The distance from isolation
Why communities are the logical conclusion in e-learning

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Abstract

This paper argues that the internet is built around key technology design features of openness, robustness and decentralisation. These design features have transformed into social features, which are embodied within the cultural values of the internet. By examining applications that have become popular on the net, the importance of these values is demonstrated. If e-learning is considered as a sub-set of internet activity, then the types of approaches that will be popular and meaningful for students will be those that appeal to these three core values. An examination of online communities reveals that these are indeed in keeping with these, and provide a valuable learning experience. The community can be seen as a natural conclusion in e-learning driven by the expectations of a generation of learners who have been enculturated into the values of the internet.

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1. Introduction

One way of looking at the values of the internet is to ask what social values it seems to champion. This might cover questions such as:
What are the social norms expected of behaviour when you join an online community?
How are you expected to communicate?
What is unacceptable behaviour?
What sorts of topics generate online debate?
What does the online community perceive as threats to its core values?
Is there such a thing as one set of values for the internet?
What sort of technologies take off online and why?
How do people actually use the different technologies in everyday life?

The answer to all such questions lies in the essence of the internet and what it was created for, namely communication, and in particular robust, decentralized and open communication. While these were technological features of the internet design, as the internet took off, they also became social features of the system. A comparison of these two aspects of the internet, its technological and social features reveals how each of these three key features is realized. In terms of robustness, the internet was designed as a distributed system that could survive attack, failure or sabotage of any particular part and still function as a meaningful communication system. To do this it had to be a network system, with no centralized control. This is fundamental to all that follows. Having opted for a decentralized system, this means that there needs to be many different connections, with no single node being more important than any other. This is realized through the network of internet routers, where if one is down, then information will simply find an alternative route. An open system follows from the decentralized approach, because if the system is to have no central control, then it is necessarily open, so that any compatible computer can hook up onto it and allow communication to continue.

If we view the internet in terms of social features and communication, these three key characteristics are evident again. Robustness is seen through the ability to communicate from different locations, using a variety of devices. It is also evidenced through the failure of governments or commerce to really control the internet and what is discussed on it. The decentralized nature of the internet is key to this – no one body or organization owns or controls the internet. Every server or web site is potentially as significant as any other one. This makes the internet an obviously open and democratic place. Anyone can publish and debate is not governed or censored. In many ways, the internet acts like a living organism, driven by these social values. As John Gilmore famously observed ‘the internet interprets censorship as damage and routes around it.’ As well as making a strong case against censorship, what Gilmore’s quote indicates is that the social behaviour of the internet mimics the technological behaviour.

This provides an insight into the social values of the net and answers to the questions above. In short, the values of the internet are based around the sanctity of communication. Anything that appeals to these three key features of the net, namely openness, decentralisation and robustness, is likely to take off online. Anything that threatens or impinges these is likely to cause concern and debate. (I am speaking about the open internet here, different values might apply regarding internet use within an organization, although often it is the conflict between these two cultures that causes difficulties.) This perspective on all internet developments, but especially those in e-learning provides a useful means of both predicting what developments might be successful, but also analyzing why certain technologies or approaches have been
successful or unsuccessful. Using this approach to examine the potential of communities offers a fresh perspective on their likely uptake.

This paper explores this hypothesis in detail by examining some successful developments on the internet. Each of these is examined in light of the three fundamental social characteristics outlined above. This analysis demonstrates the validity of the hypothesis. The educational motivation for adopting a community-based approach is then set out. These two areas combine to suggest that communities are a natural end point in e-learning, since they meet the three social characteristics and there are powerful pedagogical advantages for their adoption. Some of the issues in realizing e-learning communities are then addressed.

2. Successful developments

2.1. Napster

Napster (the music sharing system) was something of an internet phenomenon. Between 1999 and 2002 the software gained some 80 million registered users, led to a number of similar programs being developed (e.g., Gnutella, Kazaa), changed the manner in which people viewed the internet and caused great concern in the music industry. The software allowed users to swap MP3 music files between themselves. This led to the rise of peer-to-peer computing, which bypasses central servers.

The reasons behind Napster's success are varied, for example, it focused on an activity that was always popular (sharing music) and opened this up to the global scale of the internet. Similarly, it appealed to an audience that was keen to adopt new technology and had a strong interest in the area of music.

But, if we look at our three key features, then Napster can be seen as appealing directly to these. It was open in that anyone could download the software and start sharing files. Indeed its very openness was the reason the music industry eventually shut it down through legal action. It was decentralised, in fact, more decentralised than previous usage of the internet. Napster was the pioneer of peer-to-peer computing, and the rise of this may well be Napster's main legacy. Purists claim that Napster was not strictly peer-to-peer since it retained a central database, but it demonstrated several key features of P2P computing. Firstly, it was operated by users installing client software on their computer. Secondly, they could then exchange files directly with each other, without the need for going through a central server. Lastly, it led to the creation of new communities, with many Napster users communicating with each other, swapping files, passing on recommendations, exchanging views and so on. This community was outside normal controls and moderation precisely because it was peer-to-peer. This bypassing of normal regulation is one of the main issues (both for advocates and detractors) surrounding P2P computing. The central database mentioned above did prove to be something of an Achilles heel for Napster, as the legal case focused on this as an item that should be opened up. So, in this respect, Napster was not decentralised enough and this in itself demonstrates the validity of the initial internet design.

Napster was also robust in that it could not be shut down easily. Only legal action against the founding company succeeded, but by this time, there were many imitators, such as Gnutella, as well as the ability to swap files through instant messaging clients.
2.2. Blogging

Web logs or blogs, have become the fastest growing use of the internet over the past year or so. Blood (2000) differentiates between two types of blog – the journal, which acts as an online diary and contains thoughts, opinions, reflections, etc. This is usually personal, giving an account of the individual's life. The second type is the filter-style blog, where the blogger posts links to other web content (be it obscure or mainstream), with a commentary on this. This second type is probably of more interest and value to the reader. As Blood puts it:

A filter-style weblog provides many advantages to its readers. It reveals glimpses of an unimagined web to those who have no time to surf. An intelligent human being filters through the mass of information packaged daily for our consumption and picks out the interesting, the important, the overlooked, and the unexpected. This human being may provide additional information to that which corporate media provides, expose the fallacy of an argument, perhaps reveal an inaccurate detail. Because the weblog editor can comment freely on what she finds, one week of reading will reveal to you her personal biases, making her a predictable source. This further enables us to turn a critical eye to both the information and comments she provides. Her irreverent attitude challenges the veracity of the “facts” presented each day by authorities.

Blogcount.com estimates there are approximately 2.4–2.9 million active blogs as of June 2003. Although an impressive figure for a new phenomenon, Jupiter Research indicates this is only 2% of the online community (Greenspan, 2003).

The development of easy to use tools such as Blogger.com, Radio Userland and MoveableType has meant that users can easily publish diaries from any location. They can allow comments on each of their postings, thus creating debate around issues of importance to a particular set of individuals. Communities of bloggers have grown up, linking and commenting on each others postings. There are also community blogs, such as MetaFilter, which anyone can post to and discuss issues.

Blogs are a technologically simple development, yet they have been seized upon by the internet community. If we examine these in the light of the three main features, the reasons for this popularity are demonstrated.

Firstly, they greatly increase the degree of openness by allowing simple ‘push-button’ publishing. There is no need to design web pages or upload these – the user can choose from a variety of design templates, and then simply type their text in to a box and click on publish. This democratizes the net further, making it open to a large portion of the population.

Next is the feature of decentralization. Part of the popularity of blogs is that they can be updated from anywhere, and thus take advantage of the internet’s global pervasiveness. For example, at conferences with wireless networks many people in the audience will be uploading comments on the current presentation to their blog, as the presentation is in process. For example, Lisa Guernsey (2003) gives this example:

Some people who have experienced the phenomenon cite a speech given last year at a computer industry conference by Joe Nacchio, former chief executive of the telecommunications company Qwest. As he gave his presentation, two bloggers – Dan Gillmor, a columnist for
The San Jose Mercury News, and Doc Searls, senior editor for The Linux Journal – were posting notes about him to their Weblogs, which were simultaneously being read by many people in the audience.

Both included a link forwarded by a reader in Florida to a stock filing report indicating that Mr. Nacchio had recently made millions of dollars from selling his company’s stock, although he complained in his speech about the tough economy. “No sympathy here,” Mr. Gillmor wrote.

“When Dan blogged that, the tenor of the room changed,” Mr. Doctorow said. Mr. Nacchio, he said, “stopped getting softball questions and he started getting hardball questions.”

Decentralization is therefore an important aspect in the popularity of blogs. The third feature that of robustness, can be seen in two main ways. The first is simply the robustness offered by the internet itself. As a means of keeping a public diary or commentary, the internet has few rivals. However, what is more interesting is the community aspect of blogging. When the internet was still relatively new and with far fewer users, the most popular application (apart from e-mail), was that of newsgroups. In these, like-minded individuals could discuss anything from rare diseases to conspiracy theories. While they are still popular, the newsgroups have suffered from the rise in popularity of the internet. Many are now unusable because they are populated almost entirely by spam messages, or users who are deliberately provoking angry responses (known as trolling) or prolonged debates between a few users. Put in terms of the internet design, the newsgroups are not robust enough to this type of attack. Thus, much of the informed debate that used to be found in newsgroups now takes place in blogs. As mentioned, bloggers will often post comments on other blogger’s postings, thus creating a distributed debate. Because these are owned by the individual user, they are much less susceptible to the kind of attack that has crippled newsgroups. Similarly, the comment function can be used by trollers, but as each comment link is a separate page, it is more difficult for them to be corrupted by spam.

2.3. Open source

The open source model of software production is based around a community of developers who contribute pieces of code, fixes and improvements to an ongoing software project, for example an operating system. The software code is then regularly updated to incorporate contributions that have been deemed useful by the community. Several important software products have come out of the open source approach, including the operating system Linux and the web server software Apache. These are not merely ‘hobbyist’ applications, but robust systems that are widely used in industry. Much of the open source community is driven by strong philosophical beliefs in the importance of freely available, non-proprietary software. This is often portrayed as an anti-Microsoft approach, in that Microsoft personify the opposite approach to open source, that of proprietary development. In Microsoft’s case, the software is developed by programmers working for a company, and the software is owned by that company. There are two basic tenets to the open source philosophy: that robust, complex software is best developed by a community of developers; and only by keeping the source code open can this be achieved.
There are several key principles to the open source model. First, the code is freely available; second the contributors provide their services free. Third, changes to the code are decreed by perhaps one person or a committee, but they usually arise out of acceptance by the community as a whole.

The open source model thus directly relates to the three main characteristics of internet success. It is open, in that it is non-proprietary and anyone can contribute. As Raymond (2003) puts it

“Most software is fragile and buggy because most programs are too complicated for a human brain to understand all at once. When you can’t reason correctly about the guts of a program, you can’t be sure it’s correct, and you can’t fix it if it’s broken. It follows that the way to make robust programs is to make their internals easy for human beings to reason about. There are two main ways to do that: transparency and simplicity.”

Open source is decentralized, in that the software consists of small modules, which can be adapted by anyone, rather than the software being a single large piece of code, developed by a closed team. It is, crucially, robust, and this is one of the main arguments of the proponents of the open source approach. Because the software is open, it can be updated regularly, and because it is developed by a community of developers the knowledge base is spread wider, leading to software that is arguably more robust than proprietary products.

3. The educational motivation for communities

There has been some research examining the development of online communities, particularly amongst learners. For example, Brown (2001) suggests that there are three levels of community:

- Online friends and acquaintances – individuals communicate with other students who they get on with or with whom they share interests.
- Community conferment – this is when students felt a degree of membership to the community of learners. This is gained through participation in threaded, thoughtful discussion.
- Camaraderie – this was the highest level of community, involving significant levels of commitment and involvement. It is usually achieved through prolonged association, for example, when students have studied more than one course together, and often extends beyond the timeframe of the current course.

In their study several students reported that they did not feel part of a community however, which demonstrates that a community cannot be forced upon individuals. As Brown states, “community did not happen unless the participants wanted it to happen”. The temporal element is interesting, since it may (although not necessarily) be in conflict with other trends in e-learning, such as just-in-time delivery, personalised content and learning objects. Rheingold (1993), one of the gurus of internet community, similarly stresses the importance prolonged discussion plays in the formation of community. He defines a virtual community as “social aggregations that emerge from the [Internet] when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace”.

The case for community and viewing learning as a social activity has been made powerfully by Lave and Wenger (1991), Wenger (1998) and Brown, Collins, and Duguid (1989) amongst others.
The notion of a 'community of practice' has gained much credence, whereby individuals learn by participating in a real-context community. This particular approach has proven popular with large corporations, who see it as the next step in a knowledge management process. By facilitating experts to form a community, they share knowledge, improve their own performance and the knowledge is elicited for future employees. For example, Gongla and Rizzuto (2001) detail the development of 60 'knowledge network communities' in IBM that covered the various countries in which they have a presence and the numerous roles within the organization.

Successful communities such as those described by Gongla and Rizzuto can be seen as embodying the three key characteristics detailed above. They are robust in that they work reliably using good technology that can be accessed from a variety of locations, using a range of devices. This is key to their success in that they allow members of the community to seek answers and support from the community at the time and place they need it. The knowledge they produce, because it is subject to the scrutiny of so many experts is also robust and reliable. They are open to the extent that anyone with an interest in the company can join the community, and membership is not restricted by factors such as location, status or social contacts. They are also decentralised in that crucial to their success is the absence of managerial control. Their content and focus is not determined by senior management or any top-down directive, but arises from the community members themselves.

There is a good literature therefore about the benefits of a community (be it virtual or real) in the learning process, but being pedagogically sound is not, in itself, sufficient for them to be adopted on a large scale. The traditional approach to teaching, embodied in the face to face lecture, has a good deal of inertia and is supported by an existing framework which is realised through assessment and accreditation strategies, administration, financial structures, physical buildings, etc. There is also, currently, an expectation from students that this is the form their education will, and should, take. For community-based approaches to become widespread in education and training, there needs to be a market pull for such learning experiences. The following section will examine whether this pull is likely to arise. While we have seen some good examples of online communities having benefits in the learning process, this does not necessarily mean that online communities have inherent features that make them useful in education. It is these more fundamental characteristics we will look at next.

4. Learning communities as a natural end-point

Given the reservations above regarding the uptake of online communities as a widespread approach in education, we shall now look at reasons why these reservations may be overcome. If we return to the original three features that determine the success of a technology or service on the internet, we can analyse e-learning communities in the light of these.

The first of these characteristics is openness. E-learning communities are necessarily open in that all individuals are encouraged to contribute, and the ethics of collaborative activity usually dictate that all contributions are valid. However, in order to prevent them from becoming subject to the same sort of disturbance and attacks as newsgroups have suffered, there may need to be a degree of control over this openness. For example, most universities have a code of conduct for online behaviour, breaches of which can result in the individual being set to read-only status or
banned altogether. Similarly, access to communities may be limited to individuals within an organization, or on a particular course.

As with the commercial examples, openness also refers to location, so students need not be campus-based, and to communication device, so they can use a range of devices, including mobile ones to participate. This element of openness is of particular relevance in accommodating people whose lifestyle may make contribution to a geographically or temporally fixed community difficult.

The key aspect of openness though is that an online community is open to the flow of material. In many ways, the approach of traditional education has been analogous to that of established broadcast media. The educator and educational establishment were seen as the holders of knowledge, which was then imparted to the students, at the discretion of the organization. Just as the internet challenges this power relationship with news media, so it challenges it within education. Students can find out a great deal of information online, they can discuss issues with a wide variety of people, and significantly, they have an expectation to feel involved in the whole process, that is for the process and dialogue to be open. Educators still have an important role in helping students frame their thoughts and arguments, and in constructing information they find online within a meaningful framework, but it is a different role from any they might have been engaged in. This brings us on to the second characteristic, that of decentralization.

Decentralization is fundamental to the difference between a community approach and traditional approaches, including those adopted by many e-learning providers. Much of the current e-learning material is based around an instructivist pedagogy, and is firmly rooted in the belief that ‘content is king’. This is seen with the use of video-lectures, high quality animations, lecture notes, etc. There has been a good deal of interest in constructivist approaches to online learning, and indeed some (e.g., Beaty, Hodgson, Mann, & McConnell, 2002) suggest that e-learning should always be constructivist in approach. As suggested above, there is considerable resistance to this change in power relationships within education. Many perceive it as a threat to their status or power. Currently, there is not a sufficient demand from students for this view to be seriously challenged. However, as the ‘net generation’ enter higher education, they will come with an expectancy of discussing subjects in detail, seeking alternative views and challenging authority. The traditional ‘lecturer knows all’ approach will simply not satisfy such an audience.

These will be students who have grown up using software such as Napster, keeping blogs and whose cultural experience has been largely influenced by the culture of the net, including the sort of values espoused by the open source approach. They will have come to view ‘the network as the organizational form of our age’ as Castells (2002) argues. He proposes that the internet can enable networks to compete against the traditional centralised models of control in terms of effective realisation of goals while retaining their advantages of adaptability and flexibility. The emergence of the network as the most effective organisational model is, he suggests, the result of three convergent factors:

1. Changes in the economic climate which have seen the globalisation of business and a demand for flexibility in management.
2. The social values of individual freedom and freedom of communication.
3. Advances in technology, particularly the internet and related computing.
The essence of the network society is that of decentralization. The next generation of adult learners will be from a culture of decentralization, and so will resist models of education that are based on a centralized model.

The last characteristic is that of robustness. The open source model is again a good analogy here. This is a working model of how knowledge is best created by a community, to the mutual benefit of all. And the resultant knowledge (in this case embodied in a piece of software code, but also realized through improved programming practice throughout the community) is robust in a variety of situations. E-learning communities may be robust in a number of ways: they can lead to a robust understanding of a topic that does not fade the day after the exam has been sat as knowledge is created through activity and in context; they are robust to different individual approaches and preferences as individuals contribute different resources; they are robust to changes in content since the most up to date content is shared by individuals, rather than being reliant upon one individual to keep abreast of all developments.

E-learning communities therefore satisfy all three of the characteristics that have been identified as determinants of successful internet applications, as summarised in Table 1. This, combined with their benefits from a pedagogical perspective suggests that, almost regardless of the efforts of educators to promote or resist them, they will be come a key feature in educational practice. This is no surprise, in many ways we have come full circle. The internet was designed fundamentally as a communication medium and as Fernback and Thompson (n.d.) state, “the structural process that is associated with community is communication”. So communities seem a natural product of the internet, and particularly so in e-learning.

5. Realizing e-learning communities

So how might e-learning communities be realized, or encouraged? It is important to appreciate from the outset that one needs a broad definition of a community, and how one is realized. In e-learning, the tendency is to think of a community being built up over time through asynchronous text-based forums. Whilst this is certainly an important instantiation of the online community, it is not the only one. Indeed, there may be multiple modes of communication existing within an online community.

Gongla and Rizzuto (2001) propose a five stage model of community evolution:

1. Potential, when the community is starting to form.
2. Building stage, when the community begins to coalesce and define itself.
3. Engaged stage, when the community operates with a defined and shared purpose.
4. Active stage, when the community reflects and analyzes its own purpose and value.
5. Adaptive stage, when the community may expand into new environments and adapts to external conditions.

At each stage, they identify three key factors – “There is a pattern to how the communities evolved and the pattern is influenced by a dynamic balance of people, process, and technology elements.” These three factors can be used as the key ingredients in the development of a learning community.

Firstly, if we examine the people element of the triangle, there needs to be an appropriate set of users. This means learners who are at least willing (but preferably enthusiastic) to engage with the technology and to interact. A community is only as successful as its members make it, so if you have a reluctant group, who have private reasons for not wanting the community to succeed, then the community will not develop. However, as I argued above, it is likely that increasingly learners will come to education with an expectation of learning in exactly this way. Perhaps more problematic is having the right input from educators. Again, these need to be willing and enthusiastic, but importantly, they need to adopt new pedagogies.

The next element in the triangle is that of process. In e-learning terms, this can be said to refer to the pedagogy and the accompanying support structures. From a pedagogical perspective, communities need to form around dialogue, and so approaches that promote this will be successful. An obvious contender here is to include collaborative or cooperative tasks (which help foster the ‘community conferment’ level in Brown’s analysis). Communities can also form around discussion of content, and so content that suggests or promotes dialogue is important (as are educators who foster it). Similarly, activity-based approaches that give students a common experience and ability to share resources can foster community.

Such approaches need to be supported and recognised by the surrounding framework also, for example, assessment regulations need to be able to accommodate methods that will recognise more than just the formal exam. Similarly, there needs to be support for the range of technologies used, and for these to be incorporated into the pedagogy of the course.

This brings us to the last element in this triumvirate of seeding factors – technology. Easy-to-use asynchronous tools, with affordances for dialogue are usually seen as the sine qua non of an online community. While this may be true, there is some suggestion that synchronous ‘events’ are important in establishing a sense of communal identity. For example, Haythornthwaite, Kazmer, and Robins (2000) claim that, “synchronous communication, particularly during the live lecture times, contributes much more to community building than asynchronous communication”. Technologies such as expert webcasts with a subsequent synchronous exchange may therefore be important components in creating a community, even if they only represent a small percentage of the overall course content. Any technologies that promote communication will be useful. For example, a community of bloggers may form within in a set of learners, as they share their experience of studying. Similarly, students will increasingly make use of tools such as instant messaging, so they can be alerted when one of their friends or someone from the same course comes online. This could be incorporated into web material, so a learner could see who was studying that particular material at that time, and engage in a discussion around it. Many of these tools create a
community, which is ‘outside’ of the one that might be recognised or moderated by formal education, but they all constitute a facet of the overall community.

6. Conclusions

The internet was constructed around three design principles: robustness, decentralization and openness. As usage of the internet developed these design principles became social characteristics of the internet. Successful internet developments usually display all three of these characteristics. This has been demonstrated through an analysis of three such developments: Napster, blogging and open source software.

There are strong educational motivations for communities in e-learning, as has been evidenced by much of the current focus on communities of practice. E-learning communities also satisfy the three major characteristics of successful internet developments – they are robust, decentralized and open. When a development has a strong motivation and it meets these three characteristics, then it is likely to become an adopted approach through the actions of users and participants, regardless of whether it is formally encouraged or not.

The challenge now facing educators is how to accommodate the potential of new technologies and the sophisticated communication strategies of a new generation of learners into formal structures. If a solution to this can be found, then the learning community will become the norm, and we will have found, in the words of Phillip Larkin, a ‘unique distance from isolation.’

References


