

## A Didactical Design Perspective on Teacher Presence in an International Online Learning Community

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### Abstract

This paper is based on a study of the student learning experience in a particular module of an international Masters programme that included a large element of online learning. It builds on earlier work which highlighted the importance of design and development of social infrastructure for supporting the development of an online learning community by revisiting the data from the perspective of a didactical design framework. The overall aims of this study are to consider how, as teachers, we designed and developed teacher presence and how this was achieved in practice from the design of teaching-studying-learning processes through development to interaction in the online learning community.

**Keywords:** Online learning community; didactical design; social infrastructure; social presence; teacher presence

### Introduction

The background context for the research study reported on in this paper is the international MSc *e-Learning Multimedia and Consultancy* that was developed through international co-operation arising from the Thematic Network for Teacher Education in Europe (TNTEE)<sup>1</sup> between the University of Oulu, Hogeschool van Arnhem en Nijmegen (HAN University) in the Netherlands and Sheffield Hallam University in the UK<sup>2</sup>. Subsequently it was the basis of an active and ongoing partnership between HAN University and Sheffield Hallam University. The design of the programme as a whole was framed within a didactical framework for student-centred technology supported learning as captured in Figure 1 and discussed more fully in Hudson et al. (2006b)

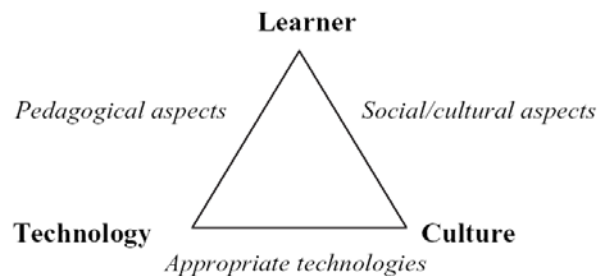


Figure 1: Didactical framework for technology supported student centred learning

<sup>1</sup> Thematic Network for Teacher Education in Europe (TNTEE) [WWW document] URL <http://tntee.umu.se> (Visited on 30 September 2008)

<sup>2</sup> In particular through EC Socrates-Erasmus Advanced Curriculum Development Masters in Multimedia Education and Consultancy (MMM) Project (1998-2001)

The pedagogical, technological and social/cultural aspects of the didactical triad were reflected in the structure of the three core modules of the programme i.e. Open and Flexible Learning, Digital Media Applications and Communication, Consultancy and Change. These core foundation modules were developed within a Masters framework which included a module on Research Methodologies, a work based learning module (Project Studies) and a final integrative research study (Dissertation) as shown in Figure 2.

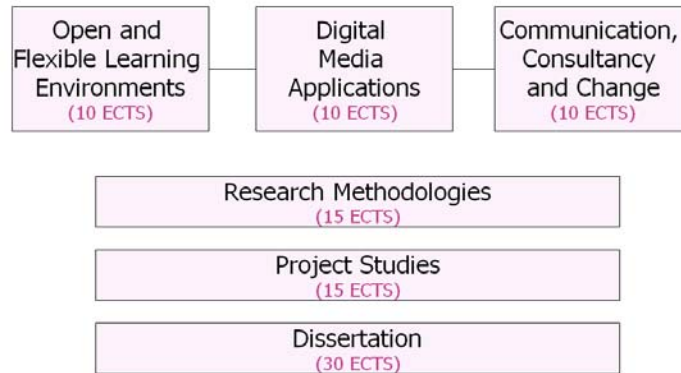


Figure 2: Structure of the MSc programme

The design of the foundation modules and the overall pedagogical approach was strongly influenced by work carried out at the Research Unit on Educational Technology at the University of Oulu. This involved the development of the technical platform which was based on constructivist learning principles and developed as part of the T3: Telematics for Teacher Training project of the EC Telematics programme (1996-98). It also involved the adaptation of the pedagogical model developed in a joint course between the University of Oulu and the University of Massachusetts Lowell, USA which is documented in LeBaron e. al. (2000). This course was seen to be ‘among the first electronically networked, academic courses formally cross-credited between Finnish and American universities’ LeBaron et al. (ibid). At the planning and design stage of the programme, considerable emphasis was placed on enabling collaborative activity in international teams. In relation to this aspect we shared the general perspective offered by Lehtinen et al. (1999) on collaboration that involves the mutual engagement of participants in a co-ordinated effort towards mutual problem solving.

The study reported on in this paper focuses on the experience in a particular module of the programme entitled *Research Methodologies in Education and Training* that took place during the second semester of 2002-03. This module involved fourteen students working together, based at the two local study centres in Nijmegen and Sheffield, together with two students based in Brussels, one working at a school in Linz and another in Kimberley, South Africa. It builds on work published earlier by Hudson et al. (2006a and 2006b) and Owen at al. (2006) which focussed mainly on the student learning experience. In contrast this study aims to illuminate teacher presence in these processes by revisiting the data presented in Hudson (2006a) from the perspective of a didactical

design framework which has been elaborated more recently in Hudson (2008a and 2008b).

The initial analysis of this data highlighted the importance of a number of key aspects for the development of the online learning community. A particularly striking aspect of the feedback from students was the overall response to those questions which focussed on the affective dimensions of the experience. All the students felt a sense of belonging to the learning community, that they succeeded in the module and that the atmosphere of the learning community promoted their learning.

### **Aims of this study**

In this paper, I revisit the data with the particular aims to consider how we designed and developed teacher presence and how this was achieved in practice from the design of teaching-studying-learning processes through development to interaction in the online learning community.

### **Research Questions**

Accordingly the key research questions which this paper aims to address are:

1. In what ways was teacher presence evident as a consequence of the initial stages of the design and development process of the course of study?
2. In what ways was teacher presence enacted in practice during the interaction phase in the online learning community?

### **Conceptual Framework**

The findings from the initial data analysis were found to resonate with those arising from the work of Bielaczyc (2001) who argues that one of the key factors in the successful implementation of computer supported collaborative learning is the need for the design and development of an appropriate 'social infrastructure'. Such infrastructure is seen firstly in relation to the philosophy and norms established between teachers and students, secondly in relation to activities carried out through social practices and thirdly in relation to the tools provided through the use of the technology. Resonance was also found with the idea of 'social presence' which relates to the ability of participants in a community of inquiry to project themselves socially and emotionally (Garrison and Anderson, 2003) which is returned to later in the discussion.

Particular consideration is given to the idea of 'teacher presence' by Hult et al. (2005) in their study of Net-based adult education courses. Drawing on Vygotsky, they use the terms 'invisible' and 'absent' presence of the teacher. In doing so also they draw attention to the view of authors such as Salmon (2000) that the words teacher and teaching 'are unfashionable in the learning society' (Hult et al., 2005:1). The focus of their study is on the 'invisible presence' of the teacher and they note that for the majority of students in their study the teachers' importance lies in the way that they validate and legitimate students' efforts. They also highlight three particular orientations towards

teaching, which they describe as an activity orientation to stimulate learning, a conference orientation to sustain learning and a validation orientation to corroborate learning.

In contrast to Salmon (ibid) a teaching perspective is seen to be a necessary starting point in the development of student-centred technology supported learning. From this perspective teaching is seen to be ‘a dynamic endeavour involving all the analogies, metaphors, and images that build bridges between the teacher’s understanding and the student’s learning’ (Boyer 1990, pp. 23-24) and at its best teaching is seen to go beyond simply transmitting knowledge to ‘transforming and extending it’ (Boyer 1990).

In Hudson (2007) I describe the way in which the study of Didaktik over recent years has given fresh perspectives on a number of issues related to teaching and learning; in particular, I relate these to five themes: meaning and intentionality, attention to studying, recognising and holding complexity, tools for holding complexity, and the role of the teacher. Accordingly the consideration of these aspects gave rise to the development of an integrative didactical framework which takes account of the pedagogical, technological and cultural aspects of development (Hudson, 2008a). In particular it focuses on the design of teaching-studying-learning processes as the central role of the teacher in the promotion of student-centred learning processes (figure 2).

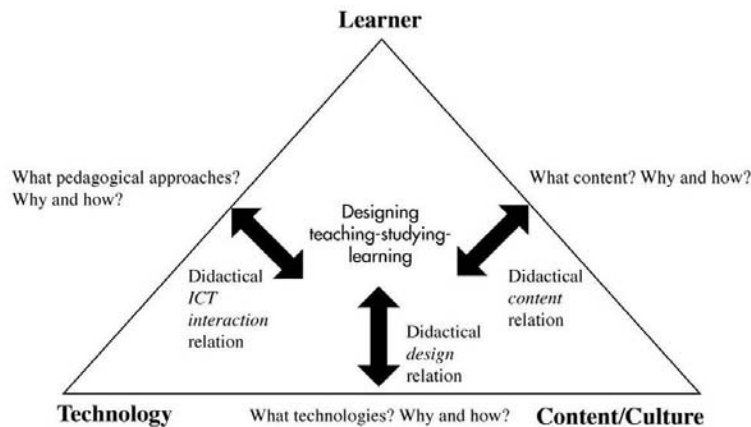
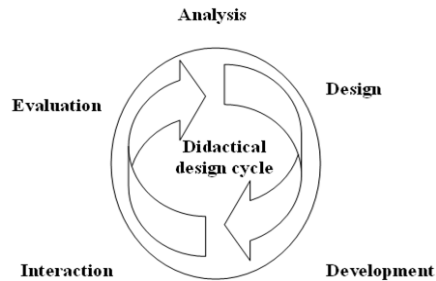


Figure 2: Didactical design for technology supported learning

So in thinking about the relationship between teacher, content and student, this can be considered as a didactical content relation that gives rise to the traditional didactical questions of what content, why and how in a wider context of the use of technology. The introduction of technology (ICT and media) into the picture highlights the didactical design relation when considering the relation between content and technology, giving rise to questions about what technologies, why and how? When considering the relation between the student and technology the focus shifts to the use of ICT and media i.e. a didactical interaction relation. The central role for the teacher at the core of the teaching-studying-learning processes is seen in overall terms as the design of teaching situations, pedagogical activities (studying) and learning environments.

### *The Didactical Design process*

Accordingly the process of Didactical Design has been developed as an adaptation of the traditional Instructional Design model in the form of a cyclical process of Analysis, Design, Development, Interaction and Evaluation leading through to a subsequent process of re-design, by using and expanding Wolfgang Klafki's process of Didaktik Analysis (Klafki, 1998).



*Figure 3: Didactical design process*

This process is based on identifying some of the key questions at each phase as follows:

#### *Analysis phase:*

- What wider or general sense or reality do these contents exemplify and open up for the learner? What basic phenomenon or fundamental principle, what law, criterion, problem, method, technique or attitude can be grasped by dealing with this content as an 'example'?
- What significance does the content in question or the experience, knowledge, ability or skill to be acquired through this topic already possess in the minds of the learners? What significance should it have from a pedagogical point of view?
- What constitutes the topic's significance for the learners' future?

#### *Design phase:*

- What is the structure of the content which has been placed into a specifically pedagogical perspective by questions 1, 2 and 3?
- What are the special cases, phenomena, situations, experiments, persons, elements of aesthetic experience, and so forth, in terms of which the structure of the content in question can become interesting, stimulating, approachable, conceivable, or vivid for learners?
- What teaching situations, pedagogical activities and learning environments are to be designed?

#### *Development phase:*

- What are the potential roles for ICT and media in terms of designing teaching situations, pedagogical activities and learning environments?
- What materials and resources are to be developed to support the creation of teaching situations, pedagogical activities and learning environments?
- What is the role of the teacher?

*Interaction phase:*

- How will the students interact with the technology, with the teacher and with each other?
- How will the students demonstrate their achievement of intended learning outcomes?

*Evaluation phase:*

- How will the students evaluate what they have learned in a formative way? How will this activity be recorded? How does this aspect relate to formal processes of summative assessment, examination and accreditation?
- How will the quality of the teaching situations, pedagogical activities and learning environments to be evaluated?
- How will the quality of the student learning experience to be evaluated?

## **Research Methodology**

The initial analysis of the data from the earlier study (Hudson et al., 2006a) aimed to illuminate the student learning experience in their own course of study. However in aiming to address questions in relation to teacher presence a need for another conceptual framework or set of lenses became apparent. This process can be seen as part of a process of 'constructive method synthesis' as discussed in Hudson (2003). This idea originates from the work of Klafki (1998) who argues that research which is intended to support pedagogical practice needs to be based on a combination of methods and methodologies. In doing so he proposes the following three method groups/methodologies and warns that the synthesis of these is not a simple addition:

- historical-hermeneutical methods
- empirical methods, and
- methods of social analysis and ideology critique.

A fundamental assumption is that each method group/methodology will involve the researcher being confronted by preconditions or limits that can only be overcome with the help of the other approaches. Thus when the knowledge that can be acquired through using a particular method has reached its limits then this process as a whole can only be further advanced through a process of constructive method synthesis.

With regard to the first method group in particular, the use of historical-hermeneutic methods is intended to clarify and decode meaningful phenomena in a scientific manner. Furthermore all problems of *Didaktik* are seen to be set within the context of educational history which in turn is set within the wider context of social history. It is also recognised that such problems often have an international perspective and that this applies whether or not those who are involved are aware of this fact or not, whether they are curriculum developers, teachers or students.

The didactical meanings and the intentions and purposes for teaching and learning are also seen to involve ideas concerning the meaning of human life itself. These include the philosophical and ethical preconditions underpinning the relationship between the individual and society and the significance of childhood and adolescence in the process. From such a perspective this historical-hermeneutic approach aims to clarify the sense of decisions, developments, discussions, mechanisms in or relevant to *Didaktik*. This involves the analysis of the hidden historical conditions, the concepts of future and the philosophical implications. The aim is to make them intersubjectively verifiable, open to discussion and in turn help curriculum planners, teachers and also the student to become aware of what really lies in and behind their decisions, deliberations and actions. The process of didactical design reflects didactical intentions and purposes for teaching and learning and as such can be seen to be a part of such ‘hidden historical conditions’ as the concept of the ‘invisible presence’ of the teacher (Hult et al., 2005) captures so well.

### The specific context for the study

The *Research Methodologies in Education and Training* module aimed to promote a critical understanding of various paradigms and methodologies in the conduct of educational research, in preparation for undertaking independent research for the students’ dissertations. The teaching-studying-learning experience was structured around three strands which ran through the entire module, all of which contributed to the summative assessment of the module as a whole: These were:

1. Active participation through discussion and collaboration
2. The critical analysis of a published refereed journal article leading to Assignment 1: A Critical Analysis.
3. The process of research planning leading to Assignment 2: A Research Proposal.

Each strand was an essential element of the whole. The aims of the active participation component included setting the context and content of educational research and also providing the scaffolding and support for the ongoing development of the other two elements. The module was based within the Blackboard platform that was supported by Sheffield Hallam University.



Figure 4: The technical platform for the module in Blackboard

## **Approach to the design of teaching-studying-learning processes**

The module started at the end of January 2003 and spanned 18 weeks of which at least two weeks were holiday weeks in both centres. The first assignment, involving the critical analysis of a published research paper, was due to be submitted after 12 weeks and the second assignment, involving the development of a research proposal, was to be submitted at the end the module. The online communication, interaction and collaboration was scaffolded via the design of a number of activities which consisted of:

- Discussion Fora in response to set Reading Tasks
- Discussion Topics in response to reflections on prior experience
- Group Activities

The discussion topics included responses to the questions ‘What is educational research?’ and ‘What makes a significant research question?’, and also a response to a photograph in relation to data analysis and interpretation. The photograph that was used as the basis of the activity is entitled ‘Gun Law’ by John Gaps and is reproduced in Brown and Dowling (1998: 85). The activity was divided into two stages with the students being asked in the first stage to reflect on the photograph and to simply analyse the image and to offer individual ‘readings’ or interpretations of what meaning was conveyed. The photograph was deliberately presented without a title or any description of the background context. These spontaneous responses were posted to the discussion forum, with the request to the students to resist reading other contributions prior to posting their own initial response. The second stage involved reading a short paper on data analysis and interpretation and responding to the questions posed as part of the preparation for the local meetings and associated video conference. In their discussion about quality in analysis, Brown and Dowling (1998: 80) make a useful distinction between information and data by arguing that *data* is *information* that has been read in terms of a theoretical framework or in terms of an analytic structure of some other kind. These aspects were interspersed with discussions based on set readings on the nature of inquiry and research design. In addition there the first group activity involved the critical analysis of a research paper that was conducted in an international group. The second group activity involved the design, trialling and evaluation of a data collection instrument/technique(s) also in international groups. The students were asked to provide peer formative assessment on drafts of both assignments at set times within the module schedule.

## **Methods of data collection**

There were 14 students enrolled on the module made up of 2 females and 12 males of whom 11 completed the student questionnaire at the end of the module (2 female and 9 male respondents). Data was collected from a variety of sources which comprised:

- A questionnaire that was completed online the students at the end of the module.
- A questionnaire at the end of the module completed by each local tutor
- A focus group discussion with all students and tutors via video conference between Sheffield and Nijmegen at the end of the module.



- A focus group discussion between tutors with 2 external examiners associated with each study centre via video conference between Nijmegen and Sheffield at the end of the module.
- An focus group discussion with student representatives, tutors and all module leaders in Nijmegen on completion of the module
- The module statistics collected automatically in the virtual learning environment.
- The dialogue contained in the various discussion fora, with the prior consent of the participating students following a request and associated statement of research ethics.

In addition outcomes of the initial process of data analysis and interpretation were provided to the students for their comments, feedback and validation by submitting a full draft of the paper (Hudson et al., 2006) to the virtual learning environment prior to final publication.

## **Data analysis and interpretation**

The overall statistics collected by the virtual learning environment gave a broad indication of the degree of online communication and interaction with the learning environment by recording the total number of ‘accesses’ by participants. This amounted to over 71500 during the period of the module and represented over 2.6 times as many accesses as the previous module. In fact a small number of students had been unable to maintain progress at the anticipated rate due to sudden and unexpected changes in work patterns. These students reported a sense of ‘being left behind’ by the strong sense of forward momentum within the module.

In response to the questionnaire all the students who responded agreed that they felt as if they belonged to a learning community, that the atmosphere of the learning community promoted their learning and that they had enough support for the studying process. Also all these students felt that they had succeeded in the module. This sense of community was one that was shared by the tutor team. Two did not feel the benefit of peer support and three did not think that international collaboration with fellow students promoted their learning, though all except one student felt that the local study support promoted their learning.

The discussions at the end of the module revealed a number of particularly significant aspects to the module which reinforced the views of the members of tutor team. Accordingly we offered three accounts of particularly significant situations which we described as firstly ‘the interpretation of the photograph’, secondly ‘how to do research’ and thirdly ‘the influences of the researcher’s own perspective (subjectivity and biases)’.

### *Situation 1: Interpretation of photograph*

Regarding the first of these, the most significant aspect of the module which came through from discussions with students and staff and the open responses to the questionnaire was the use of the photograph in relation to the discussion on the theme of

data analysis and interpretation. An early contribution to the discussion forum came from Caroline:

**Current Forum:** Data Analysis and Interpretation Read 35 times  
**Date:** Sun May 4 2003 12:58 pm  
**Author:** Caroline  
**Subject:** Initial interpretations of photo by Caroline

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\* Unspeakable cruelty of human kind  
\* Ironic background presence of the press that is only interested to "shoot" the moment regardless the risk for their own lives  
\* People watching around, they seem that the view of the soldier-victim don't affect them much! (is it because it is a usual site? is it because they try to run away from the action field?)  
\* Foreground: Soldier-victim. The victim is A CHILD!  
The position of the soldier against the victim indicates clear oppression. Memories are rising of past events and recent wars.  
\* It crossed my mind that this photo is possible to come from a movie stand??? (I would like to believe so!)

This contribution produced a number of direct responses. In particular Caroline made reference to the fact that during her vacation in Greece, she observed that the information available from the {then} current war in Iraq was very different to the information received in Holland. She asked where the line should be drawn between getting information to inform public opinion or in simply dramatising events. Also Karl noted that 'Well, after a second look I am quite sure that the soldier does not want to protect this guy. Concerning the question is he dead or not I am not sure ...'. A further thread within the discussion began by Marcus interpreting the photograph as a 'white soldier' physically suppressing the black young man. This led Martin to question Marcus about how he could be sure that the soldier was white and to several further turns in the dialogue. These contributions provide a short account of one aspect of the teaching-studying-learning experience on this module which reflected the strongly *emotional* aspects of a number of the responses, with many contextual factors and underpinning assumptions brought into the frame of reference. In local discussions what was especially interesting, was Matt's own evaluation of his contribution which he had intended as a neutral reading, based on his experience as a police officer. He questioned his own 'neutrality' in the way in which he referred to 'peacekeeping', 'peacekeepers' and also to the stick on the ground as 'the weapon'.

### *Situation 2: How to do research*

The second significant situation related to the discussion which took place at an early stage of the module in response to the first Reading Task on the Nature of Enquiry that focused on research as a systematic, controlled, empirical and critical process.

This episode was initiated by a contribution from Martin:

**Current Forum:** Reading Task 1: The Nature of Enquiry

**Date:** Thu Feb 6 2003 7:36 pm

**Author:** Martin

**Attachment:** [martin - reading task 1.pdf](#) (11462 bytes)

**Subject:** Herman's Reading Task 1

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Ppfff! Heavy stuff this chapter. I learned a lot of new words, both in English and in Dutch!  
In the attachment is my reflection on this chapter.

Reply

In his attachment, Martin wrote:

*'Research is the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena. (Kerlinger.1970)*

I had never thought about such a definition before and like in all definitions there are a few words that are essential. The term critical is very important in my view. You can do a lot of things systematic and controlled, you can have a lot of experience but it is the critical analysis of all the outcomes that makes research worth doing it.'

This prompted the following response from Klaas as a module tutor, which focused attention on the meaning of the term 'critical' and Martin's subsequent reply:

**Current Forum:** Reading Task 1: The Nature of Enquiry

Read 19 times

**Date:** Tue Feb 11 2003 1:30 pm

**Author:** VAN VEEN, Klaas

**Subject:** Re: Martin's Reading Task 1

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Dear Martin,

your reflections on chapter 1 are provoking. Nice! You state that in the definition of Kerlinger only a few words are essential and then you talk about the critical one. But what is critical actually? It is such a common word and every individual will describe him or herself as critical nowadays while others will say you are not critical. It's a vague word, and especially when doing research. I actually would like to argue that the other words are more important when doing research: systematic, controlled, empirical. Why? Simply because this are the characteristics that makes science a science, so to say. You state very nicely that we all do Mouly's five steps in real life, and then you ask, how do we know it is the truth? Well, the truth is hard to find, but we can try to create an agreement on what the truth is, namely by doing our research in a systemic way, controlled as much as possible, and especially empirical. That gives us proof of what the truth might be.

Of course, it is good to be critical (whatever it may be) but to be critical, you need data of which you know that you collected them in a systematic, controlled, empirical way. That concern is also part of a critical attitude, so that we do not construct our beliefs of truth on our own limited, non-systemic, uncontrolled ways of perceiving reality.

Cheers!

Klaas

Reply

The reference to ‘thinking in a different way about research’ was a typical reaction to this reading task as also was the expression of the level of reading difficulty, though this was by no means restricted to the students from the Nijmegen centre.

*Situation 3: The influences of the researcher’s own perspective (subjectivity and biases)*

The third situation was highlighted in a similar way and illuminated the way in which the researcher’s own perspective in terms of subjectivity and biases comes into the frame. This episode was initiated by the following contribution from Jane:

**Current Forum:** Reading Task 1: The Nature of Enquiry Read 24 times  
**Date:** Fri Feb 7 2003 7:08 pm  
**Author:** Jane  
**Subject:** The nature of inquiry - reposted

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Wow! My head is spinning and I feel like I've swallowed a dictionary.

...

In an ideal world, research should be completely neutral and removed from considerations of progress and policy. However in the real world, this is a realistic summary of what research might manage to achieve.

[Reply](#)

This prompted the following response from Klaas, which focused attention on the inherent subjectivity of the research process and on some of the ways of dealing with this methodologically:

**Current Forum:** Reading Task 1: The Nature of Enquiry  
**Date:** Tue Feb 11 2003 1:38 pm  
**Author:** VAN VEEN, Klaas  
**Subject:** Re: The nature of inquiry - reposted

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Dear Jane,

I also think that in an ideal world we still don't have neutral research or something like that, as long as we deal with human beings who always differ in the way they perceive the world, related to the glasses they wear. Also positivistic research, that has a claim to be neutral or more objective, has a very subjective base, namely as chapter 1 states, a certain view on reality and how to explore it. So, I would say, taken into account that subjectivity is inherent in research, a researcher should be open and clear about his or her assumptions and points of view, so that I, as a reader, will know.

Klaas

[Reply](#)

This exchange led to the further dialogue and further questions on ways of dealing with such subjectivity. It involved Klaas in expressing agreement that we all have preconceptions which affect any research we do. He went on to suggest that we should set out our assumptions within our research from the outset and also shared his own difficulty in recognising our preconceptions or assumptions so we can explain them to those who read our work. Furthermore he stressed how pre-conceptions are, by their very nature, things of which we are unaware.

## **Discussion**

The aims of this study have been to consider how we designed and developed teacher presence and how this was achieved in practice from the design of teaching-studying-learning processes through development to interaction in the online learning community. The associated research questions relate to firstly the ways in which teacher presence was evident as a consequence of the initial stages of the design and development process of the course of study and secondly how such presence was enacted in practice during the interaction phase in the online learning community.

*The ways in which teacher presence was evident as a consequence of the initial stages of the design and development process of the course of study*

In relation to the first research question, all the students agreed that the module content met their personal learning goals and that the module activities were challenging and motivating. Furthermore all the students thought that the Reading Tasks and Discussion Topics promoted their learning and all except one student agreed that the Group Activities did so. A variety of aspects were emphasised in the open responses to the question of what most promoted student learning. The most cited aspects were the assessment items and the discussions in the local meetings with over half the students referring to these aspects. The other most cited aspects were to online group work, reading tasks and online discussions. Examples of specific responses in relation to what the tutors did to promote students included: 'the structure of the unit was well thought out' and 'well-planned activities, discussions, and assignments'. All these aspects could be described as evidence of the 'invisible presence' of the teacher and in particular they relate to the 'activity orientation' for stimulating learning as described by Hult et al. (2005).

*How such presence was enacted in practice during the interaction phase in the online learning community*

The responses to the photograph activity outlined in Situation 1 highlighted the strongly *emotional* aspects of a many of these, with many contextual factors and underpinning assumptions brought into the frame of reference. The willingness of the participants to project themselves socially and emotionally in a very full sense can be seen as an example of 'social presence' (Garrison and Anderson, 2003) having been established. In turn this can be seen to have resulted of the design and development of appropriate social infrastructure in relation to philosophy and norms established, to the activities carried out

and to the tools provided through the use of the technology. Whilst the establishment of such social presence had been problematic for this group of students in earlier modules on the programme, this learning experience was a positive one in which such social presence was widespread and very evident. This can also be seen to be the result of a successful didactical design overall and also in relation to the ICT interaction relation in particular. The dialogue outlined in Situation 2 in particular can be seen as an illustration of the importance of tutor providing intellectually challenging feedback to a student i.e. 'But what is critical actually? It is such a common word and every individual will describe him or herself as critical nowadays while others will say you are not critical. It's a vague word ...'. This can also be seen as a form of *scaffolding* (Bruner, 1985). In this particular case the tutor reacted in a very direct way to the student, instead of presenting it in the form of questions for instance, or waiting for or challenging other students to react. The reaction of the student seemed to confirm that it had a positive effect i.e. he understood now why. The apparent success of this tutor-student interaction might be understood as an illustration of the Vygotskian notion of the ZPD (zone of proximal development) (Newman and Holzman, 1993) in practice i.e. the tutor intervention took the answer of the student to another level and this response seems to enable the student to have the feeling that he learned i.e. he understood. This also may be seen as an example of an orientation to sustain learning (Hult et al., 2005). Similarly in Situation 3 Klaas expressed his agreement that we all have preconceptions which affect any research we do and this may be seen as an example of an orientation to corroborate learning (Hult et al., 2005). Examples of specific responses in relation to what the tutors did to promote students also included 'the role of the tutors in giving feedback on drafts' and 'providing motivating feedback'

In relation to the analysis phase of the didactical design process it can be seen through the level of student engagement that questions of significance were opened up in this module. These built on previous experience, especially through the Discussion Topics, related to the development of their present understanding, for example of Reading Tasks, and also raised questions of significance for their future studies as illustrated in some of the dialogue from the discussion fora. With respect to the design phase in particular, the structure of the content was effective in this module through the way in which it combined teaching situations, pedagogical activities and learning environments that provided some special cases and phenomena that can be seen to have become interesting, stimulating, approachable, conceivable, or vivid for learners.

Regarding the development phase roles for ICT and media worked in a variety of ways in relation to teaching situations, pedagogical activities and learning environments? In particular the affordances of the technology provided the necessary preconditions for collaborative activity in the online learning community between students themselves, and also between students and tutors, and ways of supporting this, especially through the discussion fora. Undoubtedly it is the case that the technology provided affordances for international collaboration between both students and tutors on an ongoing basis that would otherwise not be easy to replicate via other media. The asynchronous nature of the discussion gave a degree of flexibility over and beyond that which would be available in a traditional setting. Furthermore the time available for the consideration of the

contributions may have been a key factor in the depth of the issues considered in the ensuing interaction in the online learning community and in the generally high quality of dialogue that took place. Such affordances of the technology can be seen to have provided the preconditions for breaking down the physical and temporal barriers by removing time and space constraints through the use of asynchronous communication which allowed time for reflection in interaction. Furthermore the online discussions can function as a collective memory for the online learning community, by storing the history of the knowledge building processes. With regard to the most significant situation involving the photograph activity, this provided an example of the power of the technology being used to stimulate interest and create the conditions for engagement and dialogue in ways that would otherwise not be easy to replicate via other forms of communication which combined the use of rich media with the ability to communicate across time and space.

Finally with regard to the role of the teacher and teacher presence in the interaction phase, this was complex and multi-faceted. For example the importance of the tutor in providing intellectually challenging feedback to students was highlighted, as was the role in providing *scaffolding* and in taking the role a more capable other in the ZPD. The orientations to both sustain and corroborate learning could be discerned through the role of tutors in giving feedback on draft assignments and also in providing motivating feedback. Another aspect of the invisible presence of the teacher which was not evident in the earlier study relates to the role of summative assessment, especially in relation to the research proposal which could provide an interesting focus for future similar research.

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