



University of HUDDERSFIELD

University of Huddersfield Repository

Keraminiyage, Kaushal, Amaratunga, Dilanthi and Haigh, Richard

Social aspects associated with modern distance learning programmes

Original Citation

Keraminiyage, Kaushal, Amaratunga, Dilanthi and Haigh, Richard (2006) Social aspects associated with modern distance learning programmes. In: CIB W89 International Conference on Building Education and Research (BEAR), 12th April 2006, The Hong Kong Polytechnic University, Hong Kong.. (Unpublished)

This version is available at <http://eprints.hud.ac.uk/22680/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

<http://eprints.hud.ac.uk/>

SOCIAL ASPECTS ASSOCIATED WITH MODERN DISTANCE LEARNING PROGRAMMES

Kaushal Keraminiyage¹, Bingunath Ingirige, Dilanthi Amaratunga

School of Construction and Property Management, Research Institute for the Built and Human Environment, University of Salford, Maxwell Building, Salford M7 1NU, UK

The repositioning of the distance learning as a mode of course delivery is largely backed up by the recent advancements in communication technologies. It is widely visible that the modern Computer Mediated Communication (CMC) tools are being predominantly used within these distance learning environments. Primarily these Computer Mediated Communication tools were often developed with the priority given to address the structural and management issues visible within Distance Learning environments. However, the focus of any teaching or learning mechanism, distance or otherwise, needs to be able to facilitate the learner's actual learning process. Within traditional learning and teaching environments, social aspects of a classroom setting (e.g. guidance and support, body language, feedback, interactions with other learners etc.) are regarded as important learning facilities in addition to the traditional audio and visual communication facilities. However, these social aspects have not received adequate consideration in existing distance learning tools and have initiated a very limited number of discussions within the Distance Learning literature. Further, with specific to construction education, these social aspects may become more desired as the subjects are of a more diversified nature in terms of technological, environmental and management oriented. This paper therefore investigates the case of a DL setting within a construction school in the Higher Education (HE) sector of the UK to identify the extent to which the current Computer Mediated distant learning tools address the wider aspects of supporting a classroom situation during its operation so that appropriate improvements can be made in utilising these tools to deliver construction related distance learning courses.

Keywords: Social aspects of learning, distance learning, construction industry, Computer Mediated Communication.

INTRODUCTION

As demanded by the ever increasing social complexity attached with the recent globalisation trends, the need for time and geographical independent teaching and learning environments has become prominent especially during the last decade of the 20th century. The attempt to address this requirement is largely through electronic communication tools backed up by the modern advancements in communication technologies. Internet based virtual teaching and learning environments are one of the major outcomes of these attempts. Virtual Learning Environments (VLEs) are predominantly used within modern Distance Learning programmes and are based on Computer Mediated Communication (CMC) tools to achieve its desired functionalities. Even though these CMC tools are developed largely to address the functionality and administrative requirements of Distance Learning environments, the actual social issues related to teaching and learning have not received adequate

¹ K.P.Keraminiyage@salford.ac.uk

attention. As an example, most of the CMC based DL tools currently in use are attempting to provide various communication channels between the student and the tutor. These methods vary from simple text based methods to more complex voice and video based interactions. But so far majority of these tools have overlooked the importance of social issues such as how a tutor could address the different levels of learning capabilities between various student groups within a virtual learning environment. This paper discusses this problem in detail, with the intention of identifying the level of awareness regarding this issue within current DL settings and to explore the possible solutions towards this identified problem.

METHODOLOGY

This paper is based on a detailed review of literature in the field of distance learning and on the outcomes of the preliminary interviews conducted. The literature review is based on general distance learning literature as well as construction specific literature to investigate how the aforementioned problem affect the delivery of construction related distance learning courses. Firstly this paper focuses on establishing the concept of Distance Learning within a generic framework and specific to construction education. This is followed by a discussion about the role of CMC based DL tools to present the research problem under investigation with a justification to the same. Within this project it is further proposed to conduct further interviews with DL tutors and learners and detail case studies in the field to compile guidelines for improving social outcomes within CMC mediated DL courses.

WHAT IS DISTANCE LEARNING

As Hellman (2003) pointed out, the concept of Distance Learning was originated with the establishment of the Open University in UK in 1969. This was further connected to the development of the mixed media approach to teaching. Further, the rapid growth of the internet related technologies and increased proficiency in basic skills in basic internet usage had also contributed to the continued expansion of Distance Learning (Lindner, 1999).

Revealing the major milestones of the evolution of DL, Garrison (2000) conducted a detail literature review of the historical perspective of distance learning. According to this review, in early 70's the focus of the distance learning was shifted from 'correspondent study' focus towards an 'independent study' focus. Within the earlier focus the concentration was on the organisational and administrative issues where as the latter has focused on pedagogical assumptions on more educational issues related to the learning at a distance (Wedmeyer,1971). These issues include elements such as communication, pacing, convenience and self determination of goals and activities. This focus shift shows that during its evolution, the distance learning has had alternating considerations about its hard and soft issues. However, it is not clear up to which extent either of these focuses interacts with the social issues of learning. Considering its origination and this focus shift, it is arguable that initially the distance learning might have been considered as outside to the traditional classroom based learning settings from the functional point of view. Due to this reason the importance of social aspect within distance learning environments might have been overlooked at early stages.

At later stages this separation became more visible as Holmberg (1989) brought in a different perspective by arguing that distance education is a friendly conversation

fostered by instructional materials and it is the responsibility of course developers to create this simulated conversation through well-written materials. This definition, implies that distance learning is more of a self learning process (either correspondent study focus or independent study focus) as the role of the teacher is largely reduced to a set of written instructions. Accordingly these views might have overlooked the importance of social issues within these settings as oppose to more traditional classroom based learning environments. On the other hand, Moore (1990) considers that transactional distance is pedagogic and not geographic and need special organisations and teaching procedures. Further the structure and dialogue have been identified as major parameters that vary with the transactional distance. Within this view the most distant program has low dialogue and low structure while the least distant has high dialogue and high structure. Along with these two dimensions, Moore (1990) added the learner autonomy and teacher control as two extremes of another important continuum within distance learning. He defines autonomy of the learners as “the extent to which in a programme the learner determines objectives, implementation procedures and resources and evaluation (Moore, 1990: 13). The polarisation between the two extremes appears to conceptualise autonomy as less a function of personal responsibility and more a function of structure and the learning materials (Ingirige *et al*, 2005).

According to Garrison (2000), a sustained two way communication is the most important aspect of educational experience. This emphasises the fact that maximisation of learner’s autonomy or teachers control will affect the educational experience negatively. Moreover, within this theory it is suggested that the shared control as a mean of minimising learner isolation. As a spin-off, the importance of continuous social aspect from the learner’s perspective is stressed within this theory.

This view has further been enhanced during the early 90’s. As an example, Henri (1992) provided his transaction based psychosocial model which specified the collaborative view of teaching and learning by coding the DL tools to enhance the nature and quality of the aspect. At this point it is very much visible from evolution of above theories that the social aspect has been identified as an important issue to be discussed within distance learning environments.

During the late 90’s and the early part of this century the distance learning was re-positioned within a separate dimension largely due to the rapid growth in the internet related communication technologies. As an example, Peters (2000) focuses on computer mediated communication (CMC) enabled distance learning as a significant improvement in DL. However, his theory took into account that face-to-face discussion can only be reproduced in part and indeed in a reduced form by mediated means. According to Ingirige *et al* (2005), Peters (2000) identifies an important area of needed theory development when he correctly notes the difficulty of replicating face-to-face interaction by mediated means. This further emphasises the fact that there is an alternate focus shift of DL from organisational and administrative (hard) issues to more learner centred educational and learning (soft) issues and visa versa. However, it is visible that during the early 2000’s with the advent of new communication technological developments, the hard DL issues were addressed successfully, but the softer issues have often been overlooked. The next section investigates the various CMC tools that enabled the modern developments in DL with the intention of strengthening the understanding of the above view.

THE ROLE OF CMC TOOLS WITHIN DISTANCE LEARNING: CONSTRUCTION EXPERIENCE

As the previous section argues, importance of the transactional aspect of distance learning is one of the biggest current challenges. This is mainly due to fact that organisational and administrative barriers of DL have become less complicated with the advances in computer mediated communications (CMC) and the Internet as a common meeting place (or space) for the tutors and learners (Ingirige *et al*, 2005). Thus, the focus of this section resides within the case of the particular DL setting in question to investigate how it deals with the transactional and social aspects of DL by using CMC based tools. The discussion here is of twofold. The first part discusses about the CMC based tools in use within a construction school in a UK based university (hereafter referred to as “the school”) and their functionalities with relation to transactional and social aspects of DL. Secondly, the discussion reveals the initial findings of the preliminary interviews conducted with the DL tutors of the school.

Carty (1999) classifies the modes of CMC tools for DL as synchronous (using same time communications), asynchronous (communications that do not require participants to exchange information at the same time), one way (information delivered from one point to one or many other points), two-way (any communication in which the flow is bi-directional but not limited to synchronous), multi-point (information delivered simultaneously from one place to many other places) and multi-cast (usually consisting of transmission of a video or audio clip to the computers of many users). Within these modes, individually or combined Hellman (2003) highlights the significant advantages of DL. Those are;

- greater access to education that it offers, mainly to the ‘non traditional’ student (generally a person who is not able to attend a conventional in-class university course);
- flexibility of scheduling of lectures;
- possibility of proceeding at one’s own pace;
- opportunity to study without having to travel and without leaving home and in the best funded programmes; and
- individualised attention from the instructor.

With these advantages in mind, various tools have been developed with the intention of facilitating DL in both synchronous and asynchronous mechanisms (Wilson and Whitelock, 1997). Moreover, some of the studies about these DL tools have addressed the ability of DL tools to deliver overall learning outcomes has been dealt with to a certain extent by considering student perspectives (See: Wilson and Whitelock, 1997, 1998; Whatley and Bell, 2003). But, despite its importance, the degree to which these tools satisfying social aspects of a classroom setting (e.g. guidance and support, body language, feedback, interactions with other learners etc.) has not received adequate consideration in existing literature (Ingirige *et al* 2005). Stressing the need for this study Whatley (2004:55) mentioned that;

“Students undertaking online courses should be given a similar opportunity (Kolb’s stages of experiential learning) to experience team working, but where face-to-face contact is not possible, technologies may be able to provide additional resources to make the online experience comparable”

The DL setting within a construction school in a University in UK

In addition to the above the same author revealed that the online learners, who rely on Internet connections to communicate, often feel a 'sense of isolation' from the support of others. Further to the above studies, a student satisfaction survey that carried out within a construction school in a University in UK also suggests that a significant number of DL students perceive a gap existing between their experiences compared with experiences of other students who attend full time courses. Further analysis of this 'sense of isolation' suggests that this is connected with the social aspects of learning. On the other hand, this sense of isolation may be related to the nature of the subjects in concern. As the construction is a multidisciplinary industry, the subjects related to construction education are of diversified nature. These subjects vary from technological subjects to environmental and management oriented subjects. Taking these points into consideration, within this paper's scope it is expected to evaluate the distance learning environment within construction HE sector in the UK. We investigate the case of a construction school within a University in the North West of UK in terms of the use of CMC based DL tools and the level of social aspect maintained within.

Blackboard

The school primarily uses two CMC based DL tools, out of which the 'Blackboard' is a tool set hosted university wide. 'Blackboard' is a common CMC based DL tool used as a content management system as well as an online course delivery platform. Thus, it is considered as a Virtual Learning Environment (VLE) for DL. It is worthwhile assessing its functionalities in order to understand how it addresses the hard and soft issues within a DL setting that has been discussed with the previous section, specifically to identify the magnitude of this VLE in terms of support rendered towards the social aspects of DL.

Major functionalities of Blackboard can be categorized as information services, communication services, assessment services and content management services. The information services are basically set of supportive tools from an administrative perspective. This mainly includes an online announcement service where tutors can post announcements to be viewed by students. This facilitates the basic infrastructure desired to ensure smooth implementation of DL courses. Since this has been identified as a primarily function used as an aid for the administration of DL courses, thus less influential towards the social issues of distance learning.

The communication services provide the infrastructure to create the two way communication between the learner and the tutor. Within this category tools such as forums, text based chat services, collaborative tools (virtual class rooms) and email facilities (individual and mass) exist. Even though there are facilities provided to initiate one-way and two-way communications, often the discussions will have to be initiated by the tutors within this environment. Taking the social aspects of traditional communication protocols within a typical learning environment in to consideration, this environment lacks few desirable elements. For an example, the informal private exchange of ideas between learners is a major mode of initiating social aspect. But during the initial interviews with academic staff members who deliver DL courses, it has been revealed that even though this private exchange of ideas can be accomplished by arranging a simple private discussion board for students within Blackboard, the number of instances this has practically being done is in question. This exemplifies, the technological capability may be there to facilitate some of the

social aspects of learning, but mere unawareness or ignorance may degrade the usability of these tools.

Assessment services within Blackboard consist of several tools that help in organising and implementing student assessments. It has two dimensions. Firstly it is important as an administrative tool within a DL environment. Within this dimension, the functions such as “grade book” and “performance dashboard” minimises the administrative burden of student grading records. On the other hand, it provides a technological platform to conduct student assessments within a DL environment. However, it is worthwhile investigating how the actual social issues related to student assessments in a classroom based learning environment is being addressed within this DL environment. Traditionally the close book examinations are the major mode of student assessment within a classroom based learning environment. Within a DL setting, the actual effectiveness of this system is in question as the student cannot be monitored closely during the assessment time. A solution to this problem would be to make assessments accessible only within specific time periods within dedicated examination centres as practiced within examinations such as Microsoft Certified examinations (MSCE, etc). However within the case of the school, this is not in practice yet.

Content Management services within Blackboard are basically file repositories where tutors can upload handouts and other course related documents to be downloaded by students. This again is very much a administrative tool from the tutor’s point of view. On the other hand, this is a useful tool for students as they have an automatic archive of all the lecture handouts in a single place. Compared this with a traditional classroom based system, this may hinder the student interaction with each other up to some extent as it eliminates the necessity of collecting missing lecture handouts from colleagues, which is a common initiative for building social interactions.

Horizonwimba - a web conferencing based system

Mode of communication is a key consideration within current DL settings. In a traditional learning environment, multi modes of communication are available between the tutor and the learner. The major modes are verbal (speech), visual (body language, visual presentations such as posters or computer based presentations) and text based (traditional blackboard or whiteboard based). Within the school’s DL environment, Blackboard is largely depending on the third mode mentioned above. To cater for the need of verbal and visual communication needs the school uses a specialized software known as Horizonwimba. This is a web conferencing based system capable of establishing video and audio based communications between the tutor and the learner. The school utilizes this as its tool to deliver both DL masters programmes and PhD sessions over the Internet. Out of the functionalities available, it uses the voice transfer, application transfer and chatting facilities to ‘transact’ synchronous lectures. Use of the web cam facility is currently being pursued and its effectiveness is currently being explored in comparison with other DL courses conducted elsewhere. One of the problems both tutors and learners encounter in utilising web conferencing is the time that it takes to learn the various functionalities of the tool. Particularly at the school with blackboard and Horizonwimba, the students are invited to participate at free tutorial sessions before their actual online lectures commence to overcome their fears of using the technology (Ingirige *et al*, 2005). Among the problems of this software it is often pointed out various connectivity problems due to the nature of local internet connectivity. For example, applications such as Microsoft PowerPoint slides are transferred at a relatively slower pace than

voice, so that some students complain that the commentary does not run concurrently with the particular slide in question thereby highlighting problems relating to synchronicity (Ingirige *et al*, 2005). Therefore it is important to look at this issue from a social aspect perspective, to safeguard the equal opportunities of learning available to all the students in question. As Ingirige *et al* (2005) pointed out it may be down to the application developers to look at low and high bandwidth availability issues at the user end within CMC based DL tools.

With related to the nature of construction education, the above discussion can be extended to include the lack of support for multidisciplinary subject areas. Often the tools and the functionalities discussed above are of generic nature with out specific concerns about construction specific learning needs. As an example, it may be desirable from the construction education point of view to have a functionality to mimic an architectural drawing board to teach the subjects related to architectural drawings. But the actual requirements may vary from course to course. This requirement is further expected to be investigated as this research progresses.

From the discussion above, it is evident that the advent of modern CMC tools has enabled the DL to be viewed within a technologically sound framework more than ever before, with especial emphasis on minimal administrative burdens to the DL institutions and more conveniently to the students. However, it is still in question whether the essential social aspects of learning have attracted adequate attention within modern DL settings. Especially within the case of the school's DL setting it was evident that this needs further attention. The next section discusses this requirement in detail as a research question for further investigations.

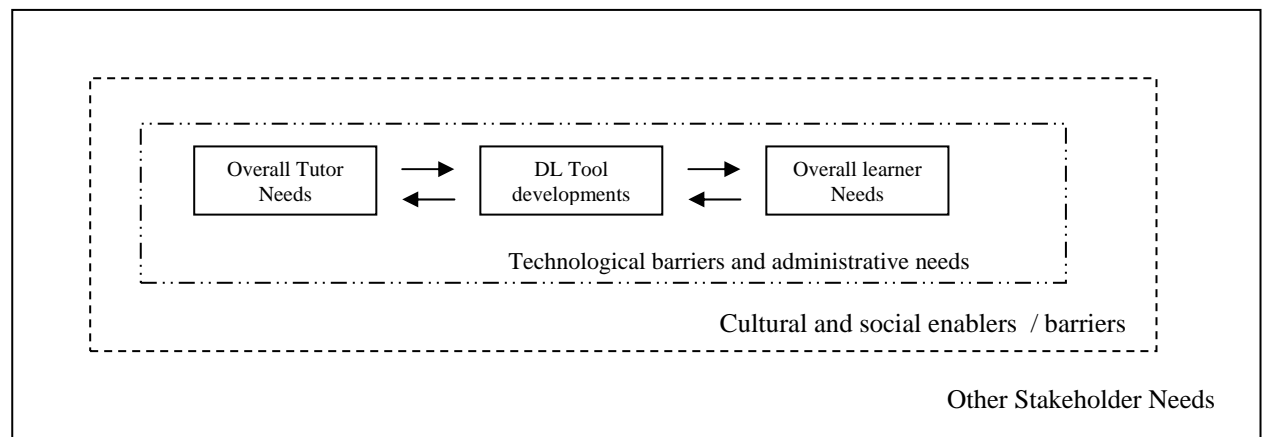
The preliminary results

While investigating the case of the social aspects of the school's DL environment, several preliminary interviews were conducted to collect the DL tutor's perspectives about the issues discussed above. Specifically, the interviews were designed to address four specific dimensions of a Distance Learning environment. The dimensions are:

- Focus on DL setting – e.g. synchronous, asynchronous, time zone problems, cultural barriers, etc.
- Focus on DL tools – e.g. how various functionalities of DL tools cater for learning needs, etc.
- Focus on DL tutors – e.g. Degree of tutor intervention, desirable Vs available functionalities, etc.
- Focus of DL learners- e.g. Degree of lecture personalisation, “sense of isolation”, etc.

For the purpose of this research these four dimensions have been identified as the core elements of a distance learning environment. The interaction of these four focuses was modelled and represented as follows.

Figure 1: The interaction between various focuses of Distance Learning



As the above figure shows, the DL tool developments, tutor needs and learner needs are influenced by each other. Often, within the DL tool developments the tutor and learner needs are influenced by the initial boundary of technological barriers and administrative needs. On the other hand, the overall DL setting is largely influenced by the outermost boundary of stakeholder concerns such as industry specific needs, country specific needs and government policies. However, in between these two boundaries, the boundary of cultural and social enablers and barriers are often overlooked.

Within the focus of the DL settings, the outcome of the interviews shows that there are visible social, cultural and technical barriers to implement synchronous DL courses across dispersed geographical locations. The time zone problems and bandwidth problems are the major barriers within this dimension of DL. The interviewees within the school show a wide variety of knowledge and awareness of various functionalities available within CMC based DL tools in use. The usage of some tools was interpreted differently by some tutors, out of which some practices can closely be mapped to address identified social gaps within DL settings. However, this shows possible increased concern about social issues within a DL setting provided that there is a plan good practice sharing for the use of CMC based DL tools effectively. When viewing from the tutor's and learner's (user's) perspectives, the current tools show a clear gap between desirable and available functions from the social interactions point of view. As mentioned elsewhere within this paper, some simple functionalities such as student private discussion boards may have been helpful to minimise the "sense of isolation" within a DL environment.

CONCLUSION AND THE WAY FORWARD

This paper highlights the findings from literature and initial interviews conducted on the social aspects of modern CMC based DL tools within a construction school. The paper evaluates the case of the school's DL environment with the above objective in mind.

With the advent of modern communication, the Distance Learning has regained its value as a mode of course delivery. With the use of modern CMC based DL tools the structural and organisational issues related to DL have received adequate recognition. On the other hand, despite the emphasised importance of transactional aspect of Distance Learning, the softer issues of learning have often been overlooked. This is very much visible with relation to the social aspects of learning within a DL

environment. With the evaluation of the case of the school's DL setting it is noted that some DL tools may have the capability of addressing some social needs of distance learning, but an extensive awareness and sharing of good practices may be required from the tutor's point of view. It is expected to extend the case study to include several other UK based universities and different CMC based DL tools to identify the ways of improving social aspects of learning within DL settings. Further, it is expected as the outcome of this project to produce good practice guidelines for various CMC based DL tools to increase the social aspects of Distance Learning.

ACKNOWLEDGEMENT

The authors wish to acknowledge funding received from the University of Salford, UK under its Teaching and Learning Quality Improvement Scheme (TLQIS).

REFERENCES AND BIBLIOGRAPHY

- Barrett, E. (2003), "Spirit, Trust, Interaction and Learning: A Case Study of an Online Community of Doctoral Students", *British Educational Research Association Annual Conference, Heriot-Watt University, Edinburgh, 11-13 September 2003*
- Carty, W. (1999), "Distance education in the developing world", *The advising quarterly for professionals in international education*, Summer 1999.
- Dede, C. (1996) "Emerging Technologies in Distance Education for Business." *Journal Of Education For Business*, Volume 71.4, pp197-204.
- Diaz, D.P. and Carnal, R.B. (1999), "Students' learning styles in two classes: online distance learning and equivalent on-campus", *College teaching*, Volume 47 (4), pp 130 – 135.
- Dunn, S. & Ridgway, J. (1991) Computer use during primary school teaching practice: a survey. *Journal of Computer Assisted Learning*, Volume 7, pp 7–17.
- Garrison, G. (2000), "Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues", *International review of research in open and distance learning*, Volume 1.1, pp 1 -17
- Hellman, J.A. (2003), "The riddle of distance education: promise, problems and applications for development", *Technology, business and society programme paper series*, No. 9, United Nations Research Institute for Social Development.
- Henri, F. (1992), "Computer conferencing and content analysis", In A. R. Kaye (ed.) *Collaborative learning through computer conferencing: The Najaden papers*, Berlin: Springer - Verlag
- Holmberg, B. (1989), *Theory and practice of distance education*, London: Routledge
- [Http://www.horizonwimba.com](http://www.horizonwimba.com) (accessed on 3/04/2005)
- [Http://www.moodle.com](http://www.moodle.com) (accessed on 25/05/05)
- [Http://www.bodington.org](http://www.bodington.org) (accessed on 25/05/05)
- Ingirige, M.J.B. (2004), "A study of knowledge sharing in construction alliances", Unpublished PhD thesis, University of Salford (November 2004)
- Ingirige, M.J.B., Amaratunga, R.D.G., Keraminiyage, K.P. and Baldry, D (2005) "Leveraging distance learning tools for broadbasing education in construction industry disciplines: The importance of a continuous social aspect", proceedings of 3rd CIB international symposium, Brisbane.
- Katz, Y.J. (2000), "Attitudes affecting college students' preferences for distance learning", *Journal of computer assisted learning*, Vol. 18, pp 2-9.

- Kolb, D. (1984), “*Experiential learning*”, London: Prentice Hall.
- Lee, J.S, Cho, H., Gay, G., Davidson, B. and Ingraffea, A. (2003), “Technology acceptance and social networking in distance learning, *Educational technology and society*, Vol. 6.2, pp 50-61.
- Lewis, T., Gould, M. *et al* (1997), “Computer conferencing and the continuing professional development of teachers in the post – 16 sector”, in Field, J. (Ed.) *Electronic pathways: adult learning and the new communication technologies*, England: NIACE.
- Lindner, J.R. (1999), “Usage and impact of the Internet for Appalachian chambers of commerce”, *Journal of applied communications*, Vol. 83.1, pp 42-52.
- Mason, R. (1994), “Using communications media in open and flexible learning”, London: Kogan page.
- Mathews, D. (1999), “The origins of distance education and its use in the United States”, *T.H.E Journal*, September 1999.
- Moore, M. (1990), “Recent contributions to the theory of distance education”, *Open learning*, Volume 5.3, pp 10 - 15
- Peters, O. (2000), “The transformation of the university into an institution of independent learning. In T. Evans and D. nation (Eds.), *Changing University teaching: Reflections on creating educational technologies*, pp 10 – 23.
- Rahm, D. and Reid, B. J. (2004), “Tangled webs in public administration: organizational issues in distance learning”, PAMIJ
- Wedmeyer, C. A. (1971), “Independent study. In R. Deighton (Ed.), *Encyclopedia of Education IV*, New York, McMillan, pp 7 - 22
- Whatley, J. (2004), “An agent system to support student teams working online”, *Journal of information technology education*, Vol. 3, pp 53 – 63.
- Whatley, J. and Bell, F. (2003), “Discussion across borders: benefits for collaborative learning”, *Education media international*, Vol 40.1, pp 139-152.
- Wilson, T. and Whitelock, D. (1997), “Monitoring a CMC environment created for distance learning”, *Journal of Computer Assisted Learning*, Vol. 13.4, pp 253 – 260.
- Wilson, T. and Whitelock, D. (1998), “Monitoring the online behaviour of online learning students”, *Journal of computer assisted learning*, volume 14, pp 91-99.
- Vince, H and Ronnie, D. (2005) “Our first time: two higher education tutors reflect on becoming a ‘virtual teacher’” *Innovations in Education and Teaching International* Vol. 42, No. 3, pp. 257–264