedly have access to computers and ADSL connections. However, it was mentioned that when attaching adapted materials to the case studies the attachments did not upload in all instances. It was also felt that it would be useful to track how many people visit the ACEMaths space on OER Africa and actually download the material available.

Relevance of ACEMaths to OER Africa objectives

The project manager pointed out that OER Africa is about OER Africa projects, and not just about making material available, which however valuable is a static process. It was felt that OER Africa could record projects and house OER projects (such as ACEMaths) that would allow people to use the specialised material developed and allow people from different parts of Africa to learn from others, grow, share, and feel part of a broader community. It was felt that this could lead to better quality educational materials, and facilitate the development of new ideas.

The purpose of OERs was seen as moving away from only consuming and using materials, to creating and adapting materials. OER Africa was regarded as a way of 'making Africa produce, and not just consume, of making people come together 'to use and adapt'. CoPs were regarded as facilitating the sharing of resources and serving as motivation, as well as promoting collaborative work where participants 'bring different strengths to bear across an endeavor'. The project manager felt that whilst CoPs are critical to achieving that core mission, how they function needs to be addressed, specifically noting that CoPs need not necessarily be technological CoPs. It was felt that the focus of OER Africa was more on the experimentation of technical aspects. It was recognised that although people may view the OER Africa site and the ACEMaths material, there is no evidence of ongoing engagement with the material. Thus, the value of OER Africa to the ACEMaths CoP was chiefly regarded as a repository for the material, and unless dedicated funding was allocated to drive the facilitation and management of the ACEMaths space, little further development in terms of conversation and collaboration would be achieved.

Conclusion

Whilst the value of CoPs was recognised and regarded as successful in the ACEMaths project (in terms of adapting the material), the value of the online CoP was less evident. The findings from the case study revealed the following important considerations for setting up and maintaining CoPs on the OER Africa platform:

The depth of engagement in online CoPs will be difficult if people do not engage with others in a face-to-face environment. Thus the need for face-to-face interaction in a CoP was highlighted.

With regard to setting up face-to-face meetings, it was recognised that there are cost implications involved in bringing African academics together to meet and discuss issues.

African academics may not have access to technology, sufficient bandwidth, or may not know how to use the technological platform.

Using technology may not form part of participants' everyday routine and identity, and therefore participants may be reluctant or insufficiently motivated to use the technology.

CoP facilitators may need to be trained and remunerated to drive the process of encouraging online participation.