"Deep" learning and computer mediated communication: a case study of on-line teacher education"

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Introduction

In the Centre for English Language Studies at The University of Manchester we run a Master's degree in Educational Technology and English Language Teaching (ELT) which is offered both in distance plus residential (a summer school), or fully distance modes. As part of the programme participants take one module that is run fully on-line. Other modules make use of more traditional distance learning technologies, with on-line support via email.

The module in question is called 'Computers and Video as a Resource' (CVR) and is usually taken as the last of six taught components. The reasons for delivering this module on-line are:

❑ Course participants experience different kinds of computer mediated communication (CmC) as an integral part of their distance learning rather than just reading about them.
❑ Participants can then reflect on their use of CmC and consider how they might be used in their own professional context. We look at issues such as teacher education, testing, research and management.

Transformative education

There is a current trend within education that looks at what added value a course can provide particularly with respect to transferable skills. This has always been an important aspect of the course's philosophy. However, in addition to the skills side of the course we feel that there is something more fundamental. In this paper we argue that the Master's course we offer is "transformative". Our interpretation of transformation matches with that described by Corder et al (1999:103):

> *Employers are seeking graduates with the capacity to be adaptive, adaptable and transformative. To be adaptive graduates must be able to fit into the workplace, work in teams, exhibit good interpersonal skills, communicate well, take responsibilities for an area of work, and perform efficiently and effectively. Adaptable graduates use their own initiative to develop new ideas, and persuade others to accept and develop their own ideas. Additionally the transformative graduate will innovate, inspire others, anticipate and lead changes.*

Our course participants are postgraduates and are mostly in full-time employment when they take CVR. They work for employers such as universities, private language schools or as freelancers. CVR is assessed via an assignment, which consists both of a rationale and a more practical application of the ideas. Assignments are related to a participant's own professional context or one in which they would like to move into. We have extended our course into the virtual world as we are aware that this is increasingly where our participants will be expected to perform and we

give them the opportunity to both learn about and evaluate their experiences in this area. This is one aspect of transformation.

However, as Mezirow (1990:8) states, "Not all learning involves learning to do". Participants on CVR undertake a number of tasks which can be collaborative, or individual, and they are required to report and reflect on these experiences via a dedicated email discussion list and in email journal entries. Critical reflection is a fundamental aspect of transformative learning. Mezirow (1990:xii) defines transformative learning as:

> *The process of learning through critical self reflection, which results in the reformulation of a meaning perspective to allow a more inclusive, discriminating, and integrative understanding of one's experience. Learning includes acting on these insights.*

Wetzel et al (2000:16), paraphrasing Cranton, illustrate what is meant by "acting on these insights":

> *... critical reflection can lead to transformations in teaching practice, what Cranton (1996) calls transformative learning. Transformative learning occurs when there is revision of basic assumptions, beliefs, or perspectives. Thus, for example, when a teacher revises her teaching perspective to incorporate a problem solving orientation rather than merely teaching an array of isolated algorithms in mathematics, she demonstrates transformative learning.*

"Deep" learning

With the emphasis being on reflection, we wanted to look further at the kind of transformation that had occurred and evidence of what Toohey (1999:9) calls a "deep approach" to engagement with the material.

We argue that "deep" learning means going beyond the basic input from the module and looking beyond the discussion that occurs on the email list. The participants are encouraged to read widely around the module themes and to make links between the ideas that are presented, their own ideas and ideas that are expressed within the literature. In order to receive a high grade on an assignment participants are expect to show a high level of critical analysis and awareness, to have a broad knowledge of relevant literature and to present their ideas in a cohesive and coherent way.

The role of CmC

Although we were looking for evidence through journals and the final assignments, we were also interested in the way that CmC can have an impact on the development of deep thinking about ideas. This idea of a deeper understanding of issues coming from work in an asynchronous environment comes from studies and reports by writers such as Harasim et al (1985) and Mason & Kaye (1989) amongst others. They suggest that if participants are engaged in writing, rather than talking, they are able to attain a higher level of analysis of ideas. There are a number of reasons why this might be the case:

- □ students have more time to think about the responses;
- □ they are able to engage with developing arguments;
- □ they have time to follow up references and read literature, so that responses can be more detailed and argumentative;

- more of the group are able to participate in interactions;
- contributions can be seen as being more objective and anonymous;
- there is a group record of the debate that can be used as an accurate reference at a later date (such as the assignment stage).

In earlier work by Motteram (under consideration) and Teague (1999) we explore the nature of the relationship between synchronous and asynchronous communication and argue that there is research evidence to show that both synchronous and asynchronous communication have distinct roles to play in on-line distance education. This paper takes these ideas further.

The students

This summary paper focuses on the experiences of one participant who was part of an initial cohort of 16 registered on CVR. In the full conference paper we present two case studies from this cohort. These were selected because they began this module with differing skills and experience in terms of using new technologies and in terms of distance education.

The first participant, K, defined herself as an "internaut novice" at the start of the module as she had only used email for a year and had no prior experience of email discussion lists. However, she was familiar with synchronous communication in distance education as she had teleconferencing as a distance tutor. She had also completed two modules at CELSE in distance mode. The case study featuring K will be presented in the full conference paper.

The second case study featured S, who was also new to all but email in terms of the CmC tools used to deliver this module. CVR was his first experiences of distance education as he had completed his previous modules as a local part-time student. Because S lived locally to the university he was also in touch with the tutors by phone and in person and had a number of meetings during the year to discuss the module and the assignment. S is featured in this summary paper.

Transformative education

As we considered the data certain patterns emerged which could be related to the literature on transformative education. In order to highlight these patterns we have divided the main features of transformative education into a series of five inter-linked parts in the following table:

A transformative education scale

1.	Getting an overview	1.	Read input materials (new ideas), become acquainted with new ideas and new skills. Reflect on these in terms of own experiences.
2.	Supported knowledge and skills development	2.	Try out new skills with support from tutors. Discuss ideas with peers and tutors on-line, reflect on new experiences & progress with further reading.
3.	Gaining independence	3.	Try out new ideas in own professional context. Discuss these ideas with work colleagues.

4.	Going it alone	4.	Establish a personal view and become confident with new skills.
5.	Transferring knowledge and skills to others	5.	Innovate & inspire others to change ideas

The key research questions in our minds were therefore twofold:

- Did transformative education take place as part of the module?
- Was "deep learning" taking place?

The following case study uses the five level scale of transformative education with extracts from the research data to support our affirmative answers to these research questions. In the full conference paper we also include the second case study.

Case study 1: S

During the module S demonstrated that he was developing new skills and reading the input materials. He was beginning on the transformative education scale and his reading at this level fed into his assignment. After each synchronous meeting students were asked for their reflections on the meeting. In this particular instance the synchronous CmC telecommunications tool was a Multi-user Object Orientated environment (MOO) called SchMOOze. In this environment participants communicated via the WWW by writing text messages. In reply to the tutor's message entitled 'How was it for you?', S gave the following reply:

Dear Joanna

In short it was frustrating!!!!!!
I think 2 things were happening.
1) For some reason still unknown to me I got into the MOO only to be thrown out seconds later. It was embarrassing to see "S is trying to enter the room" so many times.
2) This was my fault as once I got in I forgot how to encode the messages. I tried these( ) and < > and { } and [ ] and finally " ". By the time I rediscovered the correct method everyone bar Gary, C and yourself had left.

Lessons learnt:
- make a note of how to enter SchMOOze
- Make a note of how to send messages

Bye S

However, this frustration did not deter S from using SchMOOze again. Instead, he soon mastered the skills for MOOing and later used his experiences of learning to use CmC software as a starting point for co-operative work with the other course participants on the module. As part of the module units, course participants were asked to design a questionnaire for others on CVR. S's reflections on his own frustrating experiences of learning to use CmC software were apparent in his questionnaire as he asked participants to describe what they liked and disliked about the different CmC environments:

'On MD 636 we have used three different environments for real time meetings. This questionnaire will try to evaluate your responses to using these.

...4) The third meeting area we used was the CELSE room at SchMOOze University. What was your impression of the CELSE room at SchMOOze University? (http://schmooze.hunter.cuny.edu.8888/) What did you like/dislike about it? 5) Some of us had difficulty (technical and other) 'getting into' the on-line meeting rooms. Can you recall which rooms you had the most difficulty gaining access to and why? 6) How did you feel when you could not gain access? 7) Once you were in the meeting room and you could see one of your virtual peers struggling to get in. Did you feel for them? What feelings/emotions did you have?

The results from this questionnaire provided S with answers he could use to compare with his own and this clearly contributed to his thoughts on the potential of CmC in his professional context. His assignment described how he was later to compare the different packages in order to select one for working with his work colleagues.

S developed his skills and interest in using synchronous CmC during the module and when he reached the module assignment stage he was interested in looking into the possibilities of MOOing in greater depth. It is at this stage we can see that the reading, reflection and on-line communication with the other students on the module facilitated his progress as he moved from the early levels of the transformative education scale to the third level.

S assessed different synchronous CmC packages and introduced SchMOOze to his colleagues. He designed and managed a small research project with his colleagues in order to investigate how synchronous CmC could be used effectively for place-flexible staff meetings. This move into using different ways of working with his colleagues can be seen as both innovative and inspirational. He stated on the email discussion list:

> '...I am also using email as a means of communicating with colleagues in other colleges and I have cascaded information to other members of the ESOL team.'

This project formed the empirical element to his module assignment. In the conclusions to this assignment he described not only how the findings from his research indicated how CmC might be best used in his professional context, but he also indicated how this project was likely to grow in the future:

> The main benefits of continuing the on-line meetings [with my colleagues] at the present time are related to training and confidence building. There are two possible future benefits. [...] The second and more important benefit identified in the [post MOO] interviews is to use these meetings as a springboard to conduct on-line meetings with other Trinity College Centres. On-line meetings then, would be more useful in formal rather then informal meetings. These will also help us to share good practice as well as save travel time and money.

We can see S working at two parallel levels. He has gone beyond learning about effective CmC to transferring his newly learned skills to others. The confidence building may relate both to his colleagues and to himself.

In the post-module interview S described how this project had led to a number of projects where he now had a 'finger in many pies'. He felt he was beginning to create a professional niche for himself as more and more colleagues identified him as the person to ask when it came to CmC projects. This, he felt, would not have happened if he had not taken this module. The exciting list of further developments included the following:

- Firstly, his assignment project captured the imagination of his work colleagues and was to be presented at the next international meeting of Trinity Colleges in order to explore larger scale development.
- Secondly, the language learners' email project, which S had described earlier in the module, had developed into a project with funding from the Further Education Development Agency (FEDA).
- Thirdly, it seemed that this could be developed into an international project in the future. S was still in email contact with one of the module participants who was based in Portugal and they were both interested in starting an international e-pal link between their language learners.

The development in S's professional context were exciting and encouraging. Within a month of completing the module there was already evidence that S had progressed through the scale of transformative education and was happy about having done so. In the post-module interview he stated:

'..Its great, it's really taken off, [...] Its because I've learned so much in such a short time its like a really steep learning curve. Its like when we get [English language] 'beginners' come, you know, we get a lot of asylum seekers at the moment. No English, you know, and within weeks they're having basic conversations and I think its the same with me, I've just learned such a lot and it works! Its working! And I'm enjoying it, really enjoying it!'

Conclusions

This research demonstrates that course participants are engaging with the material and ideas presented in this module in a deep and meaningful way. It demonstrates the validity of on-line education for practitioners such as those in ELT who are able to learn new skills an ideas, relate them to their own context and then reflect on these experiences in terms of the literature and their deeper thinking. They have clearly gained new knowledge from their experience in the on-line environment and have gone far beyond the basic facts to a level where they are beginning to make use of both knowledge and skills within their own professional context. We suggest that this does not always happen in the full-time face-to-face environment as ELT participants are less likely to have the time and access to their professional context to progress through the five levels of the transformative education scale as they progress through their module. We can show that it is clearly possible to run an on-line module that takes the participants well beyond a basic knowledge and skills level and transforms them in a positive and effective way. We feel that in the context of this module we can say that we witnessed on-line transformative education.

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