Crossing the digital divide safely and trustingly: how ecologies of learning scaffold the journey

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Abstract

The article addresses the issue of learning to elearn in borderless programs in a globalised learning landscape and the associated problems of scaffolding the journey across the digital divide. The authors argue that the assumption underlying such courses is that cross-cultural programs are viable because they are conceived and designed to be 'global', and that they assume this design to be inclusive. Henning and Van der Westhuizen claim that the global discourse in most domains can take only marginal note of the need to infuse such programs with a local semiotic—a course design criterion for which they argue. They furthermore forward the notion that the majority of the world’s prospective elearners need various bridging mechanisms in order to be able to access the broader discourse and that one of these mechanisms can be explored through the metaphor of “information ecologies” as proposed by Nardi and O’Day [Nardi, B.A., & O’Day, V.L. (1999). Information ecologies. Using technology with heart. Cambridge, MA: The MIT Press]. They also conclude that issues of the learners’ trust in the course and its system need to be considered when contemplating programs for diverse target groups. By way of a case study, consisting of three portraiture of adult learners, they explore the limitations of assumed distributed cognition and claim that learning is, in reality, contained/constrained in the familiar local narrative of the novice adult elearners in a rural South African context. The case study illustrates how the resistance to technology and its power base becomes an obstacle for the students and how the support of peers becomes the main scaffolding mechanism for their entry into electronic learning environments. The findings thus show how the social context becomes the facilitator and the scaffold for elearning, more than technology and the curriculum itself.

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1. Introduction: some contradictions in distributed cognition theory

This article will problematise the notion of distributed cognition in online courses across cultural learning borders. We will argue that although it is a widely acceptable theory in e-learning, it is based on an assumption that the ‘distribution’ of cognition is reciprocal between toolmakers, texts and users, when perhaps, in certain instances, it excludes the life- (and learning) world of local learners in the global, borderless environment. In these instances the cognition that is assumed to be distributed is, in contrast, contained (limited to the ‘contained’ learning position), constrained, or even barriered by the narrative-in-action that is familiar to the learners, whose situated knowledge is embedded and embodied in a non-global discourse, with little entry into communities of scholarship (Henning, Mamiane, & Pheme, 2000). Thus, in addition to the universal problematic uptake of elearning in technologically advanced and educationally well-positioned environments, as reported among others by Barab, Makinster, Moore, and Cunningham (2001), Curtis and Lawson (2001) and Oliver and Omari (2001), prospective e-learners in the developing world may face an added barrier to learning—the very discourse of e-learning and its global (Western) discourse.

Schneidermann (2003:1) proposes not only a “multidisciplinary education” in elearning, but also a “sympathy for diversity”. This sympathy, we would argue, needs to exemplify courses that are traded as “global”. In a recent publication Donald Clarke (2003:2) is explicit about these programmes. He examines “the challenges of culture, translation and design” and “the thorny issue of coping with global character sets”. These two authors emphasise content, design and imply some thought for the local semiotic to be present in global, borderless programmes. However, they do not give sufficient attention to the social and personal needs of online communities. This is something that Preece (2003) addresses. She argues that online learners need to learn to “trust the technology”, to which we would like to add—not only for its technological performance, but also as semiotic medium. In the inquiry that we report in this paper we found that it was partly a lack of trust that inhibited uptake and caused resistance. The research group first learned to trust each other and to rely on their social context before they could begin to transfer the trust and the sense of community to the Web environment.

We will discuss this recent case study involving South African adult learners from rural and semi-rural areas to illustrate the point, arguing that “culturally embedded scaffolding of tool use” (Cuthell, 2002), both social and material, is essential for the ‘distant’ learners who have to get access to a learning community and its discourse conventions across borders. In order to be able to do this, they have to conduct border-crossings (Henderson, 1995) that are essentially designed for a one-way crossing—from learner to text, and not reciprocally. We believe that this inhibits uptake and diminishes trust. In the discourse of a globalised world of learning the reciprocity of border-crossings is often neglected and courses generally assume cultural and experiential universality and even totality (of the Western way of doing). In the real, everyday life of the global world, borderless courses are, we argue, therefore an anomaly, because they often remain inaccessible, not only due to lack of prior knowledge and competence of some learners, but also because of lack of indigenous knowledge of course designers.

To further illustrate this point we suggest that what W.E.B. Du Bois referred to as a “double vision” be considered as frame for viewing borderless courses. Du Bois argues for “a ‘double vision’—it expands our field of vision without being expansionist; it includes without consuming;
it appreciates without appropriating, and it seeks to temper ethics with politics” (Giri, 2002:103).

In much of Betty Colliss, Cook, and Nargaryans’s (2003) work this principle articulates with another principle of curriculum design. She advocates that process leads to product. We understand that to mean that the outcome of a curriculum design is dependent on the preceding process in which target learners become “visible” (and here we would allude to the “double vision” that Du Bois proposed) in the process. A course product is thus not, according to Collis, a mechanism that will lead to a learning process, but the effect of learning of designers and teachers and learners—all of whom are part of the evolving curriculum. Therefore, when researchers in e-learning contemplate the notion of “collaborative distributed learning” (Fjuk, 2003), the notions of both collaboration and distributed learning remain dependent on whether novice e-learners trust the environment sufficiently to engage with it and whether they can truly be present in the curriculum. Our standpoint is that this trust is dependent on signs and symbols and ways of doing in the e-learning program that invites the learner in, for example, a distant Southern African village, or an informal settlement on the outskirts of São Paulo, to feel ‘at home’. In the wake of the tensions in global politics, economy and, sadly also terrorism and its effect on perceptions, it is vital that the more vulnerable learning populations do not see the virtual learning environment as a “scary” space where the ‘powerful rule’.

We believe that the “double vision” expressed by Du Bois many decades ago needs to be applied in the virtual space of today. In such a “double vision” of elearning mediation, distributed cognition will be conceived of as a dual or double narrative in which the storied lives of different learners are scripted into the ‘story’ of the learning programme. At present borderless programmes assume what we would like to refer to as a ‘single vision’—the global discourse that expects learners to enter this discourse community with tools and semiotic devices that they do not have. Our argument is thus that the assumptions on which distributed cognition are based, despite its wide use as heuristic in planning e-learning, need to be problematised. This is such a firmly established theory and in e-learning environments it seems to negate one of its own premises, namely that learners and teachers share spaces. We would argue that the very sharing of learning and instructional spaces would presuppose the sharing of a dual narrative, coming together in what Collis et al. (2003) refers to as “process”. Despite its standing as a theory we say that distributed cognition in borderless courses negates both the space and the stories of the learners in environments where the global discourse is distant and the local knowledge drives learning primarily. The local knowledge, situated in its social space, may become a barrier to engagement with the course.

Yet much of the literature on e-learning has focused on learning mediated by electronic technologies as a prime example of the theory of distributed cognition, with authors such as John Seely Brown and Paul Duguid (Brown, 2000) being cited frequently since the now famous article in the Educational Researcher in 1989 (Brown, Collins, & Duguid, 1989). The tenets of distributed cognition are clear (De Haan, 2002; Karasavvides, 2002; Salomon, 1993) and are continually being refined as the technologies develop and as the role of, among others, narrative and metaphor and ‘affective computing’ is becoming more prominent, indicating that the distribution of cognition is not devoid of stories and their affective and social content and that narrative is a context for much of human-with-tool action (Bruner, 1996:130–139). We would argue, therefore, that the narratives of different groups be included in the process (in Colliss’s terms). E-learning programmes can distribute learning opportunities and events, invite participants who see some evidence of their lifeworld and their
emergent elearning narratives, and aim for distributed learning/cognition only when it does not come in the guise of the foreign, powerful narrative. The VLE as prosthesis (in Bruner’s terms) of learning/cognition/thinking is thus a tool in the *rewriting of the personal narrative*. Learners expand their knowledge, and they extend their knowing to the virtual space, recontextualizing their understanding (rewriting their narrative) and thus create spaces that they occupy in distributed cognition mode. If they do not ‘see’ (envision) themselves in these spaces, it is unlikely that they will enter them.

We do not claim to have answers or prescriptions of any kind as to how this should happen. It is through inquiry in the new communities of online learning that we intend to search for these, using theories that come from the school of sociocultural studies and the first work of Vygotsky, who termed his output “cultural historical” at the time that he composed his ideas. Lev Vygotsky (1978, 1992) first explored the role of tools in mediated action in the early 20th century, with his work spawning a theoretical following that would increase and become more complex as tool utilisation increased and became more complex with the expansion of information technology/tools (Cole, 1996; Cole & Engeström, 1993; Duguid & Brown, 2001; Lave, 1988; Lave & Wenger, 1991; Nardi, 1996; Perkins, 1993; Resnick, 1991; Säljö, 1999; Wertsch, 1991). There seems to be sufficient agreement among these authors that tools, both social and material, are mediators of culture and that the distribution of cognition implies that a learner knows the knowledge-making facilities of the tool and cultivates an identity concomitant with competence (“I click therefore I am?”). However, if cognition is also situated and there are cultures of learning (Brown et al., 1989), the implications are that social and material tools need to have a local embodiment—thus problematising universal, or even totalising, borderless courses as viable options for those instances where accelerated learning is perhaps most needed. Here knowledge and knowledge-making systems exist that are generally not recognised in a globalised discourse and its borderless courses. In this respect Lal (2002: 13) argues that,

the formalized platitudes of the social sciences will at the very least have to be brought into an engagement with folk and vernacular forms of knowing; and the claims of Western forms of universality will have to be adjudged not only against the strengths of local knowledge systems, but against competing universalisms which are content with a less totalizing reach.

It is in the idea of a “less totalising reach” that this inquiry is premised, trying to present both a view of and a vision for the ‘prosthetised’ mind (Bruner, 1990) in the local community, with possibilities for a wider engagement in the global terrain. The notion of the ‘extended mind’ in its borderless and global discourse community furthermore invokes the social dimension of the theory of distributed cognition—meaning that the social mind extends further and further and that the social identity of learners develops alongside their cognitive and technological competence. Yet, discourse communities as “domain(s) of social practice” (Lankshear, Gee, Knobel, & Searle, 1997) are by their nature closed to the uninitiated and can therefore not be a “borderless” space. The social initiation into this space amounts to more than skills acquisition and can be compared to what Lea and Street have termed “academic literacies” (Fortuin, 2002; Henning & Brown, 2002; Henning & Van Rensburg, 2000; Lea & Street, 1999). Communities have to deliberately engage in scaffolding practices that invite and support the uninitiated at different levels, otherwise they may remain ‘contained’/constrained within the borders of the known narrative and its
unarticulated local knowledge and thus also remain excluded from the global learning community. We would argue, in addition, that this engagement ought to be in the mode suggested by De Bois, when he speaks about “including and not consuming” (Giri, 2002:103).

In the rest of this article we will introduce a case study, which is presented in the form of excerpts from narratives that were constructed from analysed data. A discussion of the meaning of the findings, compiled from the main data categories and briefly captured in the excerpts, will follow. We will then propose, in the light of the discussion, that borderless courses be viewed as inclusive, with space afforded for the creation and application of local meaning and signs and cognizant of what Bonnie Nardi and Vicki O’Day (1999) describe as “ecologies” of information and, we would add, also of learning.

2. The inquiry

The study of first-time e-learners’ engagement with a virtual learning space was conducted with six purposefully selected learners from a cohort of 33 students in 2001, using naturally occurring data such as discussion postings, some e-mail, and learning artefacts as well as data collected via engineered collection methods such as interviews and journals. The article presents excerpts from a data narrative of the six teachers’ first encounter with e-learning, constructed from an integration of the analysed data sets and with verbatim data linked into the portraits.

2.1. The research participants and the research setting

The teacher participants were master’s students in a part-time MEd program at a university in a South African city. The module Qualitative Research and Writing Composition was one of six courses in the program and was developed to simultaneously run online and face-to-face in order to accommodate especially those students who live far away from the university. Most of these students had expressed the need for more opportunities to engage with the course presenters and their peers. However, face-to-face engagement was limited to weekend workshops once or twice per month. As the University had already initiated WebCT facilitation of either complete or hybrid/blended (‘brick and click’ courses according to Weigel, 2000) online courses, the conversion of the existing course to a parallel, interactive e-learning version could proceed. The course was adapted to provide optimal networking and interaction and to introduce the first time e-learners to the network/information society without expecting them to continue entirely on their own in a virtual learning environment—the scheduled workshops therefore continued.

The research group or sample that we selected consisted of three pairs of students who opted to work together closely and who lived within reasonable proximity to each other. Students in this course were encouraged to work in pairs or small groups and they selected their own partners pragmatically. The three research pairs were thus already existing learning dyads when they were selected purposefully (Merriam, 1999) for the inquiry. They were chosen because they were the most uninitiated in computer tool use and suited the criteria for the narratives—they would show the realia of everyday living and of studying. The following criteria were considered:
The adult learners had returned to university for an advanced professional degree.

- Students lived at least 200 km from the university in semi-rural areas.
- Students speak at least three languages, with English having been their language of formal education since high school at least.

2.2. The design of the inquiry

The design type or genre of the research (Henning, Van Rensburg, & Smit, 2003:chap. 3; Holliday, 2002) is a narrative inquiry (Riessman, 2002). This type of design implies that not only the teachers’ narrative data were used and written up, but also that data from other sources were included to complement the narratives and to explicate aspects of it. Thus, when the “portraits” were eventually depicted (excerpts of which are included in this article), it was an integration of data from the various sources and also of the different ways in which the data were analysed, or “worked” (Holliday, 2003:47–67; Wengraf, 2001:208–231). Our preference for this type of design comes from our experience in research on topics related to learning and relationships and is supported by our broader theoretical framework of sociocultural understanding of human action and “the storied self” (Bruner, 1996).

The data that were collected were from the students’ engagement with the course over a period of 6 months (the duration of the course). All their discussion postings, some e-mail, their other learning artefacts, such as qualitative research designs and term papers, were also scrutinised for data pertaining to their experiences in engaging with the course. The most revealing data, however, came from their personal reflection journals. These data were narratively-rich (Clandinin & Connelly, 2000; Cottle, 2002; Bell, 2002; Pavlenko, 2002) and had sufficient ethnographic qualities (Hammersley & Atkinson, 1995; Wolcott, 1994) to convince us that we needed interviews in which they could tell their experiential stories—the “way of life” (Wolcott, 1994) that they had cultivated in the course. We therefore conducted two sets of individual interviews and also one focus group interview, asking questions related to their “lived experience” and following the same interview protocol with all the interviewees.

We worked with the data in two ways, capturing content as well as discourse (and concomitant stories). We anticipated that the “actual practices of talking and writing” (Woodilla in Phillips & Hardy, 2002:3) and the “interralated set of texts, the practices of their production, dissemination and reception that brings an object into being” (Phillips & Hardy, 2002:3) would be reflected by using different ways of analysis.

The existing texts (the Web-based communication) and the learning artefacts were prepared for analysis by formatting them into analysis texts and the interviews were transcribed. The processes of working/analysing the data proceeded are set out in Table 1.

The narratives were thus constructed systematically from the different data sources via the various analysis modes (“working the data” modes). Content, discourse and narrative data were crystallised into elements of the eventual stories. In the rest of this section we will present excerpts from these stories of the three dyads. The main themes that were collated towards the end of the analysis process (in the last row of Table 1) were configured into the portraits that follow, with the title of each portrait reflecting aspects of the theme and revealing more about the unit of analysis, which is the students’ engagement with the course.
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2.3. The stories of the teachers

Each of the following three excerpts from narratives comprises a portraiture-like description of the two members of the dyad and of moments in their learning path over one semester. The information contained in the descriptions comes from all the data sources, although the citations are mostly from the journals.

Dhimpo and Penny: are we in this machine or is it in our heads?

The first story tells of how Dimpho and Penny engaged with the online course and what they communicated to each other. Dimpho is a 45 year-old woman who teaches at a high school in a village that is 40 km from the nearest town. Recently electricity and running water were introduced to the village, but the infrastructure for this connection and reticulation is still poor. The school accommodates 730 students and Dimpho is one of 19 teachers, but the only one who is licensed to teach Biology at 12th grade level. She was introduced to computers in the previous semester in the skills development program in the Faculty of Education at the institution where she is studying. She travels 344 kilometres to the university to participate in workshops and to use the library twice per month. Dimpho speaks Sepedi, one of the nine official African languages of South Africa. She also speaks Tsonga and Setswana and Sotho. She learned English in school and uses it only outside the village and for pedagogical purposes in the school. She completed her previous degree at the major distance education university in South Africa.

Penny lives in a town, where she teaches in a township\(^1\) school. She is an English teacher and also encountered computers interactively for the first time during the semester prior to the one reported in this article. She is also multilingual. Penny studied at the same institution and also at a university that was created for black South Africans during the apartheid era, when these institutions were established in the segregated ‘homelands’ for different ethnic groups. The first entry into Dhimpo’s journal already set the scene for her engagement with the course. She was wondering

Are we in this machine or is it in our heads? I am wondering because I feel when I click and start that it is sweeping me off my feet. I feel I am watching a film (movie) but that I am also in it. When I wrote my first discussion posting I was so afraid. Would this get to the others? Will they laugh? What will Prof say? I am still very much mixed up. I feel I have not the same control as before. I type and I read and I am scared to click, because when I do that I feel I am falling down—like I slip and I slide on the wet ground. I will read more. That is also not so nice. Hey—when I click and there is this magic page I feel I want to quickly print it. Before I lose it!

Penny was also grappling with the conflict of who was in charge in the learning environment— who was “in her head”. She, however, decided to speak to Dimpho before she had written in her journal. In an interview they referred to this telephone conversation. Penny said that she was too scared to even write, because she did not “trust her mind”. She did not know whether what she

\(^1\) Racially segregated urban living areas in South Africa designated for black people in the apartheid era.
was experiencing was “real”, or whether she was “dreaming up ideas just to get something on article”. They concurred that the first online learning unit had been “terrifying, because (we) felt so hopeless and so homeless”. Penny said she felt “like I had moved my house. This machine came there to my room, but it was not mine. It was not me. My fingers walked, but I was not sure if my mind was there, walking too”. In this telephone conversation they decided to “be brave and to write up how (they) were doing in terms of the coursework in their journals”, but that they would consult each other if they were concerned or did not know what to do. Penny eventually did make an entry in her journal. She was especially concerned with the exhibition of her work and the public scrutiny.

So at last I am writing. I still don’t know how to say it, but it keeps on eating at me...How will I be able to write my work when I know that the whole class—and maybe even some others—their friends and whoever they may want to call and say—come and look at Penny’s work? Ha-ha, she does not get it!! She is mixing things up. So that is what I write for today. I haven’t said yet that I am slow on the computer and that the Internet work is maybe fascinating and I like to travel so quickly to another place and meet with someone who I don’t know, perhaps I don’t like this person at all, and I don’t even know where the country is but I learn a bit from their page. Still, I want to do this alone rather

Thanyani and Tshepang: at whose house are we anyway?

The two male students in this narrative sample, Thanyani and Tshepang, were close friends and started the course as “brothers who do many things together since we were young kids”. They are both school principals and share a passion for teaching, and unlike many in their position, they continue to teach classes. They live in a large town, but both their schools are in villages. They speak Setswana as a first language and like Penny and Dhimpo, they encountered English in the 5th grade and mostly only in school context. Thanyani originally lived in a distant village but moved to the town when his own children had to start school. He wanted them to have access to libraries “and other things”. He therefore moved to the town, where his wife secured a position at the local government offices. Tshepang sees himself as “township man—even a city man now that we drive to Joburg so often for classes”. They both completed their previous degrees at what was previously known as a “homelands university”, such as the one Penny attended. The drive from their hometown to Johannesburg takes three and a half hours and they usually travelled together—often conversing about course topics as they commute.

Thanyani did not start his journal at the outset of the course. In an interview he explained that he “was not ready yet to think and to report to himself what he was doing” because he was “too busy just trying to DO it”. He said that he could not get himself to write about his experiences and feelings when the course started because he was “too bewildered” and he wanted to feel more secure “before he bound himself to article”. When we asked him if he could recall more of his initial experience he said, “Yah, I can—I felt I needed to press on and to click all the clicks and to learn to see where they took me—to find out in whose house I am”. Here he referred to Scott Kerlin’s Website (2002), which is a resource centre designed like a house, and also to the work by Jim Burke (Henning, 2002), which is one of the suggested readings in the course and which addresses the theme of “teaching children how to read the world”. For him it was important to
try to get an idea of the size of the network that was suggested in the course and also to get a feel of the magnitude of the Internet itself. At one point he reflected,

You know, I was so surprised. I thought I would be able to lay my hands on it like a library, but I just could not, because as the screen switched and I clicked the mouse I felt like I was in a catty (catapult) that shot me somewhere far away. Then I tried to find the map in my head to see the place and it would be far away from where I thought it would be. I felt it was gone.

In this interview and in a subsequent interview as well as in the journal that Thanyani eventually started this theme would surface continually. He was looking for signs of the “house” that he had entered. He wanted to make a personal connection, “It seems there was nobody there in this one site—just words and pictures and in that other one there was a person—a nice person—a somebody that said to me, ‘Come in, sit and talk’. And that one with the rooms—man I felt I was visiting my friend. I was in a TV film (movie)—I was in Generations2”. He also did not really create much in the line of interpretive or critical work and continued to gather information, which he summarised and only rarely commented on.

He emphasised that it was very difficult to start working like this without any real training in online learning. He wanted to have a trial course in which his work would not be evaluated. At the end of the course he noted in his journal:

I have learned something, but not a lot. What I think they should do is to teach us how to behave in this sort of set-up before I do a course. I mean not just computers, but the real elearning thing. By the time I got used to it, it was too late and I think I will fail this one. I still dream of a book and a neat study guide and I am not happy with professor... She thinks we are Americans who breathe through the lungs of the Web.

Tshepang wrote in his journal on the first day that he accessed the course online and also often spoke about his experiences in the Virtual Learning Environment (VLE) during the workshop sessions. His third entry explains his involvement:

I phoned Thanyani, my friend and brother in oppression, when I opened the classroom door the first time. I said, “Brother, you must see this. It is like I’m going to a shebeen (pub), but I don’t know how to get there and I want to meet my friend. Please Man, come into the discussions, I need you there to talk to because I can’t just talk to the wall, these other students will not know what I am saying. I need you there. Or come to my house so we can do it together. I like this thing. I just move up and down and this way and that. I stop if I see something that I like, but I skip most of it because it looks like a mixed up study guide and there is too much. So, now I have looked at all 14 destinations and I still don’t know what to do or where to go.

Thembi and Sipiwe: chewing the bones of the mind

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2 This is a very popular, primetime television series drama.
This dyad was originally formed because the two students shared a first language, Zulu. The workshops invite discussion and debate in the primary languages of the students and these were the only Zulu speaking students in the group. It turned out that they had much more in common than a primary language. Thembi, a female first grade teacher, had not studied formally for more than 20 years. She had decided to register for the course because she wanted to “refresh (her) knowledge and make (her) mind alive”. She has no car and travelled to the university by public transport, often being in transit for more than 6 h. The village school where she teaches is in a mountainous area and many of the children walk up to 10 km to school each day. She stayed with relatives in Johannesburg during the weekend workshops. Sipiwe lives about 30 km away from her and they discovered that they could travel together. He has a car and Thembi would contribute to the cost of the drive. There is no telecentre (Oliver, 1996) in the area and they would have to travel 60 km to the nearest town to make use of Internet facilities. There is also no electricity in Thembi’s village. Sipiwe, who lives on a farm, has access to privately maintained electricity supply and also telephone lines. He lives on the land of his father’s employer and teaches at the local farm school, which now also boasts electricity supply.

When the course started Thembi was surprised to hear that she would use a computer and later also the Internet. She had never interacted with a computer and did not really know about the existence of the Internet. Sipiwe had heard about the Internet, but had not worked with a computer either. He just knew “that you can connect with people all over the world”. When he found out what websites were he said, “I tell you I never thought of this. I can only think it is like a big, big indaba (meeting of elders), with people speaking from all over and leaving their tracks, like articles strewn all over”.

Thembilivedoutheranxietyduringthefirstpartoftheinteractivelearning. She refused to try and threatened to take the matter to the university administration, because she had not been warned that she would have to become an e-learner. Gradually she changed her position on the matter when she started working with Sipiwe. She relied on him to mediate the process of becoming elearning literate. Towards the end of the course she noted in her journal:

I never thought I could do this. That is why I was so angry at the beginning. Did they not know that I had no electricity? Did they not know that I had no telephone line? Did they not know that I could hardly type? Did they not know how strange this would be? But I was in luck. I met Sipiwe—he held my hand in his and he walked with me all the way—together with his daughter. First I stayed over in Joburg for an extra day when I could because that was the only way I could get to computers. I lived there in the lab for two days—with a tutor trying to help us and later his daughter came with us and just sat through it all with us. I don’t know where this girl learned so much. She is only in high school. I was slow at the beginning. But every time I wanted to cry I looked at Sipiwe. He was so much younger than me and here was this man who is so intelligent and he was helping me and saying “Gogo—you can do it. Come again”. Even through my tears I could see the difference. When Prof asked me if I knew the expression of the chewing of the bones of the mind I did not recognise it, but he said he knows it—it means to think about something hard. I have done that. I have thought hard and even though I still have no computer at home, I can say that I have learned to get information from all over. And I still don’t like it, because I prefer to work from a book or from talking with people or to look at something. But at least I can do it now. And when I
am in town and I have a few minutes and also some few cents I go to the Postnet and check my course and I also quickly post something on the discussion board. I only learned the meaning of the word virtual now. It is real, but I wish it was not.

Thembi concentrated on getting to the information that was already listed in the course and did not venture too far away from the suggested pathway. She confirmed in the interviews that she did not want to get “confused with too many little roads to the destination”—referring to hyperlinks. She, like so many other students, printed out as much of the material as possible and converted the electronic text to print. However, she indicated that there was still a difference—“you have to go out and get the knowledge—it does not come to you”.

Siphiwe had a different experience and also demonstrated different capabilities. He commented that he learned by mediating. In his capacity as Thembi’s co-learner and mediator he explored and explained many things for himself. He also accessed the hyperlinks with courage—making notes on how far “back” he should go to retrace his steps and to keep the “thread of the day”. His discussion postings were more sophisticated than those of the other students and he read the texts critically. He enjoyed the Burke (Henning, 2002) text especially, noting that it taught him how to be an “Internet student”. He also applied for private funding for two computers for his school and started literacy programs for the staff, aiming to expand this to the wider community. He is presently working on a way to get more computers and to bring e-info to the classrooms. His daughter had learned to use computers in school. She was in the 11th grade at a state school that was part of an NGO project. She assisted her father in the weekend workshops for teachers (only four). Siphiwe did not yet have sufficient funds to buy a computer, but was saving for it.

In these brief summaries of highlights in the narratives of students the events and actions are not untypical of adult students who enter the university at master’s degree level. In the case of teachers who had to share their income with their families and extended families there is often not sufficient funds for the student to register for a degree. The students who enter the university are therefore the ones who can afford to do so.

3. Discussion: reciprocal scaffolding and friends as teachers in a learning ecology

In the excerpts from the students’ narratives issues that are relevant to the unit of analysis of this inquiry, namely the adult learners in their interaction and engagement with the VLE, were highlighted. These indicated how the generic course was experienced by these ‘bordered’ learners, who had either not worked on a computer or used Web and Internet facilities before, or both. In this encounter the border crossings that the students have started to make is clear, but it is also clear that the VLE did not exhibit an affordance that would encourage them to nurture their own language and ways of doing. We use Du Bois’s notion of including and not consuming to premise this view and also to begin to build a vision for local courses as platform for global courses, providing that the crossing of borders is reciprocal and that the local can inform and enrich the global in some way. We noted that students were resistant to the idea of being ‘colonised’ by e-learning, and rather than feeling incompetent about their abilities as may have been expected, they regarded the technology and its discourses as unaccommodating. In their evolving ecology, where they were beginning to trust a fellow student and were beginning to distribute their
learning in this dyad, they created a safe space that, hopefully, will develop into a larger and e-encompassing learning environment.

We will now explore the theme of the sense of trust and help, which was especially clear in the data captured in the interviews, the journals and the discussions, from the broader theory of sociocultural research and activity theory and more specifically from the notion of ecologies of learning. Bonnie Nardi and Vicky O’Day’s (1999) metaphor of “information ecologies” as primary heuristic frame has been helpful in exploring this and other aspects of the findings. Nardi’s work emanates from sociocultural and activity theory as theories that capture context as roleplayer in learning. It is from this work that we draw the central notion for discussion—namely the metaphor of ecologies, linking it conceptually to the legacy of Lev Vygotsky (Kozulin, 1990; Vygotsky, 1978, 1992) and later like-minded scholars (Bruner, 1990, 1996; Engeström, 1991; Rogoff, 1990; Wertsch, 1991). We see the way in which the participants in this inquiry engaged with the VLE as instances of mediated action, tool utilisation (including culture, language, the course management system, the programme) and mediation for learning in a “zone of proximal development”, with the co-learner in the dyad often the one that mediates in this zone. This role as mediator also became a role of support in a new environment in which they learned to use a new tool was learner.

We use activity theory specifically to explore tool use as mediation in this new ecology. This theory holds that the mind will interact with the environment and its tools and create new mind tools (not the same kind of “mindtools” as defined by Jonassen (2000), who defines mindtools as computer applications that engage critical thinking) and thus learn (Cole, 1996; Kaptelinin, 1996; Leont’ev, 1978) of and with this new tool. Tool use opens avenues to more learning as far as the tool-in-use can stretch with its user and is thus in itself a mind prosthesis (Bruner, 1990,1996) and not a separate tool. A claim of the study is that the epistemological shift that comes with an understanding of the power of a tool, along with the social change that supports tool use, is not recognised in typical online courses for adult first time users. Many of the learners in the groups that we teach, and specifically the participants in this inquiry have, up to entry into this new electronic system, constructed mindtools for application with printed text and oral literacy and its concomitant cultural semiotic. Moreover, they have used this in formal learning environments where information gathering and rote learning have been the main modes of education. In such a bordered learning environment creative course designers need to explore the viability of local stories that can assist learners to cross the (digital)divide trustingly. In this inquiry it was evident that what many authors plead for in terms of plurality, diversity, and equity has yet to happen (Friedland, 2002; Landis, Boire, Hanson, Nihuidula, Tsikalis, & VanderVeen, 2002; Preece, 2003). Inquiries into small communities, such as the one reported in this text can yield data that can inform policy and design about the complexities of crossing the divide, or, in the tone of this research, facilitating a safe crossing by the learners.

In addition to tool use in the learning ecology we also consider the semiotics of elearning, viewing it as steeped in the signs and symbols of a sociocultural context (Chaiklin & Lav, 1993; Wertsch, 1991) and also in an activity system (Engeström, 1991). Again we argue that to cross the divide without the assistance of the local semiotic would be difficult. If there is not sufficient scaffolding to the computer (and its technological prosthesis) as mediation and as thinking tool,
learners may experience perturbation and dissonance that may, as is illustrated by some of the data in this study, resist digital information and the hyperworld in the broadest sense. They are not familiar with its semiotic and also, they resist the notion that the system has authority over them. We propose that the VLE designed for wide usage keep the process (again in the frame of Colliss’s work) in mind when the courses are developed, but also keep in mind that the very discourse of the Internet and the Web speaks with a “Western” voice of global authority. Thus, the subtext of the enterprise says that those who wish to engage with it should learn its ways—and the ways of its makers. In this study there was some evidence that the participants questioned the power of these ways and needed assurance in experience that they could, in Preece’s (2003) words, “trust” this environment. In this respect the discourse analysis procedures assisted us in understanding how the participants viewed the origin of the system of meaning of global learning.

For adult South African students there consequently arises a twofold barrier—not only must they learn to trust a foreign mediator and tool (with its powerful discourse and daunting borders), but they must at the same time learn to e-learn and also learn to self-regulate their endeavour. Considering the history of educational deprivation and segregation of the participants, who have studied at institutions where they could get by on rote learned information, their approach to a VLE needs to be seen in the context of their experience and their socioculturally ‘situatedness’. In terms of “borderless courses” the implications are significant. The courses will most likely be approached by learners as yet more ‘content to memorise’- and without a profound epistemological shift, accompanied by a social initiation, it is unlikely that this will change. In terms of activity theory (Kaptelinin, 1996; Nardi, 1996), this inquiry has therefore shown that the students learned operations and some actions, but had not engaged with the activity—the true encounter with the VLE.

We are reasoning that the fault lies less with the learners than with the course and the discourse which drives it. We again refer to Nardi and O’Day (1999) who address this issue in their conception of “ecology” as metaphor for accessing and appropriating the information world in a small culturally situated community. They describe an “information (learning) ecology”, as “a system of people, practices, technologies and values in a local environment” and which, “(l)ike their biological counterparts...are diverse, continually evolving and complex” (1999:49). Like these authors we have found that it is vital not only to describe

- what people encounter/learn (in) technologies (as captured in the content analysis of some data), but
- how they make meaning in specific contexts (as captured in the discourse analysis of data) and
- how they see their experience unfolding (as captured in the narrative analysis/composition that made up the portraits)—thus how they learn new literacies within the social context (DiSessa, 2000; Warschauer, 1999).

One of these literacies or competences is critical awareness (Ellul, 1964; Postman, 1993; Warschauer, 1999). The participants in this study showed some awareness of their learning and of the discourse meaning systems that they identified—exemplified in the discomfort with the authority voice of the course and of WebCT. They have thus developed some critical awareness in the sense that they recognised the Western mode and the possible implications of power in the
course, emanating from the dominant discourse. At present we use a tool for e-learning that was designed with the technologically advanced communities of the world in mind. *WebCT* as Course/Content Management System is Amero-centric. The students have said that its language and its icons address the worlds of the middleclass American student and all who have been “Americanised” in this way. There seems to be, therefore emergent conception of the “hidden curriculum” of elearning (Anderson, 2002:13) “which does not exist except as defined by its interpretations in the minds of the students and faculty engaged in the process”.

The six teachers also accentuated in interviews and in the journals, as well as in the discussion postings, that the implications of effective elearning in this part of the world are far reaching. They say that no one needs to be convinced of the urgency of the need for viable VLE’s (and their potential impact on basic issues such as food security and primary health) anywhere in Southern Africa. But they have shown that they were not ready to enter a borderless world and that their basic need in this regard relates to how they see themselves in a virtual environment. We find it significant that before the teachers started to locate the VLE *in their lives* they had to locate *themselves in the VLE*. They were finding ways to name, at a personal and almost metaphysical level, the new epistemological home they were entering. So, before they even thought of locating the technology, they had to redefine their own mental habitat with regard to the technology. This, to our minds, is a major border crossing that is often unrecognised by course designers. And why this is significant is because it indicates that the appropriation of the technology happens first at a highly personal level—much like things happen in one’s home, and that to be ‘at home’ in borderless courses is dependent on more border crossings (learning opportunities) and the support that goes with it. Emergent learning ecologies are by nature bordered terrain and ‘clicks’ by themselves will not lead to ‘being’ in the hyperworld of learning.

The emergent learning ecologies that we have been reporting, with their keystone species, their niches for development, their need for codevelopment and co-evolvement of members, may for the moment be face-to-face systems, but they are the precursors to e-ecologies, just as communities of learning (Pringle, 2002) and of practice (Hung & Nichani, 2002) have been the forerunners to their counterparts in electronic mode. We argue that this would be the beginning for e-learning ecologies in VLEs and that we see no other established way to achieve e-learning communities in this sector of education in the developing world. We also argue that the widely held anticipation that e-learning communities will evolve almost causally from e-learning environments has been an unfulfilled wish. We therefore propose that communities, or ecologies, first be established in small groups in blended learning environments, where trust can be established and the way of the Web can be learned and relied on before the assumptions about community is taken for valid. In this beginning of an ecology we see the seeds of what can become a viable way of doing online learning, especially for recently computer literate learners. It is interesting to note (although we did not examine the data of the more literate students in the class as systematically as the data from the inquiry group), that the other students proceeded in the fashion that has been captured in the literature on e-learning. Their performance was not unlike that of the students that Maeroff (2003) refers to. The threaded discussions, which were graded, revealed how students were grappling with the content and how they strove to design research projects. However, they did not engage more than once per week and also strictly according to the guiding questions that were posed by the course designer. They too, were disturbed in their comfort zone of habitual information gathering and lower levels of cognitive activity. Similar findings were
reported by Henning and Van Rensburg (2002), when they found that the constant communication required by (assessed and graded) discussion posts was a disconcerting experience for the majority of undergraduate students. When computer and e-literate students engage with online learning the medium does not necessarily change their fundamental way of doing and their “frozen epistemologies”.

4. Suggestions for facilitating border crossings

It is this theme that has led us to argue that the new epistemological tools that adult learners in this type of context need can only be made if there is a sufficiently accepting and supporting social ecology. That is also why we argue for a gradual process of initiation into the ways of “doing VLE” for such learners—for a gradual identification and crossing of learning borders. They cannot “breathe through American lungs” as Thanyani said.

And to this end we forward a number of suggestions for the design of first time e-learning courses for adult learners in this type of context. They are very simple and they are geared for the cultivation of learning ecologies in which the culture of learning involves a stronger blend of the familiar social environment and the virtual environment.

Firstly, the life world of the students needs to be linked to the tools, signs and symbols of the e-world. For example, the discourse of the hyperworld can be linked to a local, social, or even educational discourse. Instead of having “discussion postings” (one of the least successful components of online courses some of us have introduced) these communications can be named in a local language, with English equivalents. The format of discussions can be adapted as well. The linear “thread” of the discussions assumes a specific logic and cognitive style or proclivity. Many students have said to us over the years that they would like to do a more messy discussion and sometimes create some ‘chaos’. Also, visual material, icons, sounds, even a simple term like “click” could, to start with, be replaced by a local word/sign too (Henning & Van der Westhuizen, 2001). The discussion tool can be applied in innovative ways that need not assume the same logical thread.

Secondly, initial tutoring, when the ecology is still in its genesis phase, needs to be focused on the students’ lives, rather than course content. In other words, the initial “course content” needs to also be a “getting to know you” and “getting to know myself in this space” (the new “home”), before the links to the Infobahn are introduced. We suggest that much more is made of the opportunity to hyperlink to each other and to establish emergent personal Web pages instead of using class email facilities and discussions. A personal Web page has an “address” and this signifies that the learner has indeed “moved house”—has relocated to a place on the Internet, where millions of other people also “live”—but where the individual has a personal space from which to venture.

Thirdly, after having learned the basic skills of ‘working the hyperworld’, and after having acquired a personal “page” (home), or homepage, design logic for the rest of the course can be established. We would rather see students establishing the “move” first—settling in at the new address and making the crossing—and then exploring the neighbourhood, which does not yet include major hyperlinking at first. We propose a first learning unit that represents a philosophy of “less is more” with secure pathways and specific signs and criteria for achievement and for
self-assessment. They will communicate about themselves and their ‘move’ experience and will set up their house/homepage with the help of instructors/tutors and visit each other before they explore. This means that the ubiquitous discussion postings become less important. We have found that organic networking and the development of a more ‘e-natural’ ecology suits the learners in this context far better.

Does this mean that very little course content is introduced? Our answer would be a tentative “yes”. After the first learning unit progress can be made according to the learners’ growing awareness and competence. The curriculum design would therefore never be more than ‘emergent’ and the ‘packaged course’ would not be made available at the outset, because it is bound to change. The design logic would be evident, however. The indicator of success of implementation of the course would be the type of ecology that is cultivated, the way the distributed cognition system/network evolves and how learners act contingently in situated cognition mode. More than anything, the logic would display a design awareness that invites a sense of the activity more than a collection of disparate actions and operations in isolation. And in the case of this type of group, the activity would be to “move to the hyperworld”, with some of the belongings needed to traverse its spaces.

5. Conclusion: towards and equitable and caring elearning environment

Our conclusion from this narrative inquiry is that, firstly, e-learning cannot assume to serve a homogenous global learning population. We have argued and have also described in the portraits, that knowledge of local ways of doing can become a catalyst for engagement. We also claim that the scaffolding of learning in, first the face-to-face community or ecology, and then the evolving electronic ecology, is not situated only in the instructional design and content of the course, but in the distributed learning and support of immediate members of the learning group. The implications are then that elearning should take the form of blended learning, at least until learners are advanced enough to venture into new global communities.

We consequently propose that many more studies should be conducted on the development of a virtual home and an identity that affords a comfortable locality to the local learner. In this case study and the experience drawn on in the same context, we would argue that the promise of the hyperworld and its learning facilities would dissipate into nothingness without celebrating the local in the global. Our vision of the virtual learning landscape in terms of this type of border crossing is that the ‘home’ from which the learners come should be their bridge to the broader discourse community, and that this scaffold will be the safety mechanism that we found to be essential. In this “home” or learning space, the presence of a trusted peer could be the most significant component of the evolving distributed learning system.

References


