An exploration of concepts of community through a case study of UK university web production

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Abstract

The paper explores the inter-relation and differences between the concepts of occupational community, community of practice, online community and social network. It uses as a case study illustration the domain of UK university web site production and specifically a listserv for those involved in it. Different latent occupational communities are explored, and the potential for the listserv to help realize these as an active sense of community is considered. The listserv is not (for most participants) a tight knit community of practice, indeed it fails many criteria for an online community. It is perhaps best conceived as a loose knit network of practice, valued for information, implicit support and for the maintenance of weak ties. Through the analysis the case for using strict definitions of the theoretical concepts is made.

Keywords: online community; the professions; occupational community; social networks; community of practice; web site design

1. Introduction

This case study investigates the role of an online community in the realization of latent occupational community. Increasingly used loosely and "bleached" of specific meaning, terms such as community of practice, occupational community and online community are being employed more or less inter-changeably. For example, in organizations a "COP" is generally seen as at least partly virtual, supported by bulletin boards and other technologies for cooperation - and very often its purpose is seen as to link together those from a similar profession or in a similar occupational role spread across a large or distributed organization (eg [1]). With

increasing interest in different forms of networks within organizations, this may also be characterised as a social network. The purpose of this paper is to untangle such concepts derived from the theory of professions, community of practice theory, online communities and social network analysis, but often used in a chaotic way, almost interchangeably. The paper will chart their differences, similarities and connections at a conceptual level and explore their interrelation through a case study.

The case study material deploys the theoretical resources to try and characterise relationships and groupings among people with similar roles in different organizations - i.e. in a cross organizational space - in the emergent practice of creating web sites for universities in the UK. There is a vast literature of the web as technology and also a literature of web sites as a form of personal expression; little has been written about those who produce web sites for a living for large organizations, therefore the material should also be inherently of interest for exploring a relatively under researched area.

2. Theoretical background

The paper draws on four strands of theoretical resources. Inevitably it is rather selective in its choice of references from the large literature that exists for each.

2.1. Occupational community

An important starting point for the paper is the notion of occupational community, that is "bounded work cultures populated by people who share similar identities and values that transcend specific organisational settings" [2, p.314]. The concept refers to the way that some occupations develop their own sub-culture and social network. There are thought to be three defining features of an occupational community. Firstly, the self image of individuals are based on occupational role (the job is a "central life interest"), with other members of the occupation being a key reference group. Secondly, participants share values, norms and perspectives, including a standard about what is good work. Thirdly, there is an overlap between work and social relationships. The concept is important for revealing the similarity between the formalised profession (eg architects in [3]) and working class occupations (railwaymen in Cambridge, England). With their common education, institutions and values, professions have a head start in being communities [4], but working class occupations can also create a sub-culture/network, though here physical proximity may be more important [3]. For van Maanen and Barley [2] occupational communities are like professions in having as their underlying project social closure, i.e.

> […] the process of subordination whereby one group monopolizes advantages by closing off opportunities to another group of outsiders beneath it, which it defines as inferior and ineligible. [5, p.8]

In the occupational community literature a number of key factors in whether an occupation gives rise to a sense of self-awareness as a group or sense of community are identified. Firstly, is the degree of individuals' involvement and investment in work tasks, eg because it is dangerous work or seen as particularly important. A second factor, is its having marginal or disputed status. A third factor is the inclusiveness of the work. In Salaman's account the working of these factors is seen to operate rather deterministically; we would now probably grant greater autonomy to cultural processes [3].

The view taken in this paper is that it may be useful to consider that in any occupational space that there may be a number of latent communities, based on certain favourable underlying factors, which can be strongly or weakly realized in reality dependent on historical and contingent processes, such as the agency of particular individuals. As Salaman argues the existence of occupational community is a matter of degree, rather than an absolute quality [3, p.127]. Whereas traditionally an occupational community would be seen as having strong common ground in values and a dense social network, it may be possible to imagine weaker forms more likely in a mass society with an unstable occupational structure.

In relation to the process of realization of latent community it is useful also to reference the notion of imagined community [6]. Any mass of individuals that has a parallel exposure to a particular significant experience, be it a long running TV programme or a set of coordinated institutions, such as national press and education system, may be likely to see themselves as a natural community, without there being any actual network of connections among them necessarily. Those who watch a soap opera are a potential audience community; those exposed to common institutional experiences, potentially a nation. The realisation that others have had the parallel experience, which can occur when meeting specific individuals, is what makes such rather abstract, mass connections vivid.

> the emotive impact of community, the capacity of empathy and affinity, arise not just out of an imagined community, but in the dynamic interaction between that concept and the actual and limited social relations and practices through which it is realized. People care because they associate the idea of community with people they know, with whom they have shared experiences, activities, places and/or histories. In turn, they use these interpersonal relations to interpret their relationship to more extended social categories. [7, p.18]

Thus any latent community can be realised powerfully through episodic interactions with a few others. Occupational community may be realized (or not) in the same way. Van Maanen and Barley refer to, as a test of occupational community, the way two practitioners, though of diverse background, age etc can start to converse on esoteric matters after a few moments of acquaintance because of parallel experiences of work [2, p.307]. Presumably such encounters produce a strong sense of there being a "community" of others in "the same boat". Equally such feelings of solidarity might be realized through a virtual community: the actual ties there do not need to be strong, for a degree of immediate identification will take place by virtue of parallel experience.

2.2. Community of practice theory

The notion of a community of practice is often seen as a new way to conceptualise the organization (after Brown and Duguid [8]), but it is also significant for our understanding of the profession and occupation. Lave and Wenger focus more on practice than community [9]. As Gherardi, Nicolini and Odela argue:

> Referring to a community of practice is not a way to postulate the existence of a new informal grouping or social system within the organisation, but is a way to emphasize that every practice is dependent on social processes through which it is sustained and perpetuated, and that learning takes place through the engagement in that practice. [10, p.279]

Increasingly, however, in Wenger we are offered a conception of a community of practice as a bounded group with its own culture, with a specific set of defining characteristics , though it may not self consciously be a group or necessarily be harmonious [11, pp.125,6]. This is a challenge to the notion of the profession, as an entity based on a body of abstract knowledge [12]. It emphasises, in contrast, the creation of knowledge at the level of practice, where a small group of strongly engaged individuals, reinvent for themselves the meaning of an activity. It contrasts with occupational community by being small scale, local and the practice most likely spanning the jurisdiction of several recognised professions. It is similar in so far as we see an occupational community as a work related culture, not associated with a particular organization, premised on work being a central life concern. Both point to a strong psychic investment ("passion") about work. In a community of practice, however, membership is not a process of socialisation into a pre-existing culture, rather the co-creation of identity through collective agency. Community of practice is a conceptualization - perhaps an ideal type - of collective agency.

For the purposes of this paper it is also important to note that within community of practice theory, Wenger provides a number of concepts to characterise the nature of less tightly knit groups. Thus he proposes the notion of a constellation of practices, which is defined as the appearance from a certain perspective that a number of community of practices are related, eg because they face similar conditions [11, p.126-8]. Thus, Oliver uses this concept to explicate the nature of relationships of learning technologists in UK Higher Education (HE) [13]. Each learning technologist participates in a local community of practice in their organization, but their parallel experience creates the basis for some form of pre-professional community, and a "yearning" for mutual engagement across organizations [13, p.263]. This could perhaps be seen as the community of practice conceptualisation of occupational community. However, Wenger also introduces the notion of communities of imagination and alignment [11] - the first of which echoes Anderson's imagined community [6], pointing to the existence of community which is tied together through imagined rather than actual ties.

In Wenger's later, practitioner orientated work he tends to use the term "community of interest" to refer to a looser knit group than a community of practice [14]. But at this point Wenger's own use of the concept of community of practice is quite bleached [15], and merely means a group of people with a common passion for a

topic who learn together [14, p.4]. We should also note Brown and Duguid's coining of the term "network of practice" to describe occupational groups with similar practices, but with indirect rather than the direct links of a community of practice [16,17,18]. Members of such groups do not know each other, they are "very loosely coupled systems" [17, p.205] underlying which are a substrate of parallel practices

> Collectively, such social systems don't take action and produce little knowledge. They can, though, share information relating to the members' common practices quite efficiently. [18, p.142]

A network of practice is quite likely to be a type of online community. It is presumably also linked to latent occupational community or professional roots. The typical examples explored by Wasko and Faraj are narrow IT specialisms such as C++ programming, and organized at a global level via usenet [19]. They exist for instrumental purposes such as keeping up to date [20].

2.3. Online community

Turning to the concept of online or virtual community, as readers will know there is a longstanding debate over what this could mean [eg 21,22,23]. In common usage the phrase is often used in a weak way to refer merely to the provision of tools such as bulletin boards for users to input content onto a web site, rather than the owner simply providing it all for a supposedly "passive" audience of readers. To identify a strong definition, from the large literature of virtual community, two useful reference points will be used here: Herring [24] and Baym [25]. Herring encapsulates the key themes in a strong definition of an online community (similar characteristics are identified in [26, p.224]:

1) active, self-sustaining participation; a core of regular participants
2) shared history, purpose, culture, norms and values
3) solidarity, support, reciprocity
4) criticism, conflict, means of conflict resolution
5) self-awareness of group as an entity distinct from other groups
6) emergence of roles, hierarchy, governance, rituals

This approach stresses the way in which online groups can have characteristics by virtue of which they are a community "for themselves". The proposition is that people primarily or partly connected by a computer network can develop their own common cultue, norms etc. In many ways this definition has strong parallels in the notion of a community of practice, eg in its stress on a self sustaining character, shared history, purpose and culture and in recognising the possibility of conflict. Wenger's group is not necessarily self conscious, however. He sees it as an evanescent phenomena which is inimical to the production of formalised roles and rules (cf theme 6). It is also

not necessarily mediated by computers, indeed it has been a central debate whether a purely mediated community could generate sufficient strength of ties.

Baym is useful for pointing toward the importance not just of the online processes that help accomplish a sense of community (eg appearance of net personalities, glimpses of dyadic relationships, conventions of friendliness), but also the importance of the shared practice (eg soap operas) as material shaping the community culture and off line contexts (such as the deprecation of soap opera watching as an activity in society) as motivating participation [25]. This emphasis on context both redirects attention away simply from online processes and what is done online. It opens up consideration of what the online activity represents or symbolises to participants in their real world context.

2.4. Social networks

The Social Network field is an increasingly important perspective which has revealed the power of looking at the structural position of people in a network, rather than just attributes of individuals. It provides a method to identify the character and pattern of ties between individuals in a network [27]. The concept of network is generally an important dimension of the definition of community. Community is often associated with dense, multiplex ties: thus particular features of the network are a central part of an occupational community (eg [3, pp.104-10]); it is also implicit in Herring's first and third criteria for an online community. In network terms a community of practice is essentially a dense multiplex one.

In a number of works Wellman (eg [28]) and Castells (eg [29]) - building on Granovetter's seminal notion of "the strength of weak ties" [30,31] - have established the importance of recognising that in a fluid, mobile society that weak tied networks are also valuable as well as the strong ties implicit in the notion of community (and community of practice). Thus participation in online groups is an instrumental activity in search of "support, sociability, information and a sense of belonging" [32, p.34]. Here, in the concept of networked individualism, the stress is on self interested exchanges with weak ties which cost less to maintain but provide more diverse information. This approach directs our attention to the measurable exchanges of information, rather than meaning and identity which tend to be central in community of practice theory, for example. The weak network is less restraining if less supporting. As Bauman argues we like the idea of the safety of community, but we would really not like to live under the restraint it imposes [33, p.4]. This is at the other end of the scale from Wenger's stress on intense engagement in community of practice theory, but both emphasise direct relations between people, not imagined ties. Clearly, the concept of a NOP shows the influence of the notion of the strength of weak ties.

2.5. Theoretical summary

Thus the discussion has reiviewed a range of interrelated concepts, all of which seem to be in current use to describe different forms of work related solidarity. In practitioner literature they seem increasingly collapsed into one, while at the same time there is a proliferation of supposedly new types of community ("community of" this or that) and taxonomies of types of community of practice. This paper keeps the concepts as distinct and individually useful and explores their inter-relation in one particular case. In the messiness and complexity of reality there is no simple, one to one fit between concepts and the world, rather the concepts act as ideal types with which it is more or less useful to compare it.

The notion of occupational community captures the way that people doing the same type of work can develop a common culture and social network. In its original formulation it may seem rather atavisitic because it echoes a more stable and geographically settled society. But given its scale it also can be seen as pointing to a form of solidarity based on parallel experience, a form of imagined community. Such communities are rather typical of a mass society, where people who do not know each other have similar experience and can come to have common feeling. Community of practice has a more modern feel with its social constructivist underpinning and stress on dynamic, negotiated and agentic social relations. It is on a much smaller, sub-organizational scale. Intense interactions produce new knowledge and shared culture. In stark contrast to community of practice theory SN approaches are largely quantative. They can explore the many types of bounded group or community that might exist in an organization, for example, but also all sorts of structures of ties, including weak ones. The common ground between the communtiy of practice and networked individualism is in the privileging of direct social relations, in other words, who knows who. In that sense they do not recognise the importance of imagined community. All communities are mediated (eg by books or artefacts) but the concept of online community focuses on a particular form of mediation, ie by computer networks, because of their ability seemingly to partly overcome separation in space and time and also affect the scale of social relations. The online community literature tends to focus as Herring does on the strength of the community for itself. Presumably a community of practice or an occupational community might be realised through such means, be that by enabling direct social relations between those who are separated by space and time or expanding the number who are involved. But it could also be by a symbolic focus for imagined community and a place to have the concrete experience which turns imagined community an emotional bond as described by Amit.

The following sections further illustrate the connections and differences between the concepts by applying them to one specific domain.

3. Case study background

The case study area is the cross organizational space in an emergent occupational sphere, specifically among those involved in the production of University web sites in the UK. The main focus is WWW-list, a listserv type discussion forum (the name has been pseudonymised to protect the privacy of the group). It is necessary for the reader to have a broad appreciation of how the practice of university web production is organized for them to understand the case study.

From a small scale web presence, often run by the IT service as a successor to a gopher based campus wide information system, the web has grown into an important internal and external communication medium for universities [34]. They have constructed truly vast sites; often run on hundreds of servers. There has always been a tension between the benefits of centralisation and decentralisation in organizing this web presence. In terms of permitting professional specialisation (in, for example, visual design, usability, information architecture, coding, programming, server management) and the ability to provide standard navigation and a coherent image for marketing reasons a degree of central control makes sense. On the other hand, there are benefits of decentralisation arising from the sheer amount of content and the benefit of leaving control of information publishing close to those who generate it, i.e. at faculty or school level. The result is that, depending partly on such factors as resourcing, there remain large numbers of people throughout universities producing web content and designing pages. The individuals working at the faculty level - we will refer to them as "web authors" here - typically are either academics who have become interested in the web or more commonly IT support staff who took it on because it seemed something to do with IT or secretaries who have been nominated because of their involvement in producing information. Such distributed activity is more or less strongly coordinated by the centre. The ideal, widely expressed by interviewees, was to have a dedicated "web manager" with a web team of specialists in IT, design and content creation; in reality arrangements are diverse. There are many in jobs that involve multiple skills that would normally be seen as belonging to a number of professions.

> All web managers often find themselves in the uncanny situation of providing a one-stop shop - editor, designer, technical specialist, user support person, trainer, marketing officer, development officer, and even minute secretary! It quickly becomes a balancing act of deciding which skills to develop, and choosing a direction in which to branch, while the workload increases daily with user expectations and rapid technological growth. [35]

Although resourcing has increased in the last few years, and some institutions now have specialised teams, many practitioners still find themselves "jacks of all trades", because of the range of roles they continue to carry out [34]. It seems that perceptions of the sector were over influenced by the experience of some of the wealthier, more prestigious institutions. To complicate the picture further there has been a long running debate about whether the central team best sits in IT or in communications/marketing, or can be somehow split between the two or even be a separate unit. Thus in different institutions responsibility for the web is located in different parts

of the organization. The result is a complex social world with diversity across institutions in terms of organizational location and resourcing and featuring a tension between a desire for professionalisation and continuing amateurism (For further discussion see 36). The organizing question addressed in the paper is what role do cross organizational spaces, especially online communities, play in this world?

4. Methods

The research into WWW-list on which this case study is built drew on a wide range of sources. In the early part of the research the focus was on data directly from the online space itself. Thus one major source of data for the study was the email archive for WWW-list from March 1998 to February 2005; the archive lacks the first four years of the list's existence. Analysis was made of a sample of seven months of messages taken from each year covered by the archive. This data was subjected to a range of content analysis, such as subject and genre analysis. The former was performed using a subject taxonomy derived by the researcher from interviewees' characterisations of their jobs and closely linked to van der Walt and van Brakel task analysis of "webmasters" [37] (Appendix 1, columns 1 and 2). The latter applied an inductively produced set of categories to threads (Appendix 2). There was also analysis of list membership, eg using subscriber lists retrieved for specific dates (there is no historical data). Having a unique identifier (an email address) for each member allowed a certain amount of descriptive data to be collected about members. In addition, there was subscriber "settings data" (eg whether the individual received digest or individual postings) for one date: 10th May 2004. In addition to this material, the study of WWW-list also included a number of interviews conducted in 2003 and a web based questionnaire was circulated on WWW-list in May 2003. This asked 25 questions about how it was used, valued and perceived. The questionnaire received 43 responses from a total of over 700 list subscribers, and it was considered that the data could still, with caution, be used to support findings from other data sources.

Notwithstanding the wealth of quantative information gathered, the study was primarily qualitative [38] based on amassing many forms of data about UK HE web production and using them inductively to build up an understanding of the role of cross organizational ties. None of the above analysis was based on rigid pre-formed hypotheses, rather many analyses were performed to try and develop an understanding of the character and significance of the list in its off line context. Operationalisation of list characteristics was pursued where ever possible, but the interpretation of the significance of these indexes remains a matter of judgment and were often found, lacking comparative data, to be rather inconclusive. The findings presented here are offered as tentative interpretations, therefore.

In the emergent pattern of the study [38] the impossibility of understanding the online community without understanding the wider real world social context in which it existed led the researcher at the second stage to

collect data about participants (and non-participants). Thus more rich, in-depth data representing the lived experience of actors was collected through 21 hour-long semi-structured interviews with practitioners in web production (conducted March-July 2004) [34]. Interviewees were chosen purposively with a desire to represent different types of university (from the older research led institutions through to newly created teaching orientated ones), those using different technologies, and especially those where practitioners find themselves in different organizational locations. Different levels of participation in the cross-organizational networks were another factor. Interviews were transcribed and through iterative reading [39] and open coding understanding of the themes in them developed. To a certain extent the analysis was influenced by discursive psychology [40] however the data was seen to reflect interviewees' consistent beliefs, expressed in good faith, not as essentially rhetorical constructions. It is acknowledged because there is no neatly definable method of analysis the study lacks the immediate reliability of more transparent methods. It nevertheless represents a valid approach long used in social science (eg [41]). The rich qualitative data from the interviews helped build up a picture of the emerging practice of web management in universities and explore the pattern of cross organizational ties from an ego centred perspective, even if it is acknowledged that other interpretations could be made of the data. After this data was analysed the researcher returned to review the more quantative studies of the list itself and to bring them up to date by adding to the sample from data generated since the study started.

5. Findings

The case study focuses on the listserv as an ICT mediated space, and so is much concerned in 5.2, using Herring's criteria [24], to identify whether WWW-list can be considered to be an online community for itself, perhaps with the intensity of a community of practice. The notion of occupational community is used in 5.1 to explore the context within which WWW-list exists to try and understand how it is shaped by that context. This recognises Baym's point about seeing the online community in its off line context. As the discussion in 5.2 develops it becomes increasingly important to recognise WWW-list's symbolic role and this again brings in the notion of occupational and imagined community.

5.1. Latent communities

A useful starting point for the case study is to consider what latent or potential occupational communities could exist across the field of UK university web production, with some initial thoughts about the implications of their being realized.

Immediately relevant are the pre-existing occupational communities of marketing and IT, which already have very clear professional institutions, known domains of knowledge and "jurisdiction" [12] and at the local level

are invariably clearly demarcated by organization in distinct departments in universities. Some of the interviewees aspired to gain acceptance in mainstream IT management or marketing. Yet the web was seen as a little apart, and generally considered to be a specialist or technical role, perhaps a low status one within the wider framework of those professions. For those working in the web area to form as interest groups of British Computing Society or Chartered Institute of Marketing often did not seem likely because of a lack of comprehension from the overarching professional bodies. Again to too exclusively take the web to be an IT or marketing practice would be to ignore the contribution of the other. On a personal level web managers and their teams tended to avoid over identification with these known blocs. Indeed few of the interviewees were members of the relevant professional bodies. Nevertheless the presence of this division is a significant backdrop to cross organizational activities.

Another possible set of relationships would be for web managers (in HE) to cohere as an occupational community themselves. The web manager group would satisfy two of Salaman's necessary conditions for the emergence of an occupational community, through the elan of the web being combined with marginal status. Thus interviewees were excited about the possibilities of the web, but universally complained of a historic and, usually, continuing lack of resources, which can be interpreted as a peeked sense of lack of status. Though the group lacks the propinquity of the railwaymen of Cambridge or the long standing institutions of London architects [3], it has the advantage of the visibility of the web, which allows members of the occupation to inspect each other's work freely. They also have privileged access to the network as a communication medium through which to maintain contact with each other. In addition, the existence of such a community could have practical benefits in sharing information. The theory of occupational community does not recognise the role of the community in being a source of knowledge about the practice (whereas the network of practice concept gives primacy to this as the defining factor). Occupational community theory sees the occupational knowledge base as an accomplished fact, either maintained through the formal institutions of the profession or the host organization/industry. However, for emerging roles such as the web, the pragmatic value of talking to colleagues in other organizations to share knowledge might be key. Thus there are reasons why web management might itself form a form of occupational community.

However, the membership of a web managers' group would be quite small simply because of the small number of institutions (there are about 150 universities and another 50 smaller HE institutes in the UK). Also, while many interviewees believed in the value of having a web manager, in fact, often institutions did not have one. It was more an aspiration, reflecting the thirst for the web to be "taken seriously". It is also a professionalising aspiration, which cuts against the amateur ethic of the web. A realization of web managers as a community would logically exclude both the technical specialists of the putative central web team and the many web authors around the institution. So to form a community around web managers as a putative professional group would be limiting and rather divisive.

A broader more inclusive community could exist at the level of "the web in HE." This could be inclusive of everyone doing the web, be that as a manager, a technical specialist or as a web author in a department. This would be favoured by the existence of some commonality of issues in the sector, and a natural pressure to organize at this level, as colleagues in other universities are obvious peers and relatively visible through the other channels by which universities communicate (eg UCISA national IT conferences). However, it is not clear that it makes very much sense to organize the web at the sector level. Arguably, the issues in designing a web site are the same for any organization - be it in a university or any context, so that one could argue that there is a latent community for anyone involved in the web at any type of institution.

Uimonen has argued that the spirit of the Internet is precisely of "open sharing of knowledge" and this culture is embedded in the "decentralised and interactive nature of the Internet" [42]. Openness and sharing is inscribed into the very technology. She is arguing for there to be a community of everyone involved in web production world wide. Yet most of Uimonen's references focus on individuals active in shaping the development of the web. Few people in UK HE would have involvement at this level. One could possibly see a mirroring of the institutions at the level of the development of the web down to the sectoral level. On the other hand trying to tie such a group together would include such a diversity of experience as to weaken a sense of common ground.

A final pattern for the realization of occupational community to be considered is that rather than organizing at the level of the whole web, particular specialisms could be identified - on a global level. Thus there are many online communities dedicated to particular technical or other aspects, eg Cascading Style Sheets or about search engine rankings. These are very specialised areas of the web but global in their reach. Those working in UK HE probably do participate in these forums, especially where specialist teams have been resourced. The issue is that the discussions tend to be abstruse and really only of interest to a narrow specialist.

Thus we can argue that there are a range of latent communities/ identifications that could be brought into more vivid existence if direct network activity at this level were generated. The systematic examination of the possible latent communities, clears the ground to examine the role of the actual cross organizational space of WWW-list and how it seems to realize actual identifications.

5.2. WWW-list

In many respects on first examination WWW-list fails to qualify as an online community, "for itself". The sheer level of activity on the list is quite low (cf Herring's first criteria). Over the seven years from March 1998 to February 2005 there were only about 10,000 messages posted; which is around 120 per month or about four a day. This is slightly higher than Butler found for a sample of listservs [43], but is not the intensive interaction one would imagine taking place in a community of practice, say (compare with [11, p.125]). Average thread length

was only 5 messages. Activity could be characterised as reactive rather than interactive [44] - messages were replied to but there tended not to be a complex iterative exchange. Thus in sample months just 24% of messages were solo postings, but equally only about 5% of messages showed the original poster responding to the replies they got. The discussions were rather lacking in creativity (understood as complex interactions that produce knowledge new to all parties, as opposed to people tentatively making suggestions primarily based on pre-existing experience or pointing to sources of authority). There was no evidence of emergence of clear roles or hierarchy (cf Herring's sixth criteria for an online community). Looking at the subject matter of messages in two sample months (Appendix 1) the topics covered clearly lie narrowly in the technical field, but was diverse within that, from HTML, to programming to server maintenance, so across the gamut of IT specialisms related to the web. This suggests that the list has no real character: no clear focus in a specific practice. Using genre analysis a dominant genre was found to be question and answer exchanges (Appendix 3). Kling and Courtright see this as a very common form of communication on lists [26, p.233].

In-jokes are an obvious form of a local culture, whose strength might indicate whether the community met Herring's second criteria. The main in-joke on WWW-list was about "Friday afternoons". The idea of Friday afternoons is to crave indulgence from readers for a supposedly off topic posting because it is a Friday, i.e. at the end of the working week. Several interviewees used reference to Fridays as a way of indicating their familiarity with WWW-list. In fact, however, the joke seems to occur on other lists. Also, a large proportion of the messages making the joke were actually by a single person. So the joke is neither a local creation (it is borrowed) or a collective creation, though for some it is a collective reference point.

These features point to WWW-list not being an online community in the strong sense that Herring or Baym use it, where intense relationships create novel practices - or a community of practice in Wenger's later understanding of that term [11]. This is partly a function of sheer scale; there were between 650 and 700 members.

However, further analysis suggests that it would be wrong to see the list as without any of the characteristics of a community. Although interviewees often seemed to elide their perception of WWW-list and other lists, some people did perceive it to be a community, in response to the questionnaire (28 out of 43 respondents thought it was a community in a unqualified or qualified way) or in interview (cf Herring's fifth criteria). This could be partly explained by the possibility that for a small group of active participants it was a community (of practice?) in a strongish sense, but with a vast periphery of low or non-active on-lookers. Thus 13 people posted 36 percent of all the emails in a seven year period (cf Herring's first criteria for an online community). As Butler argues, for interaction online groups (especially email lists as opposed to bulletin boards) scale no better than face to face ones, so that only a small number of individuals can really establish any sort of "net personality" [43]. The effect of the online community, then, is to surround this community of practice with a large periphery. We could see the

less active members as peripheral participants, though this term really implies a trajectory of increasing involvement, so perhaps the common Internet term "lurkers" is better. As Nonnecke's studies suggest the value of lurking to the individual should not be under-estimated [43,44]. One of the interviewees saw the group as aspirational, as part of her struggle to move beyond an "admin" role to a "tech" one.

> […] people on there have been very very helpful to me […] they've never been condescending to me, I'm well aware that my technical level is well below theirs. But they're just not that kind of people. They're what I call real technicians, in the sense that they are not – they don't do that. Condescending isn't part of their vocabulary, and they'll just share, because they like sharing, because they like what they do and they like to spread the skill. I don't write to [WWW-list] very often, but I do read it a lot. And get all sorts of useful information.

So for web authors whose involvement is part time WWW-list can represent their personal aspiration to be taken seriously and their excitement with building personal expertise.

If it is for a few of the most active participants that the list is a community, what is striking is that many of the key participants were marginal to the formal organisation of the web in their local institution, indeed the most frequent poster was marginal to the whole UK HE domain. Thus one interviewee, a very frequent poster, had no formal role in the web in his organisation. His own role had emerged out of his own interests and skills to a large extent and was adapted to his individual strengths and weaknesses both to his own benefit and for that of the organisation, in terms of higher commitment and productivity. But what he did was anomalous, difficult to define. The best description was the vague "university administrator". This fluidity and informality was linked, he thought, to the scale of the institution, which inhibited a fine division of labour and associated specialism. There was less structure in how the web was done; there was what had evolved by "a sequence of events and circumstances". Having to spread himself thinly but widely. WWW-list is for the non specialist in this sense. It represents the web prior to specialisation.

Again, from interview data, of those involved more formally in web production, it was those in very decentralised institutions, where control over web and professionalisation was less marked that WWW-list was seen as of continuing relevance. More professionalising web managers, with more resources, tended to dismiss it. One interviewee who was determined to draw a line between his professional team and the traditional "hobby farm" way of doing the web was very clear in drawing a clear line of demarcation with WWW-list.

> Its really got a little bit process bound. It was probably really good. I'll be quite frank it doesn't stimulate me. Its pretty dry - a bunch of people who sling back a bunch of dry stuff - I don't think Oh that's interesting EVER. But it does serve a purpose of keeping an eye on what's going on. And yes again - spectacular arrogance - but it elicits the odd snort of derision from me now and again.

Those with fewer local resources, not surprisingly, were more open to using external resources such as the list. One described it:

> […] Its pretty much like my days - it can be anything - one day it can be something highly non technical but still interesting […] - these are our guidelines, have a look at this […] and some days […] its just kind of a little brainteaser [at a] technical level

However, it was not only the most active participants who had a sense of community; WWW-list was widely perceived to be friendly and helpful. One might attribute this to a number of relatively accidental features of the discourse of WWW-list. Several echo features identified by Baym as ways r.a.t.s accomplished a feeling of being like a community [25]:

- A few people taking time to express themselves and create recognisable characters or "net.personalities" [25,p.143]
- Glimpses of interactions between people who do seem to know each other [25, pp.134-7]

These phenomena personalise the space and create a sense of community even if they do not have great depth. Questionnaire respondents stressed shared context and problems. Other factors seem in the case of WWW-list might be:

- A level of reactivity in which questions are responded to voluntarily and in a helpful, disinterested, spontaneous way, though not that much effort was being expended by any individual
- The egalitarian character of off the cuff, contributory answering
- Little sense that someone is in control or "owned" the list or there being a list politics
- Lack of strict rules, so that many exceptions to usual activities reinforce a sense of a tolerant voluntarism
- The common ground implied by ac.uk email addresses and many quite specific but implicit assumptions/valuations, yet also a fuzziness masking difference, from lack of physical presence, ambiguity of job titles etc.

All these low level features of discourse create a sense of community, in a light sense, through a sense of voluntary, friendly, informal discussion. If the sociological concept of community has tended to reserve the term to apply to very strong ties, in common usage the term community is used lightly [47].

Further, it is also possible to argue that the group did have a more collective culture than has been so far acknowledged (cf Herring's second criteria). If Q/A is a common form of interaction, the genre analysis did suggest that the Q/A could be tentatively divided up into: how-tos, fixes and tool recommendations . Using Graesser, McMahen and Johnson's taxonomy of types of questions [48] this is quite a distinctive pattern and different, for example, from White's categorisation of questioning in a number of online health groups [49]. This suggests that the pattern of exchanges is specific, perhaps pointing to the genre system of the list being derived from a disciplinary genre [50], i.e. of computing. Further, though the subject analysis suggests that the topic of discussions is spread across most IT topics relevant to the web, perhaps we should interpret this as evidence of an inclusive ethic which is significant in the context, rather than simply a lack of specific character. Rather than being siloed, people from different areas of technical expertise find this a common forum. In information terms this is quite useful in expanding individuals' general awareness of other technical skills involved in web work. It could in this sense be seen as a boundary community, i.e. a group that bridges between different specialist practices (see Wenger for a discussion of boundary practices [11, chapter 24]). This reflects the off list context that in an under resourced area people often have to take on roles for which they are not specialists. If web teams developed such specialists, they would tend to move towards the many specialist forums that exist, which have a global membership but narrow topical scope. Where it does not happen and people are still in multi-professional roles a multi-professional boundary practice may be useful. Activity on WWW-list partially reflects that specialization and professionalisation has not happened.

Communities tend to be perceived as friendly and helpful, about people. In fact, the commonest response in the questionnaire to a range of possible descriptions of WWW-list which included types of social group, was to see the list as "an information source". This might imply that the group is not a community. But it could also be seen as a professional identity, for those working in information itself. Thus the list could be seen as marked professionally as for information professionals. List interactions were often concise, to the point, eg to take two extreme examples :

> Quote 1
>
> On Mon, 11 May 1998, [Name] wrote:
>
> > I would like to automatically mirror a web site. (I have permission).
> > Any recommendation for free software. Only interested in Unix packages.
>
> w3mir, available from http://www.math.uio.no/~janl/w3mir/
>
> [Christian Name].

> [Signature]
> [May 1998 #63]
>
> Quote 2
> On Thu, 19 Jul 2001, [Name] wrote:
> >
> > Can anyone recommend a cheap or free utility to analyse logfiles generated by IIS under NT4? TIA.
>
> Try
>
> http://www.boutell.com/wusage/
> I like it.
> [Christian name]
> [Signature]
> [July 2001 #145]

But it would be wrong to interpret the lack of pathic padding in messages as unfriendly; rather it embodies agreed information values and cutting out "noise". If soap operas are by their nature material to talk about to explore different moral stances on personal relationships, and so produces a friendly style of discourse (25, p.14); so equally on a list for information professionals friendly chatter becomes "wasting bandwidth". This does not make the list any the less culturally significant, or occupationally marked.

The presence of these implicit values can also be seen in the way WWW-list conventions privileged rapid, off the top of the head responses from personal knowledge, that is "know how", as opposed to abstract theoretical knowledge. Hence the importance of "I like it" in the second quote above. Again, from observation it was relatively rare for a questioner to ask for information sources about a problem or a respondent to answer a question explicitly citing a source that has been used to look up an answer. What was being asked for and expressed was individual expertise based on experience: know how [51] - generally this preference is seen as distinctive of the information use patterns of engineers and computer professionals [52,53]. Again, this suggests that the behaviour on the list was occupationally marked [11, p.585].

Further, though pathic padding in messages is low, it could be argued that a degree of support is accomplished by demonstrated acts of helpfulness towards others. Whereas commentators have tended to see online groups as exclusively either for support or for information (eg [54]), this ignores the interpretation that giving information

is itself supportive. Giving information (where there is no obligation at all to help) is an enactment of helpfulness, rather than put into friendly words and explicit expressions of empathy. Indeed, in putting a question to a public, sector wide list there was an implicit admission by the inquirer that local resources for answering a question had been exhausted. Implicit in the very asking of a question, then, is an echo of the common complaint that the web is under resourced in HE and there is a lack of specialist sources of support. In offering rapid answers the community shows itself as being willing to help in recognition and sympathy for this shared experience of lack of resource/status. So though messages were generally impersonal in tone, clipped and information orientated, they can be perceived to be friendly and helpful in the context (cf Herring's third criteria for an online community). Again, one could argue that though WWW-list lacks a "narrative infrastructure" [55] - often seen as a defining feature of a community (of practice) - it does commonly see the enactment of a story - in which an individual asks for help and receives it from the group.

Another indicator that the group had a specific identity as a community was the noticeable lack of response to one frequent poster. This individual's postings often seemed to embody the "hacker" identity i.e. a fascination with pure technology, ranting against Microsoft, use of obscure emoticons and net speak, a high rate of posting, often joking and banter, referencing seminal hacker sources such as slashdot. The lack of response from the list to these messages demarcates the group by what it is not, i.e. not "hackers". Equally it is worth noting that Friday afternoons is obviously an employee joke, since the contractor or hacker would probably regard Friday afternoon as the perfect time to do work. Further, the pattern of posting on the list which is overwhelmingly in working hours (between 80 and 90% of messages in six of the seven sample months studied) also points to it being a list for employees. This is in marked contrast to the dominant culture of computing which celebrates a sociopathic identity [56,57] reflecting (and perpetuating) the dominance of young unattached males in the computing profession [58]. That the only online community in the area has a non hacker philosophy, is significant in the context of HE, where web work is not dominated by contractors or young male IT specialists.

Thus in a tentative way one can identify a distinctive character to the group, beneath a surface which seems merely to do with exchanging information. These may be low level processes, not deliberate acts, but they do accomplish a local culture.

6. Discussion

The fact that participation in WWW-list is voluntary and helpful gives it a community feel on a superficial level; it is about a work matter, so again in a loose sense is about "practice". For many commentators this would be sufficient to label it a community of practice or a virtual community of practice. This paper has taken a more purist stance and argued that the more precise definition in Wenger's earlier work is the most useful definition of

a community of practice [11]. By this standard WWW-list is not one. Even for the most active participants the level of communication and commitment is low. The idea of a community of practice remains a useful reference point, to define the limited nature of engagement through it. It is of some use to see WWW-list as a realization of a constellation of practices, where each local web service in a university is a community of practice.

This is consistent with the judgement that if on a superficial level WWW-list appears to be an online community, by Herrings' criteria [24] it is not so. For some it has aspects of her first three criteria, and perhaps of the fifth. There was little sign of her fourth or sixth criteria. So it is a weakly developed online community for itself, looking at it through the lens offered by Herring. Yet the case has been made for WWW-list having an informational list culture and supportive activity masked by a business like style of discourse. Thus it could be more symbolically important than directly creative of its own culture. Here we would be more concerned with the context of the list than what is actually created on the list itself or unique to it.

WWW-list does seem to be close to the concept of a NOP, being based on loose ties between people who do not know each other, not highly creative and more for support and information sharing. It is not a global specialist community like those studied by Wasko and Faraj [19] using the NOP term, however. Rather it is inclusive of a membership with very varied levels of skill, different levels of responsibility (web authors and specialists) a range of technical interests and it rejects the hacker identity. In its inclusivity across IT specialisms it might be useful to see it as a boundary community. The common ground is working in UK HE, which is the off line context in which the community has meaning: WWW-list represents a pre-specialisation form of web production, where producing university web sites is often the responsibility of non-specialists and different organizations organise the web differently. This could be considered an occupational community, if one very weakly developed compared to Salaman's cases.

A parallel online community more specifically for web managers like many other lists set up for HE specific technical specialisms has never really got off the ground. Both WWW-list and the global specialist lists studied by Wasko and Faraj seem to be weak forms of occupational community [19]. Here the stress is on instrumental purposes of sharing information and offering support not a stable dense network and rich culture.

Again, WWW-list fits in well with Wellman and others' stress on weak ties in a society of networked individualism - not a strong network as in Salaman's occupational communities. Certainly there was evidence that WWW-list was a starting point for people to make new contacts with colleagues at other institutions. One question in the questionnaire asked "how many useful professional relationships have you established through the list?" Although around 50% said they had made no such collaborations, a third said they had made one to five links. Two individuals said they had made more than 10. However, most list interactions seemed in essence to be between the individual and the whole group. In this sense it is difficult to evaluate WWW-list in SN terms, which

generally investigates the connections between individual nodes. An online community then has an interesting network effect, for it joins a mass of people otherwise not joined, so increasing the number of weak ties but also short cutting the length of paths between all individuals by enabling a sort of broadcast. If even weak links take some cost to maintain, online interactions amongst everyone reduce the cost of maintaining such weak ties still further. The cost of maintaining ties is shared very widely, with only a tiny amount of activity enough to keep a channel open for all.

So none of the community and network concepts introduced at the beginning of the paper fits things in the domain of web production in a simple one to one way. WWW-list could be described as a network of practice, but that in itself does not tell us very much, except in the way it refererences the notion of a community of practice, as a point of comparison. The notion of occupational community is highly relevant, though it is a weak, fragmented, and perhaps transient form of it. It is not an online community in itself, though it might serve to symbolise a common experience and bond between local institutional level communities of practice and scattered individuals. Real world phenomena do not fit into the neat abstrat models, but our understanding of them is increased by exploring their relation to them as ideal types.

7. Conclusions

This paper has attempted to explain the practical and symbolic role of a cross organizational space in its real world context with reference to the concepts of organizational community, community of practice, online community and social network analysis. In the web area, a new occupational space, there are a number of latent occupational communities that could be realized. The lack of common institutions of socialization, diversity of local arrangements (some people in marketing others in IT), diverse use of web technology by different institutions, the newness of the whole area are factors limiting the growth of a highly integrated occupational community. However a common sense of the area being under resourced, not given its due status, parallel experiences and common problems give rise to a certain degree of mutual identification and an interest in social contacts and willingness to offer mutual support. The online community (though it is a weak one by Herring's criteria) symbolically proves that people in HE are a community. Rather than the strong community of friendship ties, it is of weak ties maintained for their value in offering moral support and the pragmatic benefit of sharing information. For a few highly involved individuals it may be possible to argue that WWW-list has some of the elements of a community of practice, but in general the characterisation of it as a network of practice is probably more useful. It could also be seen as a boundary community stretched across a constellation of (local) practices. In network terms it is a loose linked network, but our main interest in network terms may be to the way an online community acts as a starter for real networks, and provides a broadcast channel to reach others where there is no tie.

It is possible that the pattern of occupational association in the web area may be a significant feature of occupations at the beginning of the century. The strong occupational communities Salaman found across classes in the early 70s reflected a much more stable economy [3]. The “flexible” economy of later modernity produces more fragmented, temporary niches of expertise, with networks maintained for pragmatic purposes. Though they are temporary, they are quite creative in terms of helping practitioners share information and understand the meaning of their role. They do play some role in wider jurisdictional struggles between professions. Increasingly it may be found that many jobs may develop such weak occupational institutions rather than full professionalisation or occupational community.

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9. Appendixes

9.1. Appendix 1: Frequency of topics in WWW-list threads and messages May 1998, October 2003

Clusters	**Activities**	**Threads**		**Messages**	
		1998	2003	1998	2003
Strategy and Management	Supervision				
	Strategy				
	Policy	1		1	
	Politics and liaison, encompasses relations with web authors				
	Project management				
IT (coding)	Web mark up (HTML, CSS, Javascript) - includes standardisation aspects of these	12	15	66	119
IT (development)	Programming / database connectivity (including writing cgi scripts)	5	4	23	8
IT (networking)	Networking, server maintenance and reporting (including logs)	8	8	54	57
	Search engine	2		6	
	System choice, implementation (browsers)	17 (7)	15 (8)	109 (32)	98 (68)
IT (MIS)	Core business processes/ portals/e-commerce				
IT (helpdesk)	Trouble shooting	2		3	
	Documentation				
	R&D	2	2	4	3
Usability/accessibility	Interface design, navigation, usability, accessibility	3	4	49	22

Clusters	Activities	Threads		Messages	
Staff development/ HRM	Training				
E-learning	E-learning		1		2
Information management/ librarianship	Information management, taxonomies, metadata		2		18
	Legal issues				
Marketing	Writing for web, content creation				
	Graphic design (and multimedia)	2	1	7	1
	Marketing				
Reflexive	The job itself		1		7
	Off topic	1	1	1	1

9.2. Appendix 2: Genre descriptions

	Thread type	**Description**	**Examples**
1.	Simple announcement	Announcement of event or opportunity.	Job posting Conference announcement Survey Call for papers
2.	Resource announcement	More personalised announcement of a "useful resource" that someone has come across (or created themselves)	* is a really useful resource
3.	Warning	Alert of threat	Beware a variant on the * virus is around.
4.	Self introduction	Brief biography by new or delurking member	Hi all, I'm new to the list, I thought I'd just introduce myself…
5.	Fix	Question and answer sequence, where initiator has specific problem they need help with	I have a problem with this code - I can't see where the problem is, can anyone help?
6.	How to	Question and answer sequence, where initiator asks how to achieve a particular outcome	How do I do * in ASP?
7.	Recommendation	Question and answer sequence, where initiator asks for recommendations / evaluations of software tools to accomplish a particular task	I need software to mirror my site - any one out there experience of using anything to do that?
8.	Other q/a	Question and answer sequence of other type	
9.	Banter	Jokey exchange	You're making me feel old…
10.	Metadiscussion	Discussion about the purpose of the list and its rules (netiquette)	Don't forget to suspend your list account before setting an out of the office message
11.	Narrative	Extended story about incident	You wouldn't believe what just happened…

	Thread type	Description	Examples
12.	Rant	Venting of anger or frustration with an external thing or person	I have just wasted two hours trying to configure *. Its useless.
13.	Flame	Direct ad hominem attack	You really should read the manual you idiot
14.	Complex thread: concatenation	Thread of more than 10 messages resulting from the concatenation of only loosely related questions	… can I just throw in this other question?
15.	Complex thread: best practice	Thread of more than 10 messages resulting from expansion of question to a general issue of best practice	…Its not so much how do you do that as whether you should be doing that at all
16.	Professional issue	Raises issues relating to professional image,	I've just seen this job advert: ridiculous what they're paying isn't it?
17.	Off topic	Message is off topic	Does anyone know of a good hotel in Malta?
18.	Supportive	Expression of personal concern for another	Hi, Johnny, haven't heard from you for a while :-(how on earth are you?

9.3. Appendix 3: Frequency of genre in sample months

		May 1998		October 1999		January 2001		July 2001		March 2002		October 2003		Aug 2004	
		Threads	Messages												
Q/A	How to	11	37	10	33	8	18	7	25	4	13	5	16	2	13
	Fix	7	48	6	20	7	18	7	27	3	14	4	17	6	26
	Recomm-endation	10	68	4	15	4	8	7	34	9	26	5	28	4	14
	Others	2	4	7	23	12	38	0	0	5	27	4	16	3	5
Simple announcements		2	2	3	3	8	8	7	7	4	4	3	3	1	2
Resource announcements		2	2	0	0	4	4	4	13	0	0	3	6	7	7
Warnings		1	2	0	0	1	4	4	21	0	0	0	0	0	0
Complex Threads		2	40	2	32	2	43	3	67	5	46	5	91	1	18
Netiquette		0	0	6	10	2	3	2	3	8	14	0	0	1	1
Banter		0	0	0	0	0	0	0	0	2	9	3	10	0	0
Rant		0	0	0	0	0	0	0	0	0	0	2	2	0	0
Sympathetic		0	0	0	0	0	0	0	0	0	0	1	2	0	0
Prof. Issues		0	0	0	0	1	2	0	0	2	24	1	7	0	0
Off topic		0	0	0	0	0	0	0	0	0	0	1	1	0	0
Total		37	203	38	136	49	146	41	197	42	177	37	199	25	86