



Towards deeper learning through creativity within online communities in primary education

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Abstract

Despite recent British government moves to equip all Primary Schools with fast broadband connections to the Internet, it would seem that many schools as yet make little use of the increased capacity this affords other than to incorporate more and more rich multimedia in the form of interactive games or animated presentations to illustrate particular concepts or practise specific skills. Whilst not wanting to deny the potential and value of such activities, this paper will focus on the potential use of online communities to reverse this rather unidirectional relationship children often experience with the Internet. That is, the potential within online communities to facilitate a more reciprocal relationship as children become benefactors as well as recipients of the wealth of web-based information, and the quality of learning that may ensue.

A small-scale comparative case study was undertaken in two Primary Schools where children were given access to online tools allowing them to communicate and participate – in and out of school – within an online community. Methodological tools used included content analysis of children's websites and semi-structured interviews with the students and their teachers.

The type of learning that online communities may yield, I will argue, is one that is based upon a deep understanding of what it means to both be a learner, and to take responsibility for one's learning. Furthermore, the findings appear to imply that the participation and role played by the teacher within the virtual community is vital to the quality of learning.

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1. The background

This project spanned a period of approximately 18 months and began (phase 1) as a small-scale research project into my own and another colleague's integration of an online community ([think.com](http://www.think.com)) into our teaching with two mixed ability Year 6 classes. At the end of this phase I took up a post in Initial Teacher Education and was able to exploit the relative autonomy of my new position to contact other schools within the Local Education Authority who were also making use of a similar online community with children of the same age and mixed abilities. Thus phase 2 of the project evolved, and I was able to carry out research into another teacher's use of the online community, but this time from an outside researcher's perspective, having as it were no formal professional role within the second phase school. This evolution from insider to outsider research was significant in that it did, as I will demonstrate later, lend an extra layer of rigour to the project.

Web-based software – [think.com](http://www.think.com) – provided by Oracle Corporation was used to establish the online communities in both phases of the project (further information available from http://www.think.com/en_gb/ accessed 15th March 2005). This is only available to schools with the permission of head teachers and as such provides – in theory – a secure online environment within which children and teachers can communicate and develop their own web space, using the tools provided. There are also several facilities within the online community for making contact with, and visiting other users' areas throughout the world. Children from different countries can visit each others' websites and communicate freely with each other. Consequently, such open-ended facilities for children to create their own web-space whilst simultaneously communicating and sharing ideas online, represented – it seemed – an ideal opportunity to observe how children's creativity and learning might be manifest within virtual exchanges.

2. Theoretical perspectives

The underpinning theoretical framework for the project was achieved through a synthesis of several relevant aspects of educational theory represented here (Fig. 1). Consequently, it is necessary to briefly explore the origin of the constructs within this model and why they may be significant in relation to primary children's effective participation within online communities.

Much has been made of the potential of online socialisation in previous parallel studies of both adult's and children's use of online communities (Harasim, 1990; Preece, 2000; Salmon, 2002; Scardemalia & Bereiter, 1996). Early studies (Harasim, 1990) of the educational potential of cyberspace, focused upon the opportunity to unite learners from opposite sides of the globe and therefore challenge the existing social parameters of education. Similarly, others place much emphasis upon the importance and potential of online socialisation to 'provide a basis for engaging others working on common problems beyond the school walls' (Scardemalia & Bereiter, 1996, p. 155). That is, credence is given to the notion of knowledge as a shared entity as opposed to residing purely within the individual. The online community is seen to facilitate this view of knowledge in that knowledge is seen to be a construction of participants' online interactions within the community and remains within the virtual domain to be accessed, challenged and

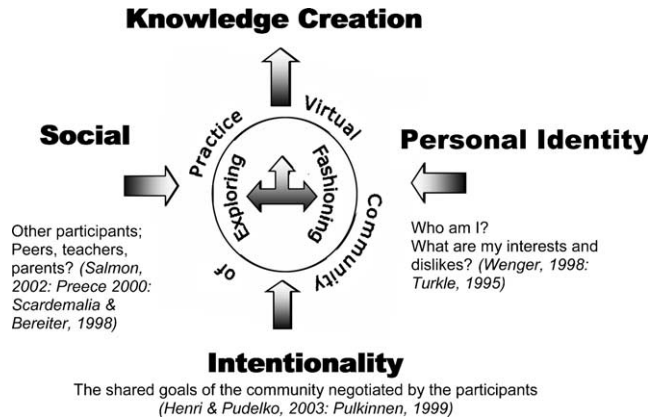


Fig. 1. Theoretical model.

developed further by others in the community. Whilst traditional models of education are seen to impose artificial boundaries upon learning, online communities are seen to facilitate the disintegration of these boundaries, leading to the shared construction and collectivisation of knowledge as ‘participants can become responsible for their own learning and that of their group’ (Salmon, 2002, p. 33).

Furthermore as Salmon implies here, a possible outcome, it could be argued is the augmentation of personal responsibility for learning and personal development. This notion of the online community as an arena for personal growth is also posited by Turkle (1995) who claims that virtuality:

“can be the raft, the ladder, the transitional space, the moratorium that eventually is discarded in order to reach greater freedom. . . We can use it as a space for growth”. (p. XVII)

In other words, for Turkle, virtual communities afford to participants ‘an identity-building experience’ (ibid). That is, online communities are a safe environment in which to express and explore one’s own identity or even investigate other online personae. Thus, it is possible to see how online communities might be seen as affording the potential for learning within virtual communities of practice. Such notions of deeper approaches to learning are not new. Piaget (1979) challenged essentially simplistic notions of learning based upon behaviourist theories which portrayed the learner as a passive recipient to be conditioned. As Wood remarks, both Piaget and Bruner put ‘emphasis on the importance of action and problem solving in learning’ (Wood, 1998, p. 9). In other words, learning is constructed through active participation as children engage in the learning process to act out solutions to problems faced. Similarly, Papert (1994) describes such cognitive autonomy as ‘intellectual self-determinism’, as children ‘act as creators rather than consumers of knowledge’ (p. 12).

For Wenger knowledge is not concerned with the imparting of abstract and arbitrary facts dictated by an extrinsic curriculum, but concerns the development and growth of an individual’s identity in relation to their wider community; learning concerns both the intra and interpersonal as participants learn within the authentic context of their community by building what he refers to as ‘an identity of participation’ (Wenger, 1998, p. 220).

However, more significant here is the argument that in so constructing and negotiating their own knowledge, children are engaging with the process of what it means to be a learner and are developing and practising the skills necessary to sustain their learning beyond the artificial boundaries of the school building and the timetable, developing the skills and knowledge to become lifelong learners. Whilst such a paradigmatic shift away from what Claxton (1999) calls ‘the belief in the primacy of knowledge over know-how’ (p. 280) may be desirable and even plausible through children’s interactions in virtual communities, it is also problematic. Issues of control and curricular content cannot be ignored. How will pupils with increased freedom and control over their own learning be empowered to take advantage of such increased responsibility? Implicit within such an approach to learning is the assumption that children understand the art of learning and are able to make important decisions relating to the nature and direction of their own learning.

It is from this perspective that Henri and Pudelko’s notion of ‘intentionality’ (Henri & Pudelko, 2003) within online communities could be of significance, for they identify this as a dynamic entity within online communities which has both constructive and destructive potential. In describing the development of online communities Henri and Pudelko claim that whilst a ‘cohesive and more independent community’ can develop, the inverse may also emerge with ‘the wearing down of the social bonds and to alteration in the group’s mode of operation’ (Henri & Pudelko, 2003, p. 477).

In many ways, this is similar to Preece’s concept of ‘common ground’ (Preece, 2000) within online communities. That is, a sense of shared interests and common goals amongst participants. Furthermore, Pulkinnen notes that without such a sense of shared identity and goals the ‘diminished teacher control’ within online communities ‘can well result in learning that is undesirable from teachers’ and parents’ points of view’ (Pulkinnen, 1999, p. 84). Consequently, it is necessary to consider what kinds of online interactions and behaviour are indicative of children who are taking responsibility for their own learning online. How do we identify participants within an online community who have a shared intention towards learning through the virtual community? In order to begin to unpick this it is necessary to examine more closely the core of the conceptual model (Fig. 1) posited which draws upon aspects of creativity to inform this debate.

3. Creativity; out of chaos, order?

It was in order to find some clues to these issues surrounding the identification of purposeful independent actions within online communities that it became necessary to turn to recent literature on creativity and learning. A full discussion of the various definitions of creativity is beyond the scope of this paper but the close relationship between creative processes and learning seemed to offer a way of making sense of children’s activities online. Rogers (1983) for example suggested that the creative individual is ‘the person whose educational experience has enabled him to learn how to learn’ (p. 290). Similarly, Claxton highlights the synonymy of these two constructs claiming simply that ‘creativity is learning’ (Claxton, 1999). The conceptual model (Fig. 1) focuses upon two key processes often identified as being at the core of creative processes, namely exploration and fashioning.

Whilst the process of exploration and investigation as a way of challenging and developing one’s existing constructs and schemata has long been posited as an indicator of higher order

thinking in cognition (Bloom, 1956; Kelly, 1955), more recent studies of creativity within education suggest a more complex interaction between both divergent and convergent thought processes. That is, an ability to explore and investigate in order to uncover new knowledge, combined with the ability to then apply this in new or different contexts. For Claxton the creative individual is in control of this process of both broadening and narrowing what he refers to as their ‘cone of attention’ for ‘they have the knack of allowing their brain-minds to move between these two modes as appropriate’ (Claxton, 1999, p. 153). Craft also identifies ‘both divergent and convergent thinking’ (Craft, 2001, p. 55) as being central to the notion of creativity. In other words, the creative person is able apply the knowledge gleaned through imaginative play to pursue a specific purpose employing both divergent and convergent thinking appropriately. Similarly, other research in the field of creativity has identified convergent processes complimenting imaginative, divergent processes (Joubert, 2001; Loveless, 2002; NACCCE, 1999.). At the opposite end of the creative spectrum is the notion of ‘fashioning’ or pursuing a specific purpose or goal using the outcomes of ones explorations as Joubert points out:

“Free thinking and imaginary flights develop children’s mental dexterity, but the pursuit of purpose is the fertilizer that can change ideas into reality”. (Joubert, 2001, p. 19)

That is, creativity has at its core a duality based upon the interplay between free exploration and more focused thinking as one moves towards an identified goal.

From the perspective of online communities it becomes necessary to ask whether the opportunity for autonomy and exploration that may well be afforded to participants is also contrasted with evidence of more focused thinking as participants attempt to fashion new ideas from their explorations online.

To summarise, I have explored a conceptual framework for viewing and analysing children’s interactions within an online community. The outer constructs represent the affordances of the online community; a space for the exploration of personal identities; increased and wider socialisation through collaborative online tools and; the potential for cohesion as participants unite towards the common goal of creating and sharing knowledge through the virtual community. The dialectic relationship at the core of the model (Fig. 1) is intended as a gauge with which to ascertain the degree to which activities and interactions within the online community are representative of participants who are moving towards further knowledge creation through participation in the virtual community. Having explored the theoretical framework of the project I will now illustrate how this framework was integrated into the methodology.

4. Methods

This research was firmly based within an interpretivist paradigm. Initially, within the first phase of the project thematic categories were ‘inductively derived’ (Strauss & Corbin, 1994). I integrated the use of the online community into my own teaching alongside supportive colleagues. I carried out informal observations of the children using the virtual community both within the formal curriculum and out of school hours as they used and contributed to the online community from home. Any telling data was downloaded from the children’s web spaces after the children had given their consent. Semi-formal interviews were carried out with colleagues to gain their

perceptions of the online community and informal interviews were carried out with the children from my own class. A message board was also implemented where the children were invited to post their comments about working online within the virtual community.

As the second phase of the project evolved, focusing upon another school's use of a similar online community, the thematic categories identified within the aforementioned conceptual model (Fig. 1) had begun to form more clearly due to the review of the literature combined with the experiences in phase 1. Thus, the project followed the pattern of much grounded research whereby theory is 'discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon' (Strauss & Corbin, 1990, p. 23). Hammersley and Atkinson (1995) also identify this characteristic within research of this nature, moving through the generation of tentative concepts towards the investigation of more 'definitive concepts.' Similarly, Cohen, Manion and Morrison refer to this funnelling within the research process as 'progressive focusing' (Cohen, Manion, & Morrison, 2001). This is significant because for the purpose of this paper the intention is to present the final stages of analysis and it is important to acknowledge that this could only be arrived at through the distillation of a plethora of experiences and research tools employed throughout phase one. Furthermore, opportunistically the second phase school's use of the online community contrasted greatly with that in phase 1 for rather than integrating the virtual community into the curriculum as was the case in phase 1, the use of the community in the phase 2 school remained informal, with children accessing it during their own break times and from home. An overview of the time-scale, contexts and methods used can be seen in Table 1.

So, how was the data analysed at this concluding phase of the project? Having established key analytical categories – *socialisation, identity, exploration and fashioning* – it was felt necessary to establish some measure of the frequency to which children's activities within the online community illustrated these characteristics. The implication being that purposeful and effective use of the virtual community would be indicated by the presence of all of these features within children's

Table 1
Overview of timescales, contexts and methods

	Phase 1 April to September 2003	Phase 2 October 2003 to July 2004
Context	<ul style="list-style-type: none"> • Think.com established • Community integrated into curriculum • After-school club established 	<ul style="list-style-type: none"> • Contact made with another school also using the online community • No formal integration of community in curriculum • Children's access to online community – out of school/break times
Methods	<ul style="list-style-type: none"> • Observations of children using the community • Informal interviews with children • Semi-structured interviews with colleagues • Informal content analysis of children's websites to generate analytical categories 	<ul style="list-style-type: none"> • Three children identified – two semi-structured interviews with each child • Semi-structured interview with class teacher • Covert online observation of subject children's online activities (4 months) • More formalised content analysis of children's websites. Sample size – 4 children's sites from each phase (equal balance of gender)

online interactions and activities. A sample of four children was chosen from each phase of the project (two male and two female). These were best case scenarios in that they were children who generally made frequent use of the online community out of school hours. Each unit of information on the children's websites was scored against the analytical categories outlined hitherto. For example, Fig. 2 shows a random collection of messages selected from various children's web pages. In the message explaining to another child how to get more than ten pages the principal process here was defined as 'fashioning' in that the messenger was attempting to use some knowledge they had gained to fashion an explanation of how to 'cheat' the software into allowing more than ten pages. Similarly, the message enquiring about another child's mother is essentially a socialising act. However, often units of information were difficult to classify having mixed intentions such as the child from Northern Ireland who it could be argued is using the medium to express their own personal identity whilst socialising at the same time. Similarly, the message enquiring how to change an icon is motivated by the need to explore the medium in order to express an aspect of this child's personal identity ("Good Charlotte" are a current popular music group).

This same process of classification and quantification was used to analyse all units of information on the sample children's web pages. However, again it was often difficult to distinguish between analytical categories, making it necessary to score the units of information against more than one category. For example Fig. 3, which is an extract from a sample child within phase 2 of the project illustrates aspects of several of the identified analytical categories. Firstly, this information concerns motor racing which is an interest that Michael had held for a while and shared with other family members. As such, this represented an important aspect of his personal identity. However, the way he has presented his information on the page also shows an awareness of audience in that he has sequenced the photographs and used captions to construct a short narrative about the images; fashioning the information. Similarly, he has added information underneath explaining about Formula One racing. However, here he has also experimented with using HTML tags when uploading his text to change the colour of the fonts; a technique he learnt independently

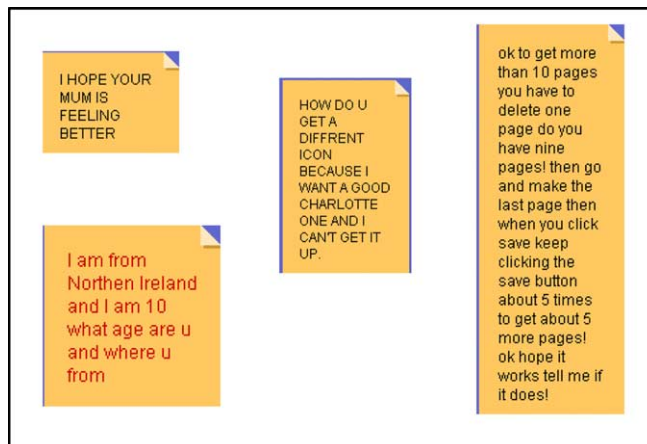


Fig. 2. Telling "virtual stickies" downloaded May 2003.



Fig. 3. Extract from Michael's website downloaded August 2004.

from other members of the online community. This background information was established during a second round of interviews with the sample children to verify my interpretation.

5. Limitations and reliability

Whilst it is acknowledged that the analytical process I have illustrated did not offer a particularly sharp analytical tool with which to measure the motivation and intention behind participants' online activities and that the sample size used was not large enough to make any conclusive generalisations, it did nevertheless provide a means of testing and challenging some of the assumptions about the potential of online communities with primary-aged children. Due to the scale of the project inter-rater reliability was not employed although this would be essential if this analysis were to be repeated with a larger sample size. To compensate for this a higher degree of intra-rater reliability was sought through the repeated analysis of the raw data; sample children's web-pages. Similarly, attempts were made to validate my interpretation of the data and test its reliability by returning to the field to carry out a second round of interviews with the sample children. Indeed, this did highlight some inaccuracies in my initial interpretation of the children's web pages. For example, one child seemed to be using html script to liven up the background and embed music into her pages. It turned out that a friend had done this for her and that she had very little understanding of how to achieve these effects independently.

6. Findings

The hitherto described content analysis of the children's web space generated statistical data which served as a basic indicator of the processes and levels of motivation the children were engaged in when contributing to and creating their web space. It also facilitated a basic measure

of the levels of thought behind children’s online activities. When comparing the statistical data generated across both phases of the project (Fig. 4), the range of the results within the first phase is more evenly distributed across the identified categories, indicating possibly a more balanced approach to activities within the virtual space. Online activities within the second phase school were predominantly motivated by the desire for online socialisation, with the exception of Michael who demonstrated high levels of independence within the online community and whose activities ranged across the analytical categories, as discussed previously.

Whilst it is not possible to prove any direct causal link here, these results do nevertheless imply that the role of participating teachers within the first phase may have had a significant impact upon the nature of the activity within the community, and the way in which the community evolved.

Moreover, a similar pattern seemed to emerge when analysing the online activity in both communities, from the perspective of gender. In both sets of data, boys spent a higher proportion of their time online exploring the media, for example; exchanging information about how to get more pages; how to change backgrounds; how to use html tags to play music. On the contrary, girls spent more time communicating and socialising online. However, in the first phase of the project, this difference between the different genders’ use of the online community was less pronounced suggesting again that the active role of teachers within the virtual community in phase 1 may have impacted upon this (see Fig. 5).

Consequently in the first phase school where online activity was integrated into the teaching day and curriculum, there was a higher incidence of girls exploring the media and applying their skills to inform their audience. Whereas, in the second phase school in which children accessed the online community at break times and out of school, and therefore little or no teacher participation, girls in particular pursued a much more limited and personal range of online activities using the virtual space almost exclusively to socialise and express their interests and preferences for certain aspects of popular culture such as fashion and popular music.

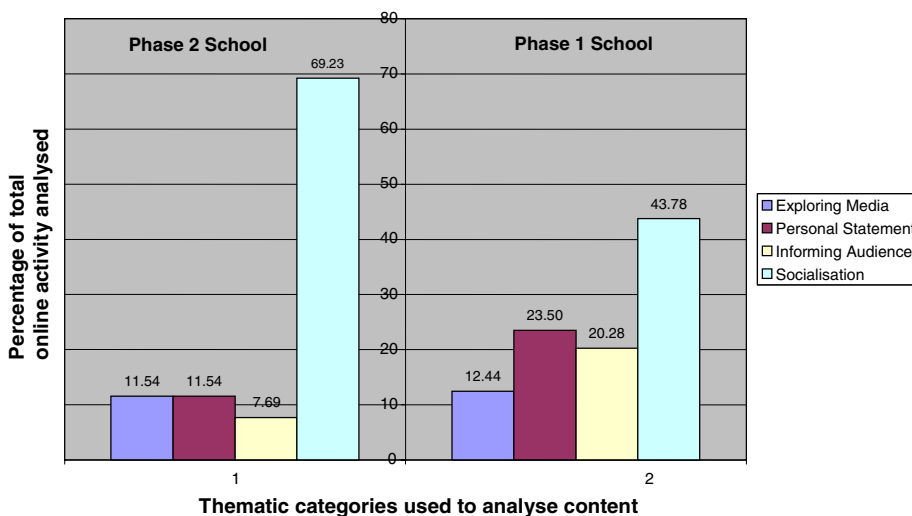


Fig. 4. Statistical content analysis of children’s online activity in phase 2 (series 1) and phase 1 (series 2) of project.

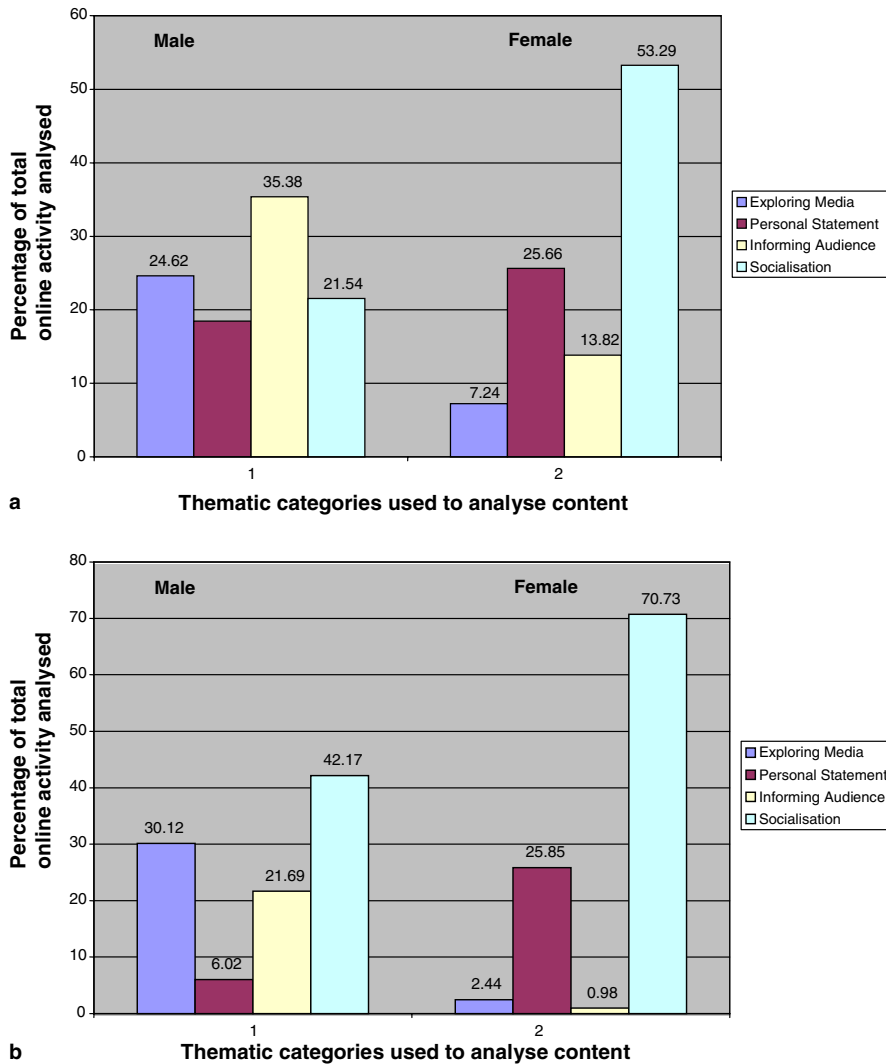


Fig. 5. (a) Statistical content analysis of online activity in phase 1 by gender. (b) Statistical content analysis of online activity in phase 2 school by gender.

7. Conclusions: refutations and confirmations

One conclusion that can be drawn from this study is that on one level, activity in online communities mirrors people's actions in real communities (Rheingold, 1993). For example, children felt a need to express their identity through their use of the tools available, to share their interests from popular music and fashion to sport and *The Simpsons*. Furthermore, much of the informal learning about the medium that appeared to be taking place online emerged out of socialisation with peers and other participants within the community of practice, lending credence to Breen

et al's claims that 'leisure use' of ICT should not be discouraged within online learning communities for 'personal and learning uses are impossible to distinguish' to the extent that one 'should recognise the value of blending the academic with the personal' (Breen, Lindsay, Jenkins, & Smith, 2001, p. 113). In other words, authentic learning within virtual communities is often embroiled with issues of socialisation and identity and it would be a mistake to attempt to reify or separate these.

Many claims are made about the emancipatory powers of online interaction. For Scardemalia and Bereiter (op. cit.) this is realised through the collectivisation of knowledge as it becomes a shared resource accessible to all rather than an individual pursuit. For Ruzic it is the potential for experimentation in virtual communities without 'real-world risk' (Ruzic, 1999). Turkle (op. cit.) similarly makes claims regarding the emancipatory potential within virtual communities. Whilst there was evidence that children used their virtual space to explore and express their personal identity, I believe an important conclusion to draw from this research is that such claims should be treated with caution. Although the findings and analyses demonstrated a clear perception of autonomy and freedom amongst participants and a tendency to use the medium to express and develop their sense of identity, they were not in fact, completely free of cultural restraint as was seen by the cultural stereotyping that was often evident in the content of the children's websites.

From an educational perspective, despite their relative autonomy when compared to the traditional face-to-face setting of the classroom, many participants explored a limited range of online tools and activities, often following predictable patterns; for example votes about their favourite television 'soaps'. Similarly, from the viewpoint of identity, most of the personae portrayed online followed very predictable patterns with girls perpetuating very stereotypical images of fashion models and 'pop stars', and boys also projecting themselves through themes such as sport and popular culture. Consequently, it seems that claims about online communities' potential for emancipation need also to be balanced by a realisation that they can equally become the vehicle for the appropriation and reproduction of cultural stereotypes. This dual potential is noted by Slevin (2000) who notes that whilst the use of virtual communities:

“may hold out the possibility of emancipation, we must at the same time be aware of how it might create new mechanisms of suppression”. (p. 109)

Slevin argues that whilst online communities and their participants may be situated in virtual reality, they are also situated within the 'real' world and as such are thus bound by the cultural mores and codes of that real social context. Participants in online communities are also participants in real communities, and it is important to acknowledge the influence of the real world upon the virtual. So what of the potential for deeper learning?

From this perspective, one could conclude that providing children with the creative space and freedom to explore is only part of the issue. Out of the four children observed in the second phase of the project the pupil who was most able to take advantage of the medium was a child who had already demonstrated a high level of attainment and independence in other areas of school life. For example in an interview with his teacher, the teacher commented that Michael was an able pupil. Consequently, Michael was able to take control of his own learning online and demonstrated the ability to critically evaluate his own and others' contributions to the virtual community. In essence, he had to a greater or lesser degree learnt how to learn and was therefore able

to take quite drastic decisions concerning the construction and deconstruction of his website as epitomised by the message he posted April 25th 2004, thus:

“I am now radically changing my page, so please be patient”.

He followed this by deleting several of his pages and restructuring them to incorporate more multimedia with pop up messages, animated backgrounds, transitions between pages and background music; all of these techniques had been acquired independently through interaction with others within the virtual community. These, I would conclude were the actions of a child who was able to critically evaluate the impact of his online work on an audience, and who had the resilience to persevere (Claxton, 1999) with his intended changes, for he revealed in his interview how he had tried some of these techniques several times before managing to get them to work properly.

In order to facilitate such initiative and child-led learning with all children, it would appear that mere exposure to a virtual community in which to exercise their independence is not enough. It seems that the role of the teacher within and outside of the virtual community is vital for, whilst there was evidence of what Askew and Carnell term ‘deep learning’ (Askew & Carnell, 1998) and Papert refers to as ‘intellectual self determinism’ (op. cit.), it would be inaccurate to conclude that this was a direct consequence of participation within the online community. Ultimately, I would argue that if we are to make the most of the affordances and opportunities offered by online communities, then developing children’s understanding of creativity and learning to learn, need to be at the core of teacher’s and children’s online activities; virtual autonomy in itself is not enough.

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