Chapter 5
Collectivity, Performance and Self-representation: Analysing Cloudworks as a Public Space for Networked Learning and Reflection

Panagiota Alevizou, Rebecca Galley, and Gráinne Conole

Introduction

It has been argued that processes of participatory culture (Jenkins 2006; Bruns 2008), afforded by social media and technologies are beginning to blur the boundaries between creative production and consumption, and open up novel, public spaces for, and styles of, networked learning; social spaces that promote "communities of enquiry", collaborative knowledge building, and shared assets (e.g. interests, goals, contents, ideas, see Alexander 2008; Anderson 2007; Downes 2005). Nonetheless, empirical evidence on the application of such technologies for supporting teaching and learning in higher education contexts is only slowly emerging.

This chapter explores these concepts in the context of analysis of emergent patterns of behaviour and activity in a new social networking site for education: Cloudworks. Cloudworks is a specialised network, and a public space for aggregating and sharing resources and exchanging ideas about the scholarship and practice of teaching and learning. It begins with an overview of the site, and the initial theoretical underpinnings that informed its design, and then briefly describes the activity patterns we are seeing emerge as use of the site evolves. We argue that these patterns of behaviour require further theorising to locate the site in current socio-cultural thinking. We connect the notions of self-representation and collective intelligence that have been used to analyse performance and expression in social media/networked cultures with dimensions of expansive learning, and explore the nuances of mediated networked learning in this open space. We explore not only how connections and interactions are built within Cloudworks (for a given time, or a given purpose, or serendipitously), but also, how the connections and the interactions with materials and resources – and among people and things – are *expressed*, what the

P. Alevizou (✉) • R. Galley • G. Conole
Institute of Educational Technology, The Open University, Milton Keynes, UK
e-mail: p.alevizou@open.ac.uk

L. Dirckinck-Holmfeld et al. (eds.), *Exploring the Theory, Pedagogy and Practice of Networked Learning*, DOI 10.1007/978-1-4614-0496-5_5,

communicative or discursive dimensions of such expressions might be, and how far they may indicate collective action and community building. We conclude by suggesting that analysis of social, networked media in an educational context can yield new insights into the future of networked learning.

The initial theoretical perspectives on which Cloudworks has been based have been focused around Engeström's (2005) notion of "social objects" in social networking, and Bouman et al. (2007) framework for "sociality". In this chapter, we introduce three additional frameworks and demonstrate how they are helping us with our preliminary analyses of emerging activities on the site, and in particular the insights they provide into the dialogic interchanges and structures of involvement within the site. The first is the notion of collective intelligence (Lévy 1997, 2001; Jenkins 2006). The second framework stems from Ervin Goffman's notions of "face-work" and "ritual performance" (1955, 1963), and the third from a strand of activity theory, relating to expansive learning (Engeström 2001; Griffiths and Guile 2001). For the purpose of this chapter, we present case studies in the form of narrative examples from just two of the many emerging patterns of activity and involvement within the site, namely, "Debates" and "Enquiries and advice".

We argue that these perspectives are useful in studying networked sociality bounded in the context of learning, with wider implications for participation, self-representation, and openness in a higher education context. We contextualise emerging findings through this analytical lens, and aim to offer insights that will shape the agenda for conducting further research on the study of interaction, socialisation and sharing within Cloudworks specifically, and research in networked learning in general. We conclude with the implications such analyses may have for "*productive learning in networked environments*" (Jones and Dirckinck-Holmfeld 2009: 1).

Cloudworks Overview

Cloudworks (http://cloudworks.ac.uk) has been developed as part of the Open University Learning Design Initiative (http://ouldi.open.ac.uk). An agile and responsive approach to the development of the site has been adopted across three design phases. Each phase has consisted of a series of design decisions, observation, data analysis and evaluation (Conole and Culver 2009).

Cloudworks is a social networking site, which uses social media to provide a space for education professionals to share, discuss and find learning and teaching ideas. The site combines practices such as sociality, sharing and co-creation common in social networking platforms, wikis and social media, with different forms of dialogue, debate and peer commenting. The site allows for a range of social functions, such as "tagging", "favouriting", RSS feeds, "follow and be followed", and activity streams for different aspects of the site. Collectively, these features provide a range of routes through the site and enable users to collaboratively improve Clouds in a number of ways. Unlike many professional social networking spaces, the site is entirely open and object-centred. We argue that these factors help to enable transient but repeated and focused collaborative activity within, across and between groups

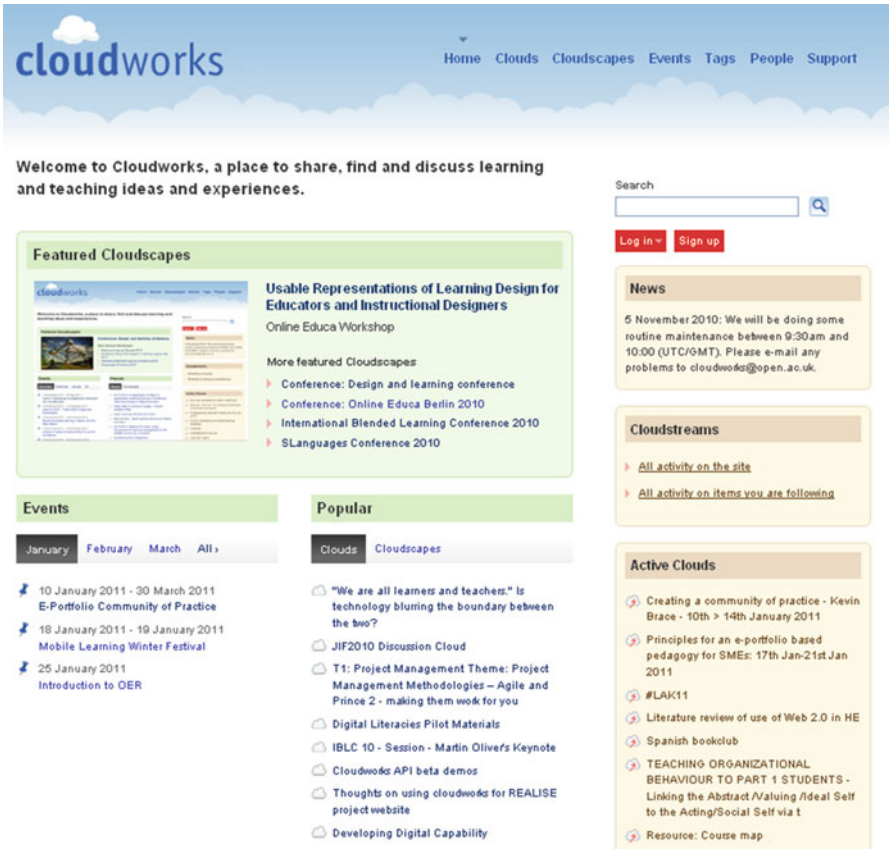

Fig. 5.1 Cloudworks homepage featuring streamed and evolving activity (most active Clouds on the *right*, featured Cloudscapes at the *top*, popular Clouds/Cloudscapes *below*, and events listings *below* and *left*)

from more established Communities of Practice, around events, ideas, designs and questions. The core objects in the site are "Clouds" which provide a space for anything to do with learning and teaching. The functionality of a Cloud is extensive: Clouds can act like blogs, in that material can be added to appear as series of sequential entries; users can post comments as they would in a discussion forum, and Clouds also enable aggregation and embedding of resources such as links, videos, slideshows, images, documents and academic references, The site's inter-connectivity with other channels of Web-communication (particularly Twitter and blogs) has pushed the dimensions of serendipity and association to create opportunities for self-oriented as well as collective aspects of engagement. Indeed, as functionality has been developed to complement blended communicative practices in residential events (such as workshops, seminars and conferences), more examples of activity have emerged, pointing to self-actualisation through archiving of interpretations, citations, and personal reflections (Figs. 5.1 and 5.2).

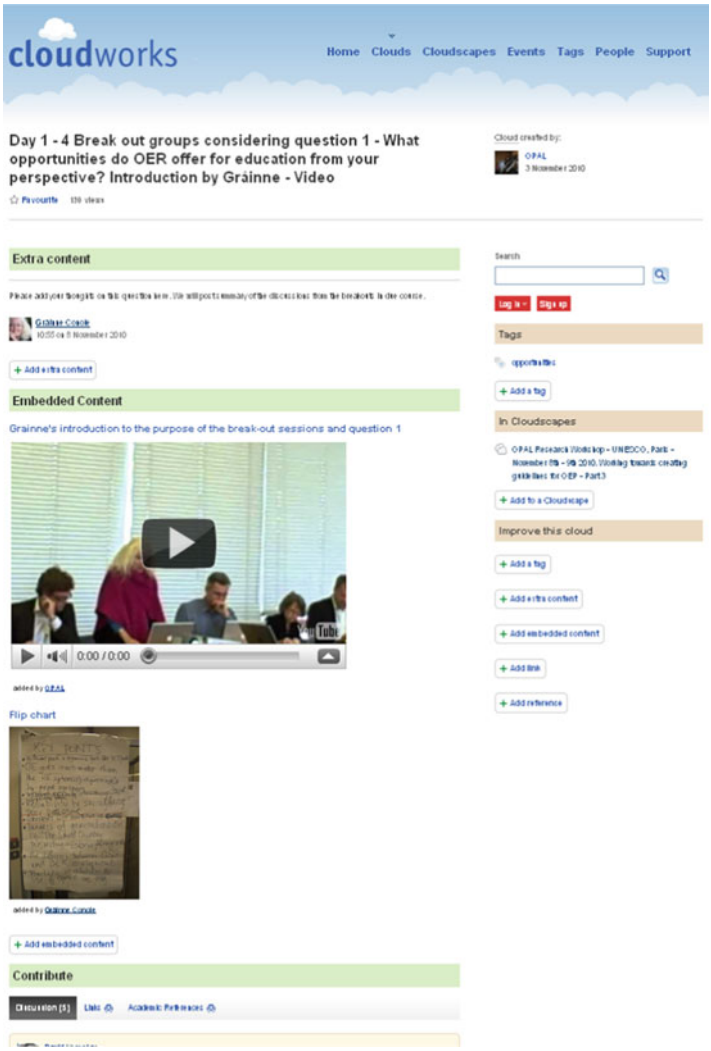

Fig. 5.2 Screen shot of a Cloud aggregating video, images, discussion, links and references

Clouds can be grouped into clusters of interest called Cloudscapes. These might be around a particular event such as a workshop or conference, or a Community of Interest such as a course team or student cohort, or around a topic such as a research theme or project. As of October 2010, the site contained 3,358 registered users, ca. 58,000 "absolute unique" visitors (i.e. distinct IP addresses) from 176 countries. Table 5.1 summarises the patterns of activity pointing to types of uses as they evolved over time and through the added functionalities.

Table 5.1 Core patterns of activity and evolutionary trajectories

Core types of activity	Evolutionary trajectories in use/activity
Events (supported and serendipitous) Workshops Conferences Virtual seminars/conventions	Increased number of requests to the Cloudworks team for setting up pre-designed spaces for events (from Summer 2009)
	A richer record of events in relation to (a) embedding chapters and presentations; (b) audience responses and dialogic interchanges (back-channels)
	Increased number of users setting up ad-hoc spaces for back-channel activities (from Autumn 2009)
Audience/interest group targeted Cloudscapes for specific research idea/project or teaching topics and pedagogies	Increased numbers of users outside of the team contributing to the site (71% of Cloudscapes, 79.2% of Clouds and 89.7% of comments in October 2010 were created by users other than the Cloudworks team)
	Aggregation of topics with more followers; increased personalisation and projected topic-oriented sociality (from Autumn 2009)
Topic/Question oriented sociality	Essentially dialogic in nature – Clouds or Cloudscapes which raise questions and issues, and provide a shared space for users to discuss
	A new pattern of activity sparking "flash debates" is evident from Summer 2009
	Provocative questions and polling style activities – often transferred from the blogs and twitter – generate rich and immediate discussions
	Aggregation – a record and focal point of discussions in a public space
"Open Research Reviews"	Researchers start posing their research questions and aggregating relevant resources, but also inviting others to contribute and discuss (Autumn, 2009)
Closed community activity in open spaces	Examples of emerging use of the open Cloudworks space for typically closed community activity such as agreeing agenda items and schedules for meetings, development of community targets, etc. (Summer 2010)

Theoretical Perspectives: From Objects to Situations

Having provided a brief description of the evolution of the site, this section describes some of the additional theoretical frameworks that we are exploring to enable us to further analyse the patterns of evident behaviour on the site as a public space for performance of self, and socialisation around shared interests. As outlined above we have deployed socio-cultural perspectives, drawing on ideas of mediation and activity theory for designing object oriented sociality (see Conole and Culver 2009; Bouman et al. 2007; Engeström 2005). Drawing on Wenger (1998) Bouman et al. (2007: 14) argue that "a designer needs to create the mechanisms that allow users to tap into the collective wisdom and experience and use it for their own benefit, learning processes and actualisation". In order to facilitate the building of identity and

self-actualisation, the principles of information brokering and participation, or feedback and association, are proposed as core components in the design of sociality. While we adopted this approach to develop the mediating artefacts that structure the interface of the site, Ervin Goffman's notions "facework" and "ritual performance" – used to analyse behaviour in public spaces and widely deployed in the fields of computer meditated communication (CMC) – are useful for exploring the nature of conversational interaction, the networks of feedback and the sharing of guided exploration. These are important design parameters for Bouman et al. and Engeström, and useful to further contextualise behavioural patterns and dialogic interchanges within the site. Essentially, these notions capture and complement the exploration of core *processes* of cultural and semiotic mediation (cf. Hasan 2005), as participants encounter each other in this public space. The idea of collective wisdom or collective intelligence is further discussed to connect patterns of interaction and situated learning practices around shared goals and intersecting discourses. The next three sections introduce these situated theoretical perspectives and are further contextualised through examples from activities and behaviour.

Collective Intelligence

In his seminal book entitled *Collective Intelligence*, Pierre Lévy offers an analysis of the WWW instruments, such as hypertext (1998: 155–157) to articulate a theoretical proposal regarding the ways humans can potentially share, collaborate over, and indeed, produce and reproduce knowledge (1997: 215–216). The idea of a digital networked technology, that makes possible a shared or collective intelligence, originates from Wells (1938) and Bush (1945); it also echoes Engelbart's (1962) ideas and early designs of software that would build organisational capacity to "augment intellect" and enable the sharing of mental associations and collective thought around complex problems. For Lévy, collective intelligence:

> […] is a form of *universally distributed intelligence*, constantly enhanced, coordinated in real time … The basis and goal of collective intelligence is the mutual recognition and enrichment of individuals (1997: 13).

While the cognitive perceptions of the members of a knowledge/discourse community taken individually may be incomplete or inaccurate, together they form a trans-active and transitive memory system that shares domains of knowledge. This can restore the level of organicity that defines oral communities. The idea of collective intelligence as a social pool for mobilising the sharing of resources, perceptions and formal and informal knowledge(s) is also seen as an alternative source to the power of mainstream media; both in terms of interpretation and production (see Alevizou 2006). Inspired by Lévy, Henry Jenkins, the new media and digital literacies scholar, argues that collective intelligence involves "consumption as a collective process" – a process that involves "learning to use that power through our day-to-day interactions with convergent culture" (Jenkins 2006: 4). Most importantly, collective intelligence is part of a new set of critical literacy skills for navigating and participating in

digital networked landscapes: participatory culture shifts the focus of literacy from one of individual expression to community involvement. The new literacies involve social skills developed through collaboration and networking, judgment, play, performance (Jenkins et al. 2006; Jenkins 2007).

The idea of cultivating fluency in relation to new forms and spaces of creative representation is a powerful one. For Lévy, collective intelligence can produce a public space that makes possible the representation and dynamic management of knowledge, with the ability to facilitate cognitive transcendence. He uses the *social dispersal of meaning* as a notion that emerges within, and makes possible, the evolution of "cosmopaedia" a space for the dynamic management and representation of knowledge. Unlike earlier visions of global libraries or archives (see Wells 1938; Bush 1945), this space is highly dialogical and transgressive of its own boundaries. While Wikipedia is the ultimate example of volunteer labour mobilisation which collaboratively produces an encyclopaedia, folksonomies and collective annotations of resources (e.g. Delicious, Zotero, etc.) are examples that require minimal participation. This shift to the social notion of knowledge emphasises the *processual* and the expansive, rather than the idea of "*possession*". The new modalities of social production of knowledge enabled by the combination of social software, digital media and peer collaboration offer new opportunities for encapsulating not the universal (global) ideal of enlightenment, but the local and particular relationships mobilised around networked learning (Alevizou 2006).

Ritual Performances

One can argue that the intersections of self-representation with informational affairs in physical and mediated interaction, depicted in Goffman's televisual insights, are being accentuated in a "Web 2.0" world; a world, where "travel" between the real and virtual, in time and through networks, come to structure domains of social life:

> Every person lives in a world of social encounters, involving him (sic) either in face-to-face or mediated contact with other participants. In each of these contacts, he tends to act out what is sometimes called a line –that is, a pattern of verbal and nonverbal acts by which he (sic) expresses his view of the situation and through this his evaluation of the participants, especially himself (sic) (Goffman 1967: 5).

Goffman's contributions to the study of everyday social life, and in particular the production of the self, and frames of experience, have been widely deployed in the field of computer mediated communication [ranging historically from personal homepages, to blogs and social networking sites (SNS)], and organisational studies. In particular, Goffman's notions of self-representation, ritual performance and analyses of talk in public space are suitable for exploring interactive and dynamic aspects of communication. Recent studies in SNS that adopt Goffman's ideas turn attention to the mediating framework of sites such as Facebook and MySpace and the possibilities that they offer for the presentation of the self. Continuing a tradition of CMC that examines the relationship between offline and online social life, and

the frames that shape and regulate it, recent research has explored how social networking sites have been fast established as prominent arenas where university students can become versed in "identity politics" (see Selwyn 2009). Although the concepts of facework and impression management are linked with identity, this research focuses mostly on the dynamic and strategic aspect of communication, namely, sharing information, media artefacts and ideas.

The notion of social life as ritual is particularly relevant for contextualising relations in public spaces, to examine not only community formation within the site but also the random and serendipitous social routines and practices – territories of the self, supportive interchanges, remedial interchanges, tie-ins, and normal appearances – that can be used to instigate a conversation and maintain *coherence* (Goffman 1971 in Branaman 1997: 1xix).

Expansive Learning

Activity theory (AT) provides a useful unit of analysis for enabling a theoretical account of the constitutive elements of an object-oriented, collective, and culturally mediated activity system in all its complex interactions and relationships (Engeström 1987). While the third generation of AT introduced the notions of dialogue, multiple perspectives, historicity and networks of interacting activity systems, Engeström (2001) expanded the framework further to account for *contradiction* as the driving force of change in activity, and expansive cycles as possible forms of transformation. Taking constellations of interacting activity systems as units of analysis to interrogate subjects, motivations, objects and modes of learning, Engeström developed a framework for expansive learning as a mode for researching inter-organisational learning. In the relatively long cycles of expansive learning, therefore, qualitative transformations, questioning and deviation from established norms sometimes escalate into a deliberate collective change effort. According to Engeström (2001: 137), "a full cycle of expansive transformation may be understood as a collaborative journey through zone of proximal development of the activity."

The framework offers a complementary perspective to the theories of learning against vertical processes, aimed at elevating humans towards higher levels of competence. Drawing on the framework of expansive learning, Griffiths and Guile elaborate on one of the main characteristics of boundary crossing as involving a process of *horizontal development*. "Learners have to develop the capability to mediate between different forms of expertise and the demands of different contexts, rather than simply bringing their accumulated vertical knowledge and skill to bear on the new situation" (2003: 61). Griffiths and Guile distinguish between different types of boundary crossing:

(a) Carrying out a known activity in a new context.
(b) "Individuals and groups using the problems which arise while undertaking a task as the basis for developing a new pattern of activity and new knowledge, poly-contextual knowledge, in a new context".

Extending Goodyear, Banks, Hodgson, and McConnell's definition of networked learning (2004: 1), Jones and Dirckinck-Holmfeld (2009: 1) draw out some conceptual developments that they argue help to bridge the gap between the potential of digital networks, and current educational practice, to explore the ways in which "productive learning" may take place in networked environments. Similarly, we seek to address this issue within networked learning and draw on the theoretical instruments and socio-cultural perspectives outlined above to connect notions of identity and performance, as well as expression and collective intelligence, within the site. We do not attempt to analyse the range of collaborative activities or contradictions, conflicts and tensions that are involved in this kind of processual learning; rather, we question how, and how far, access to this specialised platform or public space promotes purposeful and productive social interaction, and facilitates collective intelligence. We argue that these activities can enable zones of proximal development, frameworks for social interaction among individuals who connect not only to the knowledge of other specialists, peers and relational communities but also to their learning resources.

To address these fields we use a combination of methodologies ranging from virtual ethnography (Hine 2000) and reflective logs, to interviews and focus groups, sociolinguistic analysis of multimodal discourse (Bakhtin 1986; Holland et al. 1998; Kress and van Leeuwen 2001) and evaluation data collected in conferences and workshops.

Conceptual and Methodological Frameworks

Recently, we have been seeking to establish conceptual and methodological strategies that while informed by the theoretical frameworks we outlined above, also enable us to more systematically position transactions and emerging patterns of activity on the site so that we can more reliably evaluate these in relation to developing productive communities, professional knowledge and sustained participation (Galley et al. 2010; Alevizou et al. 2010). We have developed a framework to direct our inquiry and empirical investigation in relation to understanding the nature of communication and interaction among groups or individuals that are part of relational networks, and come together to discuss core themes in research and practices. The framework has been informed by a review of the online-communities literature and combines perspectives on CMC and facilitation/mentoring in online learning environments, and consists of four broad aspects or indicators, which appear to influence the development of productive, participatory activity. We argue that the four aspects interlink and have a multiplicative effect on the others, in that if one is missing the others will be significantly reduced; however, it is useful to consider them separately as lenses through which to view activity (Fig. 5.3).

We have deployed perspectives from the upper left and bottom right quadrants to guide our observation logs and the data we analysed: first, *participatory* modes of engagement are evident through repeated contributions and through the surfacing of

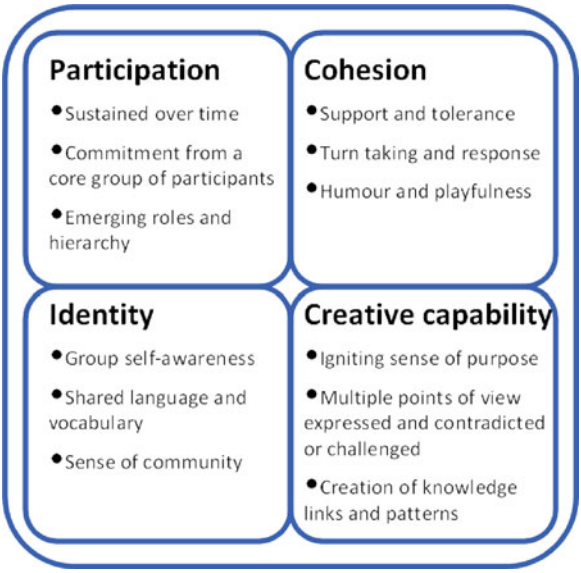

Fig. 5.3 Indicators of community [Galley et al. (forthcoming)]

a core group of participants involved particularly in, and surrounding, specific Communities of Practice who develop and perform *identity* through reflection and self-representation. Secondly, the creative capabilities among some of the participants, or facilitators – outside the core Cloudworks team – illustrate and ignite a sense of purpose, and a shared language and understanding of core themes in OER research, scholarship and practice. We have blended *cohesion* and *creative capacity* to view not only whether the ways in which participants interact within a public space such as Cloudworks demonstrates a creative articulation of their respective professional identities, but also if cohesive exchanges exist in the discursive level to illustrate of shared understanding of core themes within educational scholarship or practice and the capacity to creatively discuss – if not necessarily resolve – persistent issues or practical problems.

We connect these three analytical dimensions with communication patterns in popular activities evident in the site, which are grouped according to the following (see Engeström 2007; Gratton 2007; Herring 2004; Rafaeli and Sudweeks 1997; Walzer 1997):

- *Informational* (sharing of resources, links, annotations of presentations, live blogging, etc.).
- *Practical* (sharing of practice or experience, flashpoints of interest).
- *Social* (information modes of address, personal narratives, suggestions to recommendations), that lead or relate to:
  - Discursive (affirmations, welcome notes, supportive interchanges, humour and word plays, etc.)
  - Deliberative (instigating debates, etc.)

Our research attempts to capture the framing effects of different channels of social media, and their intersections in the performance of sharing and talk. Goffman extended notions of symbolic interactionism to account for both the role of frames, occasions and associated semiotic codes and the capabilities of individuals to improvise creatively within these structures. This is particularly relevant to social media environments, where self-actualisation is also located in the ability of users to modify interfaces and re-enact the affordances of these.

The notion of frame, more specifically, could be considered as part of the function of mediation. It refers to the rules and conventions that Goffman perceives as part of the organisation of experience, which helps to define a situation (Goffman 1974). Participants within Cloudworks come to the site through a range of communicative spaces (Twitter, blogs, institutional sites, public and private mailing lists) and interact in several physical and virtual spaces (e.g. workshops and conferences). While examining the detail of the media ecology that promotes "traffic" and supports development within the site is beyond the scope of this chapter, here we would like to draw attention to possible approaches that could be used to analyse the ways in which participants frame their communication based on their perceived audience, contexts of interaction/contribution and the dynamics of specific situations.

In summary, our methodology has been developed to frame our investigations into the ways in which social media tools/technologies might mediate social relations enabling new modes of self- and collective-representation, with respect to communication, inquiry and sharing in the context of education.

Narrative Exploration of Cases

In this section we will introduce three narrative examples of practices that represent the perspectives outlined above ("Debates" and "Enquiry and Expert Advice"), analyse these using the methodology described, deploying data from observation logs informed by virtual ethnographic methods and a surface analysis of linguistic interchanges with regard to reflection and feedback We are conscious that as participants in the network ourselves we will hold intrinsic biases, which are likely to impact on our analysis of activity and remain reflective about this impact.

Debates

Flash points of interest aggregated through a particular question can be seen throughout the site, but are possibly most evident in activities that we have labelled "flash debates". Flash debates began to appear on the site in September 2009, and are sparked from questions that aim to provoke. Most typically a range of comments and activities will erupt almost immediately after initial postings, and will

cross a variety of different social networking platforms. The "Is Twitter Killing Blogging?"[1] Cloud is a particularly interesting example. The Cloud has had 1,321 views, 49 rich and detailed comments, 20 links and 6 academic references (November 2010). Initially, a Cloud was set up in response to a tweet on 11th September 2009:

> '[@name] has set up a quick survey to ask people how using Twitter has impacted on how much they blog or not. The results are really interesting. XX is planning to do a more reflective blog on this…'

The Cloud provided a link to the survey, and posed a series of simple questions around the topic. Almost immediately there was traffic to the cloud and a rich discussion soon evolved, involving around 16 different participants. The originator of the Tweet which sparked off the creation of the Cloud acknowledged the value of the Cloud, and proposed that he would follow up with a reflection on his own blog. Cloudworks proved to be a complementary space between the micro-blogging site Twitter (where the debate sparked off) and individual, personal blogs. It provided a collective space to discuss the issues and aggregate resources. Some participants then wrote their own reflective pieces about the debate elsewhere:

> 'This is a reworking of a post in Cloudworks on a Twitter vs Blogging debate'

> 'I guess I should blog this;-)'

Similarly, a flash debate was set up relating to the future of universities: "What will the university of tomorrow look like?"[2] This time the idea for the debate came from a series of videos created for an online conference. Once set up, the location of the debate was Tweeted out and ten individuals quickly began participating in the discussion and aggregation of related materials. To date the Cloud contains 34 comments, 42 links and 8 academic references. It has received 733 visitors (November 2010). Again, there were multiple examples of the discussion moving between blogs, Twitter, Cloudworks, the conference forum and synchronous discussions; these shifts between spaces appearing to facilitate the shifts between discussion, feedback and reflection and back again.

Performance in these flash debates seems to provide a frame that invites critical reflection on communicative processes both in terms of the "bounded events", and in relation to interactions and improvised interpretations of real life situations. Performance also seems dependent on the formal characteristics of the site (combining reflective (micro) blogging with referencing, tagging and networking), or on the degree to which active participants engage in blogging-like activities within the site present themselves strategically, or frame their communication based on the perceived audience and context of interaction to ensure that interactions are successful. For example, the originator of the Cloud can be seen to facilitate the debate in terms

[1] http://cloudworks.ac.uk/cloud/view/2266.

[2] http://cloudworks.ac.uk/cloud/view/2586.

of offering supportive comments and encouragement to individuals, value and weight to the discussion itself and, importantly, humour and playfulness:

> "Brilliant thanks for this [@name] - I think this is a really important topic which all institutions need to be considering".
>
> "Sounds really interesting - have added the wiki as a link. Seems like a lot of people are beginning to think about this…"
>
> "I know I know it's incredible huh! Lots of good resources and links being added."
>
> "Great thanks XX - looks like being a great session! Could start a trend of people wearing silly wigs ;)"

Reflective questioning and experiential comments were mixed with references to interpretative accounts of discussions from related conferences and autobiographical or anecdotal remarks, indicating movement between the subjectivity of the academic, the pragmatism of the teacher, the reflexivity of the professional and anxiety of the employee.

Enquiry and Expert Advice

In November 2009 a lecturer from a distance learning university in the UK shared a teaching idea, about creativity and openness for a course relating to new media and ICT: "Integrating multimedia work into assessment".[3] The Cloud has had generated 465 views, and 9 comments and aside from a descriptive node, it also includes an embedded video showcase and a link to a video that provided the inspiration for repurposing. Six months later, the same lecturer repurposed this contribution as an entry for a virtual conference on teaching and learning that was organised by the Open University, and which was supported by Cloudworks. The Cloud: Experimenting with the pedagogy of creativity and openness' has generated 256 views, and contains 9 comments, 3 embedded videos and 6 references and links. The contribution was presented strategically in ways in which illustrate knowledge of the perceived audience; similarly, the context for interaction was structured in such a way so to invite reflection both on the scholarship of teaching surrounding creative open educational resources and the theoretical underpinnings of mediated identities and creativity.

The purpose of both entries has been to share ideas and elicit practical advice, as well as provide feedback on the epistemology of new media and teaching within new media. Interestingly, in the 7-month period that lapsed between the two entries, the core participant (Cloud author/contributor) utilises the reflective comments and points made by other participants in producing the content that was the object of discussion in the second entry. It appears that the initial idea is further developed following feedback. The second entry itself carries over the trajectory of thought and creativity that were initiated in the first entry. Crucially, this trajectory in the use of the space may be considered as positive in the development of professional practice.

[3] http://cloudworks.ac.uk/cloud/view/2631.

The core participant demonstrates that she has used sources of technical guidance and support provided by a core member of the Cloudworks team in the first entry, and appears to be more familiar with the interface capabilities of the site.

The majority of other commentators/participants within this particular space come from the same university, and though they hold a variety of roles (e.g. academic faculty and researchers, associate lecturers) they seem to know, and/or have worked with the core contributor – a certain familiar tone in the language used points to this. Three core themes have dominated the discussion: the first relates to student experience and training in using open materials; the second, relates to the pedagogic design and effectiveness of such interventions; the third juxtaposes the role of expertise in teaching in an open environment through the use of open content with the tensions pertaining the relationship among digital identities, exposure and assessment.

There are a number of Clouds and Cloudscapes asking for feedback and answers from expert communities. Some of them are informal and spontaneous (such as the "Using Twitter with students" Cloud[4]), discussed in the previous section. Others are more formal in nature; explicitly eliciting information from a targeted user group. In August 2009, a project group decided to use the site for an "open literature review" with the aim of using the expert elicitation affordances of Cloudworks to identify key themes in the literature relating to the "Positioning of educational technologists"[5] within organisations. The team had originally planned a desk-based literature review, with some online engagement of an established and specific Educational Technology Community of Practice to synthesise the literature (probably through a mailing list). However, it was decided that the project would be modified to encourage the HE community as a whole to identify the literature they judged to be key to the debate, and Cloudworks seemed to them the most appropriate tool to do this.

The methodology chosen by the team was a variation on the Delphi methodology (Linstone and Turoff 1975). This methodology commonly uses a panel of experts who are unknown to each other. Questionnaires are used to elicit the opinions of the experts and each expert communicates only with the lead researcher, rather than directly with the other experts. In the first stage of the process, a set of open questions are asked and the results of these are carefully analysed to identify key themes and a more structured questionnaire produced, the results of which are again analysed and the questions refined. Thus, the process leads to a convergence of findings or a consensus. In the case of this review, the methodology was adapted, using Cloudworks, to promote a divergence of views, and participants were able to communicate with each other. A framework of nine open questions was used to structure the activity. This narrative will focus on the first of these questions "What is the relevance of the student experience to the role of the educational technologist?"[6]

[4] http://cloudworks.ac.uk/index.php/cloud/view/2398.

[5] http://cloudworks.ac.uk/cloudscape/view/1872.

[6] http://cloudworks.ac.uk/cloud/view/2039.

Two key themes ran through the discussion, the first about whether the student experience/demand should be of prime importance, or pedagogic effectiveness (and latterly whether the educational technologists' role might be to act as a broker between the two). The second theme was about how far student feedback relating to the educational technologists role was available, and whether there was felt to be a problematic distance, or "disconnect" between students and educational technologists.

Participants appeared to come from a variety of institutions and roles, and expressed multiple points of view as might be expected. There was a level of disagreement about how central students should be in informing the use of technologies and yet the tone of all participants was polite and interested. Generally, language was adjusted to become thoughtful and tentative in tone. Most made reference to other people's points of view, and made links between these and their own experience or knowledge. The discussion was well balanced with a mixture of contributions from project teams and other participants throughout.

Modes of address in discussions like the one cited often turn from the inquisitive to the descriptive and the reflective, discussions often generate more deliberative comments by a large body of participants from a variety of institutions and respective positions, a minority of whom – vocally active in relevant mediated communities – take an evident lead in trying to achieve consensus.

Similar patterns of activity are evident across a range of interactions, particularly around Open Educational Resources (OER) communities, that frequently aggregate within the site to share evidence stemming from practice (see for example the Cloud "Issues in OER research"[7] which is further discussed in Alevizou et al. 2010). What is evident in many such discussions is the sharing of a common discourse facilitated by participation in relevant communities, the members of which meet regularly in similar virtual or physical events.

Discussion and Further Analytical Remarks

Discussions on networked learning and CSCL (computer-supported collaborative learning) often advocate a link between macro-levels of analysis (e.g. in small groups) and the macro-level of analysis including the socio-cultural level in which mediation of learning and activity occurs (see Dillenbourg in Strijbos et al. 2004; Stahl 2006; Jones and Dirckinck-Holmfeld 2009). The frameworks we introduced in the theory section attempted to position Cloudworks within the wider context of social media, which extend a *meso*-level of analysis that is connected to the institutional context of the site's development (Jones and Dirckinck-Holmfeld 2009: 10–12), and the basic conditions that allow object- or resource-based sociality to take place among individuals that connect, share and deliberate within the site (see section "Cloudworks Overview"). In section "Conceptual and Methodological

[7] http://cloudworks.ac.uk/cloud/view/980.

Frameworks" we outlined the conceptual and methodological frameworks that have enabled us to direct empirical exploration and evaluation of the site, linking technical affordances with the social and communicative interactions of groups and individuals in particular situations or social practices. We have presented insights that address the micro–meso–micro link focusing on three dimensions that are contingent to this social site that migrate from other cyber-spaces or physical environments, open or private, often blurring the performance of identity and community boundaries, or the flexible negotiation of the private and public, the personal and the collective, where individuals share understandings, resources, and meaning(s) around the practice and scholarship of teaching and learning. In this section, we structure insights that bridge these levels of analysis looking into the three dimensions introduced and discussed in "Conceptual and Methodological Frameworks": participation and collective intelligence; identity and performance; cohesion and creative capacity.

Participation and Collective Intelligence

Engagement is solicited through direct targeting towards individuals, or promoted through cross-media – either targeted (e.g. email) and closed forums (e.g. mailing lists), or open forums (e.g. Twitter, Ning). This is certainly true when an established Cloudworks user uses the site as an informational or discursive hub to aggregate responses to specific enquiries, or launches a debate as we have already outlined in the previous sections. Often, people are enticed to participate serendipitously through encountering popular or featured Clouds within the home page (71.77% of visitors to the home page click through to other pages via home page links) While a small number of participants demonstrate a sustained commitment, and assume the role of ambassador in rebroadcasting several discussions that take place within the site and the participating peripherally (by way of contextualising discussions with resources through embedding links, references or content). The majority of users aggregate to form groups that are often tied to a timed or very specific purpose, or themed activity (for example a conference or debate).

A number of topics have emerged which are pertinent to core debates around the development, uses and reception of Open Educational Resources (OER), for example, or the use of social media as tools to motivate creativity in teaching and learning. Widespread topics can be divided into categories relating to *development* (pertinent to changes practices of teaching and learning wider policies and practices) and *research*. Core Cloudworks participants who use the site in conferences most often use it as a backchannel that complements Twitter, aggregating notes and reflections around particular presentations and discussions. It appears that both structured research community meetings, and projects inviting expert consultations around particular conceptual frameworks, or wider research issues are more vigorous when a proactive facilitator and/or several ambassadors are involved. Workshops and other similar "blended learning spaces" are structured around activities that solicit the sharing of designs, resources and experiences on particular topics. Instructional

Clouds are cross-referenced and linked across a number of aggregated spaces to guide novice participants, but activity usually evaporates after the events are over. For many, participation is often transient and intermittent – creative outbursts of activity illustrate that clear purpose and timely topics ignite engagement among both individuals and relational networks to (re)produce content by expressing a voice that is aligned to interpretative resources, or shared practices surrounding routine or subversive practices, challenges and contradictions on the use of, for example, micro-blogging in higher education:

> '[I use it] as a mechanism for students to do short-burst reflection at the end of each taught session (Tweflection!). The idea came from my experience of students finding it difficult to reflect on their learning experiences.'
>
> (Using Twitter with Students Cloud[8])

> 'Whilst twitter usage is high amongst the 'converted', I wonder how many actually use it within learning and teaching. My use has varied quite a bit (see blog post http://bit.ly/37ASy2), and I think there could be considerable challenges in getting a whole class of active users - anything else would surely raise questions around equality of experiences'.
>
> (Using Twitter with Students Cloud)

> 'Just started using twitter today for our Web 2.0 and working practices project - see my cloudscapes'
>
> (Using Twitter for teaching and learning Cloud[9])

> 'I think about half took to it [twitter], those that didn't had the usual reservations. What I think has been interesting is that a few have stayed active beyond the course and twitter is a much better way of maintaining this network than having to commit to using forums say.'
>
> (Using Twitter for teaching and learning Cloud)

These modalities of the social production of "processual knowledge" or collective intelligence is illustrative of the ways in which individuals – to draw from Goffman again – socialise across topics and "orchestrate" their identities in dialogically purposeful and supportive ways, contingent on the socio-cultural- and historically constructed modes of supportive interaction and "crowdsourcing" of resources, experiences and anxieties. Active commentators are often active in posting resources and links – indicating a degree of ownership and belonging, in the "dialogical wrapper" that supports these resources.

Although goals are fluid, and motivations for participation bound around ideas (rather than specific outcomes or collectively produced "products"), the space functions as a pool for mobilising various loosely knit groups or autonomous individuals to share resources, perceptions, experiences, formal and anecdotal knowledge and collective intelligence. This can be seen within various activities that span across related topics and enquiring practices in research-led teaching and learning.

Our observations suggest that there is evidence of participants engaging creatively with each other, and with the resources they interpret to resituate existing knowledge

[8] http://cloudworks.ac.uk/cloud/view/980.

[9] http://cloudworks.ac.uk/cloud/view/1946.

and experiences into new intellectual debates on social practices. Yet, certainly not all the activity is public or consensual; instead role conflict exists, and evidence suggests that crossing institutional, professional and personal boundaries and identities within an institutional space like Cloudworks, is productive, but can be "un-easy".

Identity, Self-representation and Performance

As discussed, performance can be seen to be shaped by the formal characteristics and functionality of the site and on the degree to which active participants present themselves strategically or frame their communication. In the data we analysed, and the stories we present here, four main themes of interaction emerge: (a) exchanging practical information and tips, (b) recounting and reflecting on professional experiences and resources, (c) exchanging insights in scholarship and research, (d) getting peer guidance and support (in somewhat more limited occasions).

Positioning of the self is achieved through the consumption of resources and the reflection on practices and experiences, often seeking ad hoc justifications for their own practices or post hoc soliciting of others perspectives on particular situations, and often on reflective consumptions of new media contents and tools. Interestingly, the way in which the "Twitter Killing Blogging" Cloud, for example emerged, evokes Goffman's notions of the ritual theatricality relevant for contextualising relations and serendipitous routines and practices, this time travelling across communicative channels and invoking *co-presence* in networking and virtual spaces (an idea that also emerges in the role of Cloudworks as a conference backchannel). In terms of content, the discussion on the self-referential nature of participation and self-representation is mobilised by the tensions between blogging and microblogging; between the idea of broadcasting and sharing as part of digital identity; in essence the "learning self" is projected in-time and as-time:

> 'Last week, following my quick poll on blogging & tweeting, [@name] started an 'Is Twitter killing Blogging?' discussion on Cloudworks…..I've followed the development of Cloudworks for a while now with some scepticism. However, it's use around the VLE-PLE debate and this blogging-Twitter discussion has really changed my views. I now get it, see a purpose and think it could have a really important role to play as an aggregator, a record and focal point for our discussions.'
>
> ('Twitter Killing Blogging' Cloud)

The exchange of comments in the "Integrating multimedia work into assessment" Cloud and associated Clouds reveals a multiplicity of perspectives and yet a consensus on most of the tricky issues discussed. Most participants made reference to each other's point of view, and links were offered to back up experience with evidence from literature and practice on Web 2.0 creativity and mediated learning, while offering personal support and guidance to a known or familiar colleague. The language and tone combines humour and "banter" with a shared vocabulary to express viewpoints, performing respective identities as teachers and researchers in a distant learning institution. Reflective questioning and experiential comments, as well as reference to interpretative accounts on multimodal literacies, creative and

personalised learning and tensions of privacy, surveillance and competitiveness that surrounding online expression and collaboration, mediated this and other Clouds, (often at conferences and events since they combine interactions on- and off-line).

Cohesion and Creative Capability

Through each of the narratives above and in the previous section, we can see ways in which the participants lever sociality and mutuality through their dialogue, for example through demonstrations of support, encouragement, tolerance and reciprocity. In the flash debates these supportive exchanges are most often performed by the originator of the Cloud, who will typically use these exchanges to instigate a conversation and maintain coherence (Goffman 1971 in Branaman 1997: 1xix): "thanks for the link", "you are raising an interesting point", "here is a link to…", "I have summarised the discussion above", "thanks to @[name] and @[name] for pointing this out".

These supportive interchanges, remedial interchanges, tie-ins, and normal appearances can be seen to be part of self-and-peer validation; embedded, in the process of sharing and broadcasting experiences and content. This can be seen in the discourse of the open review, where through discussion about the positioning of educational technologist, there were a number of attempts to validate and indeed reposition the community:

> "I'm sure most people here will be familiar with that work…"
>
> ""Paraprofessionals" - thanks I just learned another great word :)"
>
> "Could XX.'s 'paraprofessional' (a new concept for me too) be viewed as a new assertive attempt at 'positioning'?"

Frameworks for social learning often point to the importance of conflict, disagreement and negotiation in the process of collaborative knowledge creation and developing understanding. However, there is a risk in an open and public space such as Cloudworks that participants do not feel sufficiently secure to enter into disagreement, or that if they do, there are no established social or cultural processes or rules developed over time within the group that enable a conflict to have a positive outcome. Although conflict and playful debate are often present in discussions, the examples given do not – or do not aim to – reach a clear consensus. Again in the "Open review" Cloud given as an example above, there was a level of disagreement about how central students should be in informing the use of technologies and yet the tone of all participants remained polite and encouraging. Similarly, in the enquiry and expert elicitation Cloud "Integrating multimedia work into assessment", the exchange of comments reveals multiplicity of perspectives and yet a consensus on most of the tricky issues was achieved, and links were made to back up experience with evidence from literature and practice. Evidence of a shared vocabulary indicates that most participants express their viewpoints, while performing their respective identities as teachers and researchers in a distant learning institution. At the same time participants are keen to develop more learning and knowledge on the relationship of social media creativity and mediated learning.

While to a certain extent, Cloudworks forms a productive space to mediate object-oriented sociality and interaction, it should be seen as only one node of learning within a networked landscape of practice experienced by its participants. Being a public and eponymous institutionalised space, it often carries forward conversations sparked in private virtual or physical sites; conflicts, productive tensions and resolutions on key issues, and anxieties and more heated disagreements regarding the core debate often occur in private or closed spaces. In many cases, additional personal perspectives are connected via links to personal archives, blogs, conceptual maps, etc., with annotations and context or without. In other occasions additional discussions are intentionally private or are kept invisible. Following our initial observations and our empirical analysis as action researchers, exploring the "traces" that participants leave in Cloudworks, within the landscape of visible and invisible landscapes of personal and networked learning, is at the top of our agenda for future research.

Conclusions

We introduced this chapter with the description of how Cloudworks utilises social media interfaces in an educational context. The variety of ways in which the site has been used has prompted us to revisit aspects of the networked sociality framework and expand this with two additional theoretical frameworks and this has yielded rich new analytical insights into understanding *inscribed* and *actual* use. We aimed to offer examples pointing to the nature of participation, the style of communication and the metaphors of engagement. We argue that Cloudworks is a platform for expressive interactions and collective intelligence, and we consider the wider implications for outcomes for networked learning through more situated research that will explore in further detail the nature of associations, types of roles and connections, and the guided exploration and boundary crossing among participants. We have not only explored how connections and interactions are built within Cloudworks (on a given time, for a given purpose, or randomly and serendipitously) but also offered stories of the ways in which the connections and interactions, actors, activities and resources are expressed, drawing on the communicative and discursive dimensions of expression and sociality. The evidence suggests that Cloudworks is one of the sites blurring formal and informal *cultural* and *networked* learning about being an educationalist, scholar, practitioner or indeed a student (in limited examples) with online interactions and experiences allowing roles to be learned, experiences to be shared, values to be exchanged and – to an extent – identities to be performed and (re)shaped, and communities to gather. The object-oriented nature of the site indeed enables transient, yet repeated and focused collaborative or idea sharing activities to form.

The idea of Cloudworks functioning as one of many productive network spaces or a node within a landscape of professional learning and development is both powerful and visible; we have provided evidence whereby learning can be seen to be both negotiated and improved. But it is too early in our research to generalise

such an argument and demonstrate empirically more than glimpses of emerging patterns of what we would like to call "a mediated node in the networked landscape of practice".

We are reflective that we can no longer be described as independent researchers and instead our observations and interventions are those of members of the development and evaluation teams. But while addressing the limitations of this approach, we have now developed a clear idea about research questions that will inform Cloudworks position with this landscape of practice, as well as guide implications for further systematic research.

References

Alevizou, P. (2006). *Encyclopedia or cosmopedia? Collective intelligence for knowledge technospaces*. In 2nd Wikimania Conference, 4–6 August 2006. Cambridge, MA: University of Harvard Law School. Retrieved November 19, 2010, from http://wikimania2006.wikimedia.org/wiki/Proceedings:PA1

Alevizou, P., Conole, G., & Galley, R. (2010). *Using Cloudworks to support OER activities*. Research Report. York: Higher Education Academy. Retrieved November 19, 2010, from http://search3.openobjects.com/kb5/hea/evidencenet/resource.page?record=dSTmZHJ68gg#dSTmZHJ68gg

Alexander, B. (2008). Social networking in higher education. In Katz, R. (Ed.), *The tower and the cloud*. Boulder, CO: EDUCAUSE. Retrieved November 19, 2010, from http://www.educause.edu/thetowerandthecloud

Anderson, P. (2007). *What is Web 2.0? Ideas, technologies and implications for education*. Bristol: JISC Technology and Standards Watch. Retrieved November 19, 2010, from http://www.jisc.org.uk/media/documents/techwatch/tsw0701b.pdf

Bakhtin, M. (1986). *Speech genres and other late essays*. Austin, TX: University of Texas Press.

Bouman, W., Hoogenboom, T., Jansen, R., Schoondorp, M., de Bruin, B., & Huizing, A. (2007). *The realm of sociality: Notes on the design of social software.* PrimaVera Working Chapter Series. Amsterdam: Universiteit Van Amsterdam. Retrieved November 19, 2009, from http://choo.fis.utoronto.ca/fis/courses/lis2176/Readings/bouman.pdf

Branaman, A. (1997). Goffman's social theory. In A. Branaman & C. Lemert (Eds.), *The Goffman reader* (pp. xivi–Ixxxii). Malden, VA: Blackwell.

Bruns, A. (2008). *Blogs, Wikipedia, second life, and beyond: From production to produsage*. New York: Peter Lang.

Bush, V. (1945). As we may think. *Atlantic Monthly* [online]. Retrieved November 19, 2010, from http://www.ps.unisb.de/~duchier/pub/vbush/vbush.shtml

Conole, C. G., & Culver, J. (2009). Cloudworks*:* Social networking for learning design. *Australasian Journal of Educational Technology, 25*(5), 763–782. Retrieved November 19, 2010, from http://www.ascilite.org.au/ajet/ajet25/conole.html

Dillenbourg in Strijbos, J.-W., Kirschner, P. A., & Martens, R. L. (Eds.) (2004). *What we know about CSCL – and implementing it in higher education*. Boston: Kluwer.

Downes, S. (2005). E-learning 2.0. *E-learning Magazine, October* 17, 2005. New York: Association for Computing Machinery. Retrieved November 19, 2010, from http://www.elearnmag.org/subpage.cfm?section=articles&article=29-1

Engelbart, C. D. (1962) *Augmenting human intellect: A conceptual framework*. Summary Report. Menlo Park, CA: Stanford Research Institute. Retrieved November 19, 2010, from http://sloan.stanford.edu/mousesite/EngelbartChapters/B5_F18_ConceptFrameworkPT4.html

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Helsinki: Orienta-Konsultit.

Engeström, Y. (2001). Expansive learning at work. Toward an activity-theoretical reconceptualization. *Journal of Education and Work, 14*(1), 133–156.
Engeström, Y. (2007). From communities of practice to mycorrhizae. In J. Hughes, N. Jewson, & L. Unwin (Eds.), *Communities of practice: Critical perspectives*. Abingdon: Routledge.
Engeström, J. (2005). *Why some social network services work and others don't – Or: The case for object-centered sociality*. [Blog] 13 April 2005. Retrieved November 19, 2010, from http://www.zengestrom.com/blog/2005/04/why_some_social.html
Galley, R., Conole, G., & Alevizou, P. (2010). *Using Cloudworks for an open literature review: Case study*. York: Higher Education Academy. Retrieved November 19, 2010, from http://search3.openobjects.com/kb5/hea/evidencenet/resource.page?record=9Fo7dRXy8GM
Galley, R., Conole, G., & Alevizou, P. (forthcoming). Community indicators: A framework for building and evaluating community on Cloudworks. *Interactive Learning Environments*.
Goodyear, P., Banks, S., Hodgson, V., & McConnell, D. (2004). *Advances in research on networked learning*. Dordrecht: Kluwer.
Gratton, L. (2007). *Hot spots: Why some companies buzz with energy and innovation – and others don't*. London: Financial Times Prentice Hall.
Griffiths, T., & Guile, D. (2001). Learning through work experience. *Journal of Education and Work, 14*(1), 113–131.
Griffiths, T., & Guile, D. (2003). A connective model of learning: the implications for work process knowledge. *European Educational Research Journal, 2*(1), 56–73.
Goffman, E. (1955). On face-work: An analysis of the ritual elements in social interactions. *Psychiatry, 18*(3), 213–231.
Goffman, E. (1963). *Behaviour in public places: Notes on the social organization of gatherings*. New York: Free Press.
Goffman, E. (1967). *Interaction ritual: Essays on face-to-face behaviour*. Garden City, NY: Doubleday, Anchor Books.
Goffman, E. (1974). *Frame analysis*. Middlesex: Penguin Books.
Hasan, R. (2005). *Language, society and consciousness: Collected works of Ruqaiya Hasan*. London: Equinox.
Herring, S. (2004). Computer-mediated discourse analysis: An approach to researching online behaviour. In A. Barab, R. Kling, & H. Gray (Eds.), *Designing for virtual communities in the service of learning* (pp. 356–357). New York: Cambridge University Press.
Hine, C. (2000). *Virtual ethnography*. London: Sage.
Holland, D., Lachicotte, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge, MA: Harvard University Press.
Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York: New York University Press.
Jenkins, H. (2007). *What Wikipedia can teach us about new media literacies*. Part I, [Blog]. Retrieved November 19, 2010, from http://www.henryjenkins.org/2007/06/what_wikipedia_can_teach_us_ab.html and Part II [Blog] http://henryjenkins.org/2007/06/what_wikipedia_can_teach_us_ab_1.html
Jenkins, H., Clinton, K., Purushotma, R., Robison, A. J., & Weigel, M. (2006). *Confronting the challenges of participatory culture: Media education for the 21st century*. Chicago: MacArthur Foundation. Retrieved November 19, 2010, from http://digitallearning.macfound.org/atf/cf/{7E45C7E0-A3E0-4B89-AC9C-E807E1B0AE4E}/JENKINS_WHITE_CHAPTER.PDF
Jones, C., & Dirckinck-Holmfeld, L. (2009). Analysing networked learning practices: An introduction. In L. Dirckinck-Holmfeld, C. Jones, & B. Lindström (Eds.), *Analysing networked learning practices in higher education and continuing professional development* (pp. 1–28). Rotterdam: Sense Publishers.
Kress, G., & van Leeuwen, T. (2001). *Multimodal discourse*. Oxford: Oxford University Press.
Lévy, P. (1997). *Collective intelligence: Mankind's emerging world in cyberspace* (R. Bononno, Trans.). Cambridge, MA: Perseus Books.
Lévy, P. (2001). *Cyberculture* (R. Bononno, Trans.). Minneapolis and London: University of Minnesota Press.

Linstone, H. A., & Turoff, M. (1975). *The Delphi method, techniques and applications*. Reading, MA: Addison Wesley.

Rafaeli, S., & Sudweeks, F. (1997). Networked interactivity. *Journal of Computer Mediated Communication, 2*(4) [online]. Retrieved November 19, 2010, from http://jcmc.indiana.edu/vol2/issue4/rafaeli.sudweeks.html

Selwyn, N. (2009). Faceworking: Exploring students' education-related use of Facebook. *Learning, Media and Technology, 34*(2), 157–174.

Stahl, G. (2006). *Collaborating with technology: Mediation of group cognition*. Boston: MIT. Retrieved November 19, 2010, from http://www.cis.drexel.edu/faculty/gerry/mit/

Walzer, M. (1997). *On toleration*. New Haven, CT: Yale University Press.

Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge and New York: Cambridge University Press.

Wells, H. G. (1938). *World brain*. London: Methuen.