Online communities for teachers and lifelong learners: a framework for comparing similarities and identifying differences in communities of practice and communities of interest

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Abstract: In recent years online and blended communities have become a popular topic among educationalists. In this paper we present a framework that supports the analysis, development and maintenance of online and blended communities. This is applied to two community case studies that differ along several key dimensions such as type of membership, the purpose of the communities, their policies and size. The analysis draws attention to the differences between the two types of communities. It also highlights the advantages and weaknesses of the framework with respect to these two case studies and suggests areas for future development. In the discussion that follows we highlight some key differences between this framework and Wenger’s work on Communities of Practice (COPs).

Keywords: Communities of Practice (COPs); Communities of Interest (COIs); blended communities; informal learning; sociability.


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1 Introduction

An online community can be defined as a group of people who come together for a particular purpose or to satisfy particular needs; they are guided by formal and/or informal policies and supported by computing technology (Preece, 2000). This definition identifies the four key components (in italics) of the framework that we will use later in our analysis of the two case study online communities. This concise definition is highly abstracted; however, each component has characteristics that enable us to more finely define and analyse the two communities. The definition also has a strong utilitarian function in community development because it encourages community members, managers and software developers to focus on the elements that are essential for the success of the community (Abras et al., 2003; Preece, 2000).

Several other definitions have been offered and online community researchers still cannot agree on which definition they will all accept. Researchers come from many different fields – human–computer interaction, education, sociology, anthropology, linguistics, social psychology, computing and others and consequently they tend to focus on different issues based on the training they received from their discipline. For example, sociologists tend to place stronger emphasis on criteria that include: duration of members’ participation, development of norms and differentiation of members’ roles in the community. When considering definitions of online community, it is interesting to note that sociologists have not been able to agree on a basic definition of community, so it is perhaps not surprising that the term ‘online community’ has been challenging to define. Hillery (1955) reported that in an analysis of papers that attempted to define community, he identified 55 definitions and the only thing that they all had in common was that they mentioned people!

For the purposes of this paper we will use the definition of online community provided by Preece (2000) as mentioned above. However, we will also identify a sub-category of online communities, which some researchers call Communities of Interest (COIs) to distinguish them from Wenger’s Communities of Practice (COPs) (Wenger, 1998). Although the term community of practice has been widely applied to a broad range of communities including those that are supported by technology, we believe that such a broad application is not helpful. We, therefore, reserve the term community of practice for those communities that typically exist in relation to companies or professional organisations. Such communities tend to be planned; they usually embody the goals and mission of the organisation; they are generally more formal and have a leader and organised governance structure that usually results in a hierarchy; people tend to focus on issues concerned with work and the goals identified for the community.
The technical support for COPs often includes a software platform that contains communications components integrated with knowledge repositories and other information resources supported by tools for searching for information. Furthermore, many COPs are open only to specific employees. Membership is usually protected and limited by a firewall. By contrast, COIs tend to develop organically; they are informal and mostly are open to anyone who shares the same broad interest. COIs have a purpose but their activities are less formally defined and less rigidly managed. Typically, COIs lack strong, formal governance and are supported by software that is easily available, does not have special technical requirements, is easy to use and is not firewall protected. COIs in contrast to COPs are open and frequently attract people from across the world who are brought together by a particular interest rather than through their employment or professional needs. Figure 1 illustrates some of the differences between COPs and COIs.

Figure 1  Key differences between COPs and COIs

According to these definitions the first case study that we discuss is a COI; in this community, Bob’s Bulletin Board for knee injury patients (described in Section 4), members are brought together by the need to obtain information and emotional support to help them deal with their knee injuries. The second community, a community of experienced science teachers (again described in Section 4) is more debatable as it was established as a planned community. It consists of professional practitioners and was intended to have many of the characteristics typical of COPs. A further definition that we need to introduce is that of a blended community, which is a community that meets face-to-face as well as online. Most so-called online communities have this characteristic to a greater or lesser extent. Indeed some start by being primarily face-to-face and move to having an online component as they discover suitable technology to support their needs. Others have members who are widely dispersed geographically so start online but subgroups discover that they live in close enough proximity to meet face-to-face as well as online. Bob’s knee community fits this latter description. Members are widely dispersed but as we analysed their activities we found evidence of a small amount of
blending (Maloney-Krichmar and Preece, 2005). The Dublin teachers’ community, in contrast, is a more clearly defined blended community in which activity occurs face-to-face and online. For communities like Bob’s the technology provides its lifeline because without it the community would cease to exist. For the Dublin teacher’s community the role of the technology is more that of a tool that is used to support, extend and enhance community activities.

Both communities can be thought of as learning communities. Members of Bob’s knee community have the goal of learning about a very specific area of health: knee injuries, whilst the Dublin community consists of physics teachers who are interested in learning from each other’s professional experience – particularly in using web and computer resources for teaching physics. Much of the educational literature on online learning communities until relatively recently, has been concerned with communities designed around virtual courses. We briefly discuss this literature in the first part of our literature review (Section 2). However, recently there has been an increasing recognition of the importance of informal and lifelong learning such as that taking place in Bob’s knee community (e.g. Cook and Smith, 2004; Sharples, 2003) and in the second part of our review we address this kind of learning.

In Section 3, we present our framework (Preece, 2000) and describe how it can be applied to these two types of communities (Section 4) to help reveal differences and similarities between them. The discussion in Section 5 identifies strengths and weaknesses of the framework as demonstrated by the analyses of the two case study communities. We also highlight some ways in which our work compliments and differs from Wenger’s work (1998).

2 Review of the literature

Investigations of online learning communities have often tried to understand when and why online learning becomes productive and what makes online communities work. Many of these studies have focused on particular aspects of online learning. For example, Jelfs and Colbourn (2002) and Light et al. (2000) investigated the impact of online learning on the role of teaching staff. In another study, Tolmie and Boyle (2000) reviewed the factors influencing the success of online learning environments in university teaching and conclude that the following factors are important: group size, knowledge of other participants, student experience, ownership of task and the need for/function of online learning environments. If a group is too large it may make it difficult to get to know each other sufficiently and to develop trust: a crucial component of a successful community (e.g., Wegerif, 1998). These studies are concerned with learning communities, many of which are in the context of university courses, but findings about group size and trust have also been found to be applied in online communities of lifelong learners – and this is considered further.

2.1 Informal and lifelong learning and online communities

As well as learners who are engaged in formal learning in which they are enrolled on courses for which they will typically receive qualifications, there is an increasing emphasis on lifelong learning and informal learning. This kind of learning, which often takes place outside formal courses, is very diverse, including, for example, learning to
identify garden plants, learning to cook, fill in tax forms or sending e-mails and there is
evidence that such learning is a significant activity in people’s lives. A survey of
Canadian adults’ informal learning, by Livingstone (2000), for example, which assessed
participation in four aspects of informal learning related to employment; community and
volunteer work; household work; and other general interests revealed that 95% of
Canadian adults are involved in some form of explicit informal learning activities that
they can identify as significant and they spend an average of 15 hr a week on these
activities. Where informal learning relates to employment, in particular, Livingstone
found that many informal learners are learning from others (e.g., newer workers may
be learning about explicit or tacit work knowledge from more experienced, often older
workers). Lambropoulos (in press) stresses the importance of this collective aspect of
informal learning and suggests that technology can be used to support citizenship and
democratic processes through individuals’ membership of COIs and COPs.

Lifelong learning is interpreted in many different ways and there are certainly debates
about its definition. Indeed a recent European Commission briefing paper states that
‘Lifelong Learning is a rather nebulous and multifaceted concept’ and adopts the
following definition: “Those novel forms of teaching and learning that equip students
(learners, individuals) to encounter with competence and confidence, the full range of
working, learning and life experiences” (http://www.pjb.co.uk/npl/bp20.htm). According
to this definition, lifelong learning may, therefore, involve activities that enable learners
to increase their workforce skills. Indeed much of the emphasis in the UK government
green paper on lifelong learning, ‘The Learning Age’ (DfEE, 1998) is on skills that are of
use to the workforce. However, many activities are related to learners’ personal
lives. Cook and Smith (2004) give the example of someone who wanted to learn to e-mail to
maintain contact with her grandchildren who were living in a different country. Learning
outside formal educational institutions can also include incidental learning – where
learners have not set out with specific learning goals. Vass (2004) for example, discusses
how the children who studied in classrooms, brought with them skills they had developed
at home and in the playground: in particular, friends had learned ways of collaborating
that they then applied successfully in the classroom and that gave them an advantage
over children who did not have this shared history. Different forms of lifelong learning
included in the above definition, therefore, are very diverse, and include learning about
knee injuries, as in the first case study, as well as the professional learning encountered in
the second case study.

Mobile technologies can be particularly useful tools for lifelong learning as learners
need not be tied to particular locations (Sharples, 2003), and also because some mobile
technologies are already well embedded into youth cultures in particular and can support
social and community-based learning. As yet, there are a few literature studies on using
such devices to support members of online communities, as the communications
capabilities have not been reliably available in commercial products until relatively
recently. Cook and Smith (2004) however, have investigated how lifelong learners make
use of the UK online centres, often located in economically disadvantaged areas. Such
centres provide workforce-oriented training and also provide more social outcomes such
as increased confidence for individual learners and resources for them to learn a range of
skills, from writing CVs to formal ICT qualifications. Cook and Smith are interested in
informal community learning that is mediated by ICT – tools such as discussion groups.
Again the first case study, Bob’s bulletin board, is an example of such a community.
Cook and Smith found that the community members they studied had a large number of
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goals that they wished to achieve and also identified an ICT literacy life cycle, where learners first learnt simple ICT skills that enabled them to do word processing for example, and then moved on, once they had gained confidence to perhaps engage with an online community. Some went on to use more formal e-Learning systems.

Irvine and Brna (2003) also view lifelong learning as a social process and argue that new technologies to support such learning will only really be effective if important social factors are taken into account. They discuss how a range of specific roles in the community may be supported and more generally, how members of a learning community may be empowered through the provision of a range of tools. The case study communities discussed in Section 4 by contrast are not supported by tools specifically developed for community support but by a bulletin board in one case and WebCT in another.

2.2 COPs and their role in learning

Wenger’s concept of COPs, which we referred to earlier, has had a strong impact on many educationalists who are interested in online learning communities. It has been suggested that new technologies can support ‘virtual’ COPs, which can allow more contextualised teaching, where for example, students taking courses can access communities of experts who are operating in ‘real-world’ contexts. So, in Science teaching, students might communicate with practicing scientists or school pupils with meteorologists and e-mail them questions or discuss their projects with them. It has been argued by Barab and Duffy (2000) however, that these kinds of environments are not authentic COPs. Aims of these virtual environments are educational and whilst students may talk to practicing scientists, the tasks that the students are engaged in are educational, not part of the Science community’s working life. Goodfellow (2003) suggests that

“Communities of practice differ from ‘communities of learners’ in that the latter are reflexively concerned with learning whereas the former are concerned with practice, of which learning is a corollary” (p.3).

Wenger argues that COPs cannot be created:

“(They)... cannot be legislated into existence or defined by decree. They can be recognized, supported, encouraged, and nurtured, but they are not reified, designable units” (Wenger, 1998, p.229).

There have, nevertheless, been many attempts to do just this – and some have been successful, such as the Tapped-in project – which shares some similarities with the Dublin community in that it aimed to develop a teacher professional development community, albeit on a much larger scale. The virtual environment ‘Tapped In’ (Schlager et al., 2002) aims to support the online activities of a large diverse community of educational professionals. It appears to have been successful in bringing together and developing new worldwide relationships among education practitioners, providers and researchers and is used by thousands of different people each month. Activities include workshop sessions, public discussions and courses and group meetings across a range of school topics. However, there is a question about whether it is a community of practice in the sense that Wenger uses the term in that the activities online are not related to the members’ own professional practice (e.g., in the teachers’ own districts).
It seems that there is a tension here, which is an issue for many online communities with a global reach. The global reach of such communities removes them from local activities and thus weakens this aspect of practice. It is very difficult to achieve both at once. There is a tension between success on a large scale – as evidenced by a large active community – and relating back to the local community of practice. However, we should note that there have been projects that appear to be successful – at least in national contexts – in managing this local-global tension. For example, the UK ‘Talking Heads’ project was funded by the UK government to facilitate sharing resources and developing knowledge between head teachers. http://intra.ultralab.net/~leonie/cothsreport02/index.html.

All potential members were provided with PCs and the community was facilitated by a trained team of 23 moderators working remotely all over the UK. The support generated by and between the initial 1200 new heads of schools was so effective that the community was extended to all head teachers in England. The Talking Heads project has been running under the auspices of the National College of School Leaders since January 2002. A similar UK project has also apparently been successful and is resourced through an industrial/government partnership to provide a forum in which to share thoughts, problems and suggestions on issues facing teachers. http://www.talkingteaching.co.uk/video.htm. However, both projects required a great deal of resource, and were heavily dependant on external funding, and are therefore, not a transferable and sustainable option for most educational situations.

Another issue that relates to the global/local dimension is that although the literature often refers to online communities, in reality such communities often also have some face-to-face existence (which not surprisingly depends on geographical proximity) and are therefore, sometimes referred to as ‘blended communities’. It is more accurate, therefore, to think of communities along a spectrum from completely face-to-face to completely online with most occupying the space somewhere in between. The two case studies discussed in this paper are towards either end of this spectrum.

3 The framework

The sociability and usability framework (Preece, 2000) identifies important issues for the analysis and development of online communities. Sociability is concerned with the social interactions that community members have with each other via computing technology. In contrast usability is concerned with the features and functions that enable users to interact successfully with technology across the human–computer interface. Sociability is a relatively new concept. Usability is a well-established concept and heuristics and guidelines exist for developing and evaluating technology (Nielsen, 1994; Shneiderman, 1998). Furthermore, recent research reveals that the main usability principles for online communities are similar to those for other types of software (Abras, 2003; Abras et al., 2004). Obviously, how these are manifest in the software design varies across different types of software. In a comparative study of the usability and sociability of three online patient support communities and three education support communities for PhD students that used similar bulletin boards the researchers found that there was very little difference in members’ usability needs between the two types of communities. Both wanted the following usability features: ease of navigation, easy retrieval of information, consistent interface design and sociability features: support, feedback, clear statements of purpose.
and policies and a safe environment (Abras et al., 2004). However, the sociability needs of the two types of communities differed. The education support communities focused on accurate and deep discussions whereas the patient support communities focused on trust, 24-hrs access and privacy of their medical information. The sociability differences within the three health communities were very small, as were the differences in the three education support communities. This research, therefore, suggests that usability is relatively stable whereas sociability is influenced by the communities’ purpose. In this paper, we address both but focus more strongly on analysing and comparing sociability in the two case study communities.

3.1 Sociability

The sociability section of the framework has three major components that are highlighted in the definition discussed in the introduction.

**People**: people form the community. Each person brings their own set of characteristics to the community as shown in Figure 2, which includes: gender, expertise, personality, age, culture, motivation, abilities and disabilities. These contribute to the collective character of a community. For example, evidence suggests that online communities in which there are more women respond to some situations differently to communities that have a small proportion of women. For example, women tend to be more open in asking for support (Preece and Khozati, 2001). Communities of experts tend to have different needs from communities of novices, as do communities for teenagers verses communities for senior citizens. Personal characteristics also influence how community members respond to the community’s purpose and policies and their reactions to the usability design of the supporting software. This becomes particularly clear when the aims of an individual are at odds with the purpose of the community. For example, such situations can encourage deviant behaviour that takes energy from the community, competition between members of the community, and taking from the community without giving back to the community. The way in which members’ individual characteristics come together in the community determines the community’s personality.

**Purpose**: communities also vary depending on their purpose. We have already mentioned the different sociability needs of education support communities compared to health support communities. In another study in which we analysed 1188 questionnaires returned from 375 MSN bulletin board communities that belonged to four different categories: health and wellness, sports and recreation, government and organisations, we found strong differences along several dimensions between the personalities of these four categories of communities (Andrews et al., 2004). Different types of people were attracted to different groups and their behaviour and attitudes was correspondingly different. Members of the sports and recreation communities tended to be younger, there were more males and they were less tolerant. In contrast members of the health and wellness communities tended to be older and there was a larger proportion of women. The health and wellness communities tended to be more supportive, less confrontational and more tolerant towards people who read only and do not contribute. The nature of the tasks performed in the community was also different. Whereas most communities revolve around information exchange and to a lesser extent, support, the balance between these varies. Communication in well-functioning health support communities tends to be around 66% concerned with factual information, 33% concerned with empathy and
support, in both face-to-face communities (Bales, 1951) and online (Maloney-Krichmar and Preece, 2005). This balance is likely to change for other types of communities that may also require other kinds of communication. For example, political and local civic communities may require members to vote on issues. Communities of academics may require easy access and good search facilities to obtain or review academic papers. There are many ways in which the needs, behaviour and attitudes of community members could be influenced by a community’s purpose.

Figure 2  The sociability part of the framework (Preece, 2000)

**Policies**: the characteristics of a community’s membership and its purpose in turn influence the type of governance structure that is adopted and how this is implemented in formal policies and by informal norms of behaviour. Some communities operate under tightly defined policies administered by stern moderators; others, like the Bob’s online community for knee-suffers have few policies, little moderation and are self-governing.

Each community functions in a broader social and technical context. The social context determines such things as who initiates the community, type of people who join, how the community relates and exists in the broader societal context in which it exists. For example, which cultures influence the community and how, what is the rate of growth of the community, what is its size and scale? The technical context in which the community operates influences both its sociability and usability. A community supported by a bulletin board requires members to go to the site of the bulletin board, whereas a list server delivers correspondence into the e-mail inboxes of members. Communities supported by a community platform such as Communityware, Blackboard or WebCT have a different ‘feel’ to those that are supported by freeware or created by a developer whose work has a particular ‘look and feel’.

To be successful, online communities, like their face-to-face counterparts, generally develop forms of leadership, support for members, information resources, governance structures, forms of acknowledging members’ achievements and ways of entertaining and amusing each other. Other features may be present in some communities, such as
voting, but these are basic. Modes of leadership vary from a single inspirational leader to a network of founders who provide role models for members, lead discussions and help to support community activities. Support for members comes from the leadership and from members and so does information, which is offered, exchanged and stored. Community governance determines how resources are used, who can do what, when and how. Different models can be seen. At one end of the spectrum tight, strict hierarchies exist supported by detailed rules and strong moderators. At the other end, unobtrusive networks of community members help to make norms explicit as and when needed; in this way a networked governance model is developed. Such networks operate by members noticing when behaviour strays from the expected norms and making the effort to correct it. For example, members of a health support community may point out that the tone of a message is less supportive than expected by the group (Maloney-Krichmar and Preece, 2005). Recognition can take different forms, from rating systems like those used by Amazon and e-Bay to simple lists of key contributors like those produced regularly by the Linux community. Entertainment can be deliberate and planned as in star performances by guests invited into the community for that purpose, home grown jokes in the community, or provided by the personality of a particular member (Rheingold, 1993).

The way these community features and the relationships between people, their purposes and policies interact is very complex and cause and effect relationships are hard to show. Some of the factors that online community developers, moderators and analysts need to understand are shown in Figure 2 but the list is not complete. They are shown in a triangle similar to that in Figure 3 to illustrate that these factors have an impact on the community’s people, purposes and policies and hence, the community’s character.

**Figure 3** Factors that affect sociability and the mapping (indicated by the arrow) that is needed to link sociability to usability

![Image](image)

The list of factors in Figure 3 includes those that we have observed to be important in our research but it is not exhaustive. Depending on the type of community there may be additional factors. The balance of importance of the factors also changes depending on
the community. Furthermore, as with the higher-level components the factors have an impact on each other. For example, trust and empathy are known to be closely associated but whether empathy encourages trust or vice versa is debatable (Ickes, 1997); it may depend on the situation. However, in the following discussion we briefly examine each factor or pair of factors in Figure 3 in turn to demonstrate the kind of issues that influence the community.

3.1.1 Participation, non-participation and reciprocity

The notion of reciprocity – or giving back – is considered by many sociologists to be an essential component of healthy communities (Maloney-Krichmar and Preece, 2005). Reciprocity can present challenges online because it is easy for the people to take and not give back (Kollock and Smith, 1999). This situation has created strong feelings against those who read and do not participate by posting. This has given rise to the pejorative term of ‘lurking’.

There must be active members of the community otherwise the community will fail. This can be a problem for new communities, which require nurturing to encourage participation (Kim, 2000; Preece, 2000). However, providing that there is sufficient activity to draw people to the community there can be benefits for those who read and watch and for the community as a whole. There are many reasons why people choose not to participate (Preece et al., 2004a). In a questionnaire study of 219 lurkers the reasons given for not participating included: they could get everything they wanted by just reading; they did not know they were expected to contribute; they did not like the community dynamics, others had already said what they were going to say; and they could not make the software function as they wanted. Other studies have shown that the level of lurking varies across different types of communities. In a study of 88 patient support communities the average number of lurkers was around 46% whereas in the 22 technical support communities that were also examined it was much higher at around 84% (Nonnecke and Preece, 2000).

3.1.2 Empathy and trust

Empathy and trust are closely related. Empathy requires that people can understand what another person is feeling and therefore, act compassionately (Levenson and Reuf, 1992). Trust is developed when a person has had a good experience with another person and there is an expectation of positive future interactions. Online community environments challenge trust development because people can come and go easily and therefore, may never encounter each other again. Various techniques are being developed to encourage trust. Most of these rely on some form of public rating. For example, e-Bay has a system that shows how customers rate their experience with the vendors.

3.1.3 Etiquette

Etiquette can develop supported by explicit rules, often referred to as netiquette. Etiquette is also deeply embedded in cultural norms: forms of behaviour that are commonly understood and agreed. These norms vary from culture to culture. For example, if a Chinese person asks a family member to ‘please pass the noodles’ this may be regarded as impolite as ‘please’ is not used with people that one is close to as it...
implies a distant relationship. However, in Britain ‘please’ is expected and omitting to say ‘please’ would be regarded as impolite. These examples show that when people from different cultures come together they may misinterpret each other’s behaviour. Norms also exist within communities, and in families and groups of friends, that lead to agreed implicit forms of etiquette online as well as face-to-face (Preece, 2004).

3.1.4 Social presence

Social presence refers to the sense that people have online of others being present (Short et al., 1976). Lack of social presence is often cited as one of the reasons why people flame (i.e. send aggressive messages) because they forget that there are people who will be hurt or offended. There are no anguished or fearful faces to remind them about the impact of their actions. For this reason many researchers have sought ways to increase the sense of social presence online. The most well-known approach is through avatars – online graphical representations of users.

3.1.5 Communication and common ground

There is considerable research that addresses online communication styles. Depending on the study being conducted different aspects of this work may be drawn upon. For example, in the study of Bob’s bulletin board community, the style of communication in the online community was compared with established models of communication in face-to-face support groups (Maloney-Krichmar and Preece, 2005). The analysis revealed that the online community was broadly in line with models based on face-to-face support communities (e.g. Bales, 1951) as mentioned above. One aspect that has received particular attention is the fundamental one of how well people establish common ground online – a shared understanding of what the communication is about. This is important because online non-verbal communication in the form of gestures, expression and other body language is largely missing online (Clark and Brennan, 1991).

3.1.6 Collaboration and competition

The balance between cooperation and competition varies depending on the type of community. For example, a teacher who ranks her students and sets individual work assignments will promote competition among the students. In contrast a teacher who stresses collaborative project work with shared goals will encourage collaboration rather than competition. Depending on what the teachers want to achieve it will be important to examine the balance between collaboration and competition.

3.2 Usability

Community software needs to be usable and in Figure 3 we show some of the features that have to be designed for the people who come to the community, their purposes and upholding the policies that guide them. These software components include: design of the dialogue format between people, the human–computer interaction, the architecture for the information that supports the community and the tools provided to search it, navigation through the information and around the different components of the system and the type of access that is provided to the system. The efficacy of these design features can be tested using a variety of usability testing techniques (Preece et al., 2002).
Figure 3 also shows that designs created to support the various sociability factors discussed above must be mapped onto the community software as well as onto human management practices such as moderation, role modelling or nurturing the community by ensuring that there are new and interesting topics and activities to attract members. For example, day-to-day moderation practices may not be represented in software design but policies that guide that moderation may be presented on accompanying web pages or embedded in communications software. In this respect, they contribute to the usability design. Similarly, if it is determined that members’ social presence should be represented graphically, perhaps as an avatar or icon, this sociability decision must be mapped onto usability design. Therefore, even though we focus on sociability in this article, we recognise the strong integration needed between sociability and usability when online communities are developed (see Preece, 2000; de Souza and Preece, 2004 for further discussion of sociability and usability).

4 Applying the framework

The case studies that we analyse differ broadly and therefore, test the efficacy of applying the framework to different types of communities. Bob’s health community has existed since 1996 whereas the Dublin science teacher’s community started in 2002. The health community operates primarily online and has a large membership of several hundred participants. The Dublin community is a small blended community of around 20 people that holds face-to-face meetings as well as having an online presence. Sustainability is not an issue for the health community even though membership changes and people come and go. However, there is a question about how to scale the software support for this community even though the community members themselves are content as long as the community access is available throughout each day and night and is reliable. In contrast the Dublin community had a stable membership. It was set-up as a part of a European project that provided both software and community management support. The intention was that this community should act as a prototype for future sustainable and scalable community development. It is not clear, however, whether this particular community is sustainable beyond the life of the project as it relies on project resources (including the WebCT platform, provided through the university).

The brief descriptions below elaborate on some of these differences and provide additional information about the two case studies to set the scene for the analysis that follows.

Bob’s online community is for people with knee injuries. It was developed in 1996 by a skier called Bob after he seriously injured both his knees in a skiing accident. The community is supported by a threaded bulletin board and the discussion is active. A range of topics are discussed by a variety of different members and read (i.e. viewed) by many more. The list of topics and replies is reverse threaded with the most recent posts at the top. The community has grown over the years and now receives around 500 messages per week. For the last four years the community has been professionally hosted and managed by a company called Factotem. Its manager is also called Bob and he regularly refers to himself and is referred to by others as ‘virtual Bob’. About two-thirds of the messages exchanged are requests for medical and other practical information: what is the best way to deal with a torn ligament? Is surgery necessary? If so what type of surgery? What is the procedure?
How much recovery time is needed? Most of the remaining one-third of the messages are concerned with emotional support, offering and receiving empathy from other knee injury sufferers (Maloney-Krichmar and Preece, 2005; Preece, 1999).

The online community is supported by other information resources, links to other sites and an area where participants can present their own personal information that usually take the form of a discussion about their medical problem but may also provide additional context about their family, job or broader interests.

### 4.1 Analysis of Bob’s bulletin board community for knee patients

The framework can be applied to analyse Bob’s Board as shown in Figure 4. Used in this way it highlights the basic components: people, purposes and policies and reminds us of the criteria for each that help us to characterise and describe the community. Of course the same approach could be used to analyse an existing face-to-face community that seeks to develop an online component (i.e. a blended community) or in creating a completely new online community, or for identifying sociability problems in existing online communities (de Souza and Preece, 2004).

#### Figure 4  Analysis of Bob’s knee injury community

#### 4.1.1 People, purposes and policies

In this analysis we can immediately note some key features – we see the characteristics of the people; there is a mix of genders, their expertise in using technology is low, most are between 20 and 40 years of age and come from the USA but there is a substantial
minority from other countries. Motivation for coming to this online community is to get answers to their questions, get support and locate others with the same problem. When we examine the purpose of the community we see that it is concerned solely with health support and that the tasks involve getting and giving information and support and seeking others who are similar. The most unusual finding concerns the policies used in governance (see Figure 4).

Representing the information in this way is useful because it is clear and abstracted. However, to understand how the community functions in more detail we need to examine these findings and search for evidence of how the sociability factors discussed in Section 3.1 operate. Again the list does not tell us what is happening; it operates as a set of heuristics that reminds us to look for evidence that reveals what drives the community.

In a two and a half year study of Bob’s bulletin board community we used ethnographic observation and interviews, discourse and content analysis, and activity logging to understand the nature of this community (see Maloney-Krichmar and Preece, 2005) for a detailed description of this study) guided by the list of factors itemised in the framework. Using each of the headings presented in Section 3.1, we briefly discuss what we learnt about this community.

4.1.2 Participation, non-participation and reciprocity

Members mostly communicate online but occasionally face-to-face meetings are planned when members discover that they live close enough to each other to meet. Reciprocity is strong but members may not necessarily give back to the person who helped them, they may instead help someone else within the group or contribute to a discussion of issues. Indeed, we found people who had joined the community and recovered from their medical condition several months ago but who continued to come back to support others. There were even people who came back each year on the anniversary of their injury to check in with the group and offer advice. As we said there was evidence of face-to-face meetings and lurking (not participating) was not only tolerated it was looked upon favourably by the community as an important way of learning about one’s injury and the norms of the community. Several members also told us that the group not only satisfied their need to learn about their injury and possible treatments but it was also a place to off-load troubles without having to over-burden family members who may have become tired of hearing the same complaints. This off-loading has also been reported from research on a cancer-support community (Cheng et al., 2000). We wonder if a similar phenomenon might exist in learning communities of Ph.D. students and researchers who struggle with research problems.

4.1.3 Empathy and trust

Empathy between members of this community is high. This is encouraged by the tight focus of the community which brings together people with similar experiences. (See Preece (1999) for an earlier study of the balance between factual and empathic exchanges in this community.) There were no obvious statements that indicated strong trust or breaches of trust. However, we know from the literature on empathy (e.g. Ickes, 1997) and trust that they are closely related so it seems reasonable to assume that the high levels of empathy in this community are also indicative of trust.
4.1.4 Etiquette

Our analysis of etiquette and how this relates to the broader issues of governance and policies generated interesting results as indicated in Figure 5. There were no formal policies on display. An interview with ‘virtual Bob’ who manages the site for Factotem revealed that a moderator who is shared with several other Factotem communities moderates this community. He said that occasionally he removes hostile, pornographic or spam posts but in the case of Bob’s board his services are not needed very often even though this is a completely open community that does not even require participants to complete a registration form. In fact virtual Bob comments that: “I wish the other communities functioned as successfully as this community”. The bulletin board community has developed its own strong norms of behaviour which members of the community enforce themselves. For example, in response to a comment in which a community member criticised another member for complaining too much about her condition, commented that the community is here to support everyone and that critical comments should not be made (Maloney-Krichmar and Preece, 2005). The enduring norms seen within the community are particularly interesting as there is a constant flow of people into and out of the community. A core of long-term members, who periodically returns to the community, helps to maintain these norms. This community has a form of networked self-governance rather than hierarchical governance.

4.1.5 Social presence

Social presence (Short et al., 1976) in which members of the community are aware of the presence of each other is acknowledged to be an essential component in the success of online communities. Lack of social presence can contribute to flaming and other forms of unsocial behaviour. For this reason many developers provide avatars so that members can decide how to portray themselves online. This also contributes to individuals developing their own identity online. However, in Bob’s board members identify themselves only by their login name. Despite this impoverished form of identity our research showed that lack of social presence was not a problem. The development of strong norms of behaviour also bears testament to this claim.

4.1.6 Communication and common ground

Common ground – the agreed mutual understanding of what each person is trying to communicate and how well they understand others (Clark and Brennan, 1991) – appears well established in that obvious misunderstandings were not observed. The tight purpose of the community conveyed via the bulletin board and website contributes to ensuring that people with shared experiences join the community.

In a detailed analysis (Maloney-Krichmar and Preece, 2005) of the discourse that occurred in 494 messages during one week in 2001 we found that this community has a similar communication style to face-to-face support communities, as mentioned earlier.

4.1.7 Collaboration and competition

Bob’s bulletin board community is strongly collaborative. We found no evidence of competition between members as might be expected in a professional community of practice or a gaming community.
4.1.8 Conclusions from the analysis

Understanding the factors discussed in Sections 4.2.1–4.2.6 that influence the high-level components of the framework provides a deeper understanding of the community’s people, purposes and policies, while still enabling us to tease out (i.e. abstract) these three central components and to understand the context in which they operate. The main conclusion that we draw from these analyses are that Bob’s community, though supported by a simple bulletin board, is a healthy, active, self-governing community. Indeed, when asked about possible technology changes that would provide state-of-the-art technology, community members overwhelmingly rejected any changes that might result in a less reliable service.

4.2 The Dublin teachers’ community

This community was developed as part of a European project, the STAR project[1] whose main aim was to produce a website in physics and chemistry for secondary level school teachers to provide learning resources for students aged 14–16 years and to support COPs among science teachers. The project involved three countries – England, Bulgaria and Ireland, but in this paper we are just focusing on the Irish community whose development was led by the Dublin Institute of Technology in Ireland (Jelfs et al., 2006). Although many internet resources are available, they are not always appropriate for the curriculum and teachers do not always have time to access, select and update suitable resources. The main aim of the website therefore, was to provide quick and easy access to peer reviewed resources relevant to the school physics curriculum, and to work with teachers in developing it. Teacher action-research groups and other representatives of the teachers’ community played an active role in designing the website using the WebCT platform. There have been three main stages so far: establishing the community; creating the site content and community maintenance.

Figure 5 Analysis of the Dublin teachers’ community
Online communities for teachers and lifelong learners

The Dublin community was established from teachers who responded to a survey sent to 200 local schools. Of the 41 teachers who completed and returned the questionnaire, twenty expressed an interest in becoming more actively involved. Initially, just one face-to-face meeting was planned for the beginning of the project, but after a few months, online activity had started to fade and telephone interviews with teachers revealed that they preferred to combine meetings off and online and so regular meetings were set up and continued. The meetings were structured and included activities that were followed up online. For example, the teachers discussed and agreed reviews and ratings of online resources that they could use in the classroom, and also reviewed the website that they were developing.

4.3 Analysis of the Dublin teachers' community

4.3.1 People, purposes and policies

This is a much smaller community than Bob's bulletin board. There are 20 people active in it and although there is a mix of gender, there are more men than women that may reflect the domain as there are still more men than women teaching physics in most European countries. Unlike the members of Bob’s bulletin board, their expertise in using technology is fairly high, although they do not all have easy access to the internet and need to rely on a mix of home and work access. The age of group members is older than Bob’s bulletin board members – they are between 35 and 60 years of age with considerable experience of teaching their subject, physics. They are all from Ireland.

This community was specifically set-up as part of a European project as discussed earlier following a survey sent to local schools. The community consisted of 20 physics teachers who wished to be actively involved in the project and also a local education officer and the researcher leading the project. Their motivation in being part of the community was to improve their students’ understanding of physics and also to find about and develop a pool of IT resources that they could use in their teaching. So the initial purpose of the community was seen as improving students’ physics understanding and their engagement with physics through the use of computer-based resources.

As with Bob’s knee community to get a more detailed picture of how the community works it is necessary to look for evidence of how the sociability factors discussed in Section 3.1 work in practice. However, this community is much younger than Bob’s knee community and has existed for only 18 months. Therefore, evidence of sociability is less detailed. In addition, this is a developing community whereas Bob’s knee community is a mature community. The evidence described below is drawn from an external evaluation of the STAR project that included interviews with the Dublin Science teachers and other key project members; attendance at project meetings and also analysis of data that had already been collected by the Dublin site, which included surveys of the teachers’ experience and access to ICT; their ICT use in teaching and their evaluation of the website and resources at various points in the project. The evaluation team also had access to the teachers’ messages, but their online activity was relatively low and often oriented towards particular tasks set in the face-to-face meetings. This data was therefore not investigated further. As in the case study of Bob’s knee community we discuss this community using the headings presented in Section 3 and the analysis is shown in Figure 5.
4.3.2 Participation, non-participation and reciprocity

The community mainly functioned around searching and evaluating computer-based materials, usually found on the web, which could be used in their physics teaching. All members did participate although some were more active than others, both during the face-to-face meetings and online.

Members communicated both online and at face-to-face meetings. Indeed it was clear that an online only community would not have worked for these members. Because of their proximity (they all lived within reasonable travelling distance of each other) they wanted to meet up. The Dublin group pressed for Saturday morning meetings followed up by an informal lunch in the pub as this worked well or them – they found it motivating and it paced them. Without such meetings it was too easy for their participation in the community to fall as they struggled to fit it in around the rest of their busy lives, but they also had some problems with access at work, in their schools. In such a small community that also meets face-to-face, it is difficult for members not to participate, and for the community to still continue successfully, as they are all engaged in tasks during their meetings – for example, evaluating the resources they have found and evaluating the website. Most of the teachers commented positively about meeting up face-to-face. Often they would be the only physics teacher in their school, so the meetings were a rare opportunity to meet up with other physics teachers. Meeting alleviated their feelings of physical isolation and they enjoyed being able to work together face-to-face.

It is important to note that the continued participation in the group would have been unlikely without the role of the project leader, who was managing the STAR project at the Dublin site and her assistant. She was a university academic, and part of her role in the project was developing this community. This small university team obtained the initial resources on the web and developed the prototype website. The project manager also organised the face-to-face meetings and developed and structured activities that the community members were asked to take part in. These included evaluating the prototype website, finding resources, developing evaluation criteria for the resources they had found and evaluating them. Her role also included day-to-day management and administration (e.g. sending out reminders); in particular her flexibility in responding to the group’s needs was important. For example, it had not originally been the intention that there would be a series of face-to-face meetings – only an initial meeting was planned that would be followed by online activity and discussion. However, after a while, activity online had fallen away, and the project leader phoned the group and found that they were finding it hard to sustain their activities online and would welcome face-to-face meetings. This led to the pattern of the regular Saturday workshops, discussed above, which worked well.

The Dublin team also had a local education officer for physics involved in the group as a consultant. She had been a physics teacher and was well known to the teachers as an established and respected member of her field. Her role in the Education Department provided her with knowledge and expertise about the issues facing physics teachers in Ireland and also about the government’s thinking and plans in this area. She effectively liaised between the project team based at the university and the teachers’ groups. Indeed, she felt that she acted as a ‘bridge’ or ‘interpreter’ between the two groups because of her unique position as a member of both. Her expertise and status among the teachers appeared to be a key part of the success of the group. Interestingly there had been
previous attempts made by the education department to get regional clusters of teachers to work together and these had not been successful. Both the teachers and the consultant felt that these previous groups had lacked sufficient commitment and motivation.

It is not clear that reciprocity was a strong theme for this community. There was certainly a concrete form of exchanging resources that could be used by the teachers and their students such as resources, software tools, commentaries and evaluations. But some of this activity was led by one or two members: for example, one member had found a particularly good resource and made it available on CD-ROMs, which he distributed to the other members at a meeting. Some activities, however, such as critiquing the material on the website, which were key activities, were carried out by everyone. In such a small group of people, who knew each other, social pressure would make it hard for members not to contribute at all.

4.3.3 Empathy and trust

Empathy is not clearly apparent in this community unlike Bob’s bulletin board. However, as in Bob’s bulletin board, there were no obvious statements that indicated strong trust or breaches of trust. Indeed, the online messages are characterised by being strongly task-oriented. There is very little social content in the messages. It seems likely that in this community members’ goals were very professionally oriented – to help their students learn physics – and so empathy is much less likely to be seen or needed than in a support community. It is also possible that more empathy occurred in the face-to-face meetings, but the evaluation team did not attend these. The position is much the same for trust. The community members are positive about the community but do not talk in terms of trust: they do talk in terms of the community working because they are a committed hard working group. Much of the activity of the community is directed towards the resources they are sharing and the website that they are developing rather than being located in their communication. However, it is likely that as the community functioned well and people contributed there is trust between them, at least in terms of expectations to contribute, otherwise comments would probably have been made admonishing members for not pulling their weight.

4.3.4 Etiquette

As in Bob’s board there were no formal policies on display. Teachers were asked about the need for social control in the interviews and they revealed that they had not needed to exercise any forms of social control. There had not been any inappropriate messages.

4.3.5 Social presence

As in Bob’s bulletin board community no special attention was given to supporting the participants’ social presence. They identified each other by their login names. As the community was small and met regularly met face-to-face there were no instances of flaming or inappropriate behaviour that sometimes occur when social presence is not a prominent design consideration. Members of the community do not need to ‘hide’ behind fake identities, which would be impossible in any case because the community is small and members meet face-to-face regularly.
4.3.6 Communication and common ground

Establishing common ground in this community is likely to be fairly straightforward as members do have a shared background in teaching physics and common purposes concerned with their roles as physics teachers. Therefore, they share a scientific language. Indeed obvious misunderstandings were not observed. Nearly all the messages, however are factual and about the tasks. Communication in the community therefore, tends to be tightly structured around agreed tasks. For example, teachers discussed and commented on each new resource (on various topics) that was contributed for including in the website. They worked collaboratively to develop criteria for evaluating and deciding which resources to include and drew on their own and others’ experiences in doing this, and to help justify what they included and left out.

4.3.7 Collaboration and competition

The Dublin community is collaborative – as indicated above and there did not appear to be any competition between the members. Their collaboration was strongly task driven and much of the collaborative activity took place off-line in the face-to-face meetings. The internet was then used as a tool to support this collaboration and to facilitate developing the website. This is in strong contrast to the situation in Bob’s bulletin board, which is also not competitive, but neither is it collaborative around common tasks. People simply exchange information by asking and answering questions and offer support.

4.3.8 Conclusions from the analysis

The main conclusion from this analysis of the Dublin community is that this community functions well: it is a healthy, active community. However, in its current state it is not self-governing in the way that Bob’s group is. Members monitor themselves in terms of the appropriateness of the messages they send and so there is no need for social control—but this may also be because the group is small and members know each other. As pointed out earlier some of the more emotional messages online can result from the lack of social presence in which participants are constantly aware of each other. Therefore, they forget that they are addressing other human beings, and they choose to be rude or abusive because they know that they will never have to meet the person and be accountable for their behaviour. The group is not self-governing, however, in terms of leadership: having been developed for a European Union project, leadership was provided and the group members have not been required to take on this role.

5 Discussion and conclusions

From the discussion so far it is clear that the communities differ in many ways but both were successful communities. In the discussion that follows we first compare and contrast what we have learned about the two communities by applying the framework. Then we discuss the efficacy of the framework itself and finally we end with a brief discussion of how this framework compares with frameworks proposed by other
researchers, particularly that of Wenger. As pointed out earlier some of the more emotional messages online can result from the lack of social presence in which participants are constantly aware of each other.

5.1 Similarities and differences in the communities revealed in the analysis

The two communities are at different ends of a continuum for many criteria. The most obvious are that Bob’s bulletin board is large, almost entirely online and is a well established community that has existed since 1996. By contrast the Dublin physics teachers’ community is small, there are just 20 members, and it is a blended community that relies on regular face-to-face meetings supported by the internet. Furthermore it is a young community and is evolving. For both communities these criteria have a deeper impact. For example, trust and respect for other members seems to be strong in each but is achieved in different ways. In the case of Bob’s bulletin board there is a strong networked governance (Maloney-Krichmar and Preece, 2005), which has set standards of interaction that are upheld by the community. Therefore, instances of unreasonable behaviour online are rare. The Dublin teachers’ community also achieves co-operation, and it appears that there is also trust and respect because arguments and criticism between members are rare. There are no explicit policies but neither is there an obvious governance structure. The community is young, small and was purposely developed in the auspices of a European Union project. Regular meetings will also have helped to reduce the scope for aggression or controversy online.

The purpose of the two communities is quite different, but for each community the purpose is clear and well understood by the community members. This, as we have said elsewhere, is one of the most important features for encouraging the evolution of successful online communities (Preece et al., 2004a,b). In the case of Bob’s bulletin board, the community is a community of interest that has grown organically. While there is no explicit statement of the community’s purpose, which flies in the face of what many community developers have recommended (Kim, 2000; Preece, 2000), the purpose of the community is clear through the explicit positioning of the bulletin board on the website and the choice of name, which tells those with the medical problem what the community is about and deters those who do not have this contextual knowledge from joining (see Maloney-Krichmar and Preece, 2005 for a detailed discussion of these issues). In contrast the Dublin physics teachers’ community has invited members of their academic practice community to participate in this newly developed blended community. Consequently, in both cases, even though the purposes are different (knee injuries versus teaching physics) the purpose of the respective communities is clear. Everyone knows why they are there and everyone has similar experiences and a shared language with which to express ideas and voice opinions. Also, whilst Bob’s bulletin board is clearly a community of interest, the Dublin community shares many aspects of a community or practice.

The conclusions that we can reach from analysing these two types of communities is that in terms of their people, purposes and policies, they are quite different. However, they are both successful communities in terms of the way their members interact, the implicit trust that appears to exist that is revealed through high levels of cooperation (in the case of the Dublin teachers’ community) and strong reciprocity (in the case of Bob’s bulletin board). Bob’s bulletin board appears to be in a steady state with effective
networked self-governance. The challenge for the Dublin physics teachers’ community is how they will cope with governance and technical support once the EU-funded project ends.

5.2 Comparison of this framework with other frameworks and models

The interesting observation from this analysis is that analysing the two communities using the ‘people, purposes and policies’ framework enabled us to identify key criteria in the two communities and highlighted the differences and similarities between the two communities. The framework supports a coarse grain of analysis that focuses on the three main components of sociability: the people who belong to the community, their purposes or goals, and the policies that guide their behaviour. At the next level of analysis the framework identifies psycho-social issues that influence how people interact in the community, such as empathy and trust, cooperation and competition, reciprocity, social presence. Other criteria could be added but in our analysis, we worked with those that are most frequently discussed in the literature.

The level of rigor afforded by this framework is not as strong as for some models (e.g. de Souza and Preece, 2004; Diker, 2004) but it has the advantage of being more flexible. The de Souza and Preece model, for example, offers a finer grain of analysis. It is based on semiotics and therefore, focuses on communication between participants and communication with the system. The Diker model also offers a fine grain of analysis.

It was developed for analysing open-source communities and it is useful for modelling such things as the effect of limiting membership in the community by raising the level of technical competency needed to participate in the community.

Many developers offer a form of development framework in that they describe how the community grows and the changes that one can expect during different stages (Kim, 2000). Typically the change in number of participants is graphed against time and the ‘S’ shaped curve is annotated to describe the kind of activities that can be expected during different stages. Some relate this growth to profit for e-commerce communities (Hagel and Armstrong, 1997); others focus on learning (Palloff and Pratt, 1999) and learning as part of professional practice (Wenger, 1998). Although none of these propose frameworks or models per se they do describe different components and features of the community. Wenger, for example, focuses on learning about practice though the social process of sharing and exchanging knowledge. He describes a community of practice as a group of people who share an interest in a domain of human endeavour and engage in a process of collective learning that creates bonds between them. Of course the Dublin physics teachers’ community fits this description quite closely. By working together the community shares experience and resources to create a joint product, in the case of the Dublin physics teachers this is a website to share resources. Wenger see community development and activity through the lens of learning that leads to the development of the community’s identity and that of the individuals in the community. He does identify dimensions of practice related to: mutual engagement of members in the practice; the agreement and shaping of a joint enterprise; which leads to a shared repertoire of stories, styles of doing things and vocabulary. He also points out features that indicate that a successful community of practice is developing.

What conclusions can be drawn from this work? While strong universally accepted models of online community do not exist, there are both explicit and implicit models that help us to understand how different types of online communities operate. Some of these
frameworks point out characteristics of successful communities (e.g. Wenger, 1998), others like the framework that we employed to analyse the knee injury community supported by Bob’s bulletin board and the Dublin physics teachers’ community are designed to support analysis both during development and for evaluation. The flexibility of this framework is both a strength and a weakness. It is a strength in that it can be applied to widely different communities as we have demonstrated. With this flexibility comes the weakness that the framework is high level and general. However, by using this and similar frameworks online community developers, moderators, managers and participants are pointed to key features and issues that they need to understand to help their community to be successful.

Acknowledgements

The website and resources used by the Dublin community were developed by a team at the Dublin Institute of Technology, led by Dr. J. Harvey who also led the Dublin STAR project team. The evaluation was carried out by an external team from the Open University, UK who gratefully acknowledge the teachers’ contributions. Researchers from university of Maryland Baltimore Country are grateful to the members of Bob’ Bulletin Board for allowing them to study their community.

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Note

1This project was funded by the Socrates EU programme, Minerva, the aim of which is the promotion of ODL*-ICT (*Open and Distance Learning) in the field of education across the EU. The project was entitled: developing a periphery driven curriculum development model for school science, (PDCD Science project) and later became known as the STAR project. The partners were London Metropolitan University, UK, Dublin Institute of Technology, Ireland and National Centre of Distance Education, University of Sofia, Bulgaria.