



Online learning dialogues in learning through work

Online learning dialogues in LtW

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Abstract

Purpose – The aim of this paper is to describe a study of online, asynchronous dialogues between tutors and nine work-based postgraduate learners on learning through work (LtW) programmes.

Design/methodology/approach – Adopting a constructivist perspective and using a qualitative approach, 670 messages were segmented into semantic units and categorised by activity and content. Analysis borrowed from content and discourse approaches and categories were grounded in the data.

Findings – Online exchanges were found to mirror those of effective face-to-face learning encounters. Learners asked questions, reported on their progress and plans, sought and gave feedback, and disclosed personal information and feelings. Tutors gave direct answers, advised and made suggestions, explained and elaborated, offered signposting and referral and provided feedback. Dialogue content was categorised as administrative/organisational, technical, affective, social, academic or relating to programme design.

Research limitations/implications – Learners embarking on undergraduate level study may raise different issues from those working at postgraduate level.

Practical implications – The individual categories and the framework as a whole may help new online tutors to anticipate and prepare for their role.

Originality/value – The study is unusual in focusing on one-to-one online dialogues between university tutors and work-based learners. The unique contribution is a hierarchical analytical framework of dialogue topics in which “hard” and “soft” topics underpin academic dialogue.

Keywords Learning, Workplace learning, Distance learning, Computer based learning, E-learning

Paper type Research paper

Introduction

With notable exceptions (Bennett and Marsh, 2002; Stephenson, 2003; Macpherson *et al.*, 2005), research into the application of computer-mediated learning (CML) to the workplace is relatively modest, although interest in the topic is evidenced by this journal's recent special issue on e-learning (volume 17, issue 5/6, 2005). More commonly CML is studied in the context of higher education (HE) where attention has been paid to the use of CML in fully online (Teles *et al.*, 2001; Doubler *et al.*, 2003) and primarily web-based courses (Wilson and Whitelock, 1998; Booth and Hulten, 2003), and its role in conventional courses (Light *et al.*, 1997). Furthermore, research is commonly concerned with group discussions and tutorials (Barratt and Lally, 1999; Light *et al.*, 1997; Wilson and Whitelock, 1998; Issroff and Scanlon, 2002; Smith *et al.*, 1999; Harlen and Doubler, 2003; Booth and Hulten, 2003; Browne, 2003; Teles *et al.*, 2001). Two-way, one-to-one dialogue between the tutor and learner remains largely neglected.



Analytical frameworks

Existing research offers different frameworks for analysing computer-mediated interactions in an educational context. Four of the most relevant are discussed here. Henri (1992) formulated a method of content analysis to help teachers make sense of networked exchanges between themselves and their students. This analytical framework was applied by Lally (2000) to the co-construction of knowledge in a collaborative online learning event. Henri proposed five categories: participative (number of messages and statements exchanged by each participant), social (statements unrelated to the formal content of the message such as greetings, expression of feelings), interactive (chained messages that refer to the contribution of others), cognitive (exhibiting knowledge related to the learning processes such as questioning, drawing inferences and presenting hypotheses) and meta-cognitive (skills and knowledge relating to the learning process itself).

Berge (1995) identified four online instructor roles: pedagogical, managerial, social and technical. These categories were used by Teles *et al.* (2001) to analyse postings made by instructors, technical staff and markers to asynchronous online discussions. Teles *et al.* (2001) confirmed and subdivided Berge's categories. They found the pedagogical role to comprise asking questions and giving feedback and advice, and the managerial role to cover coordinating assignments and the course. The social role included offering empathy, meta-cognition and humour, and technical support involved helping with user systems.

A different perspective is offered by Salmon's (2001) five-stage model for teaching and learning online. Salmon emphasised motivation, group interaction and participation in online learning and identified the stages through which groups of learners need to progress in order to achieve high-level learning. At the first stage, access and learner motivation are central; the second is concerned with online socialisation; the third with information, and the fourth and fifth with knowledge construction and development, respectively. Each stage requires learners to acquire, and the e-moderator to use different skills. Technical support needs to be available throughout. Although the model is concerned with process, there are clear parallels with the categories previously described.

Littleton and Whitelock (2004), from analysis of tutor contributions to asynchronous computer-mediated conferences, introduced the notion of tutor activity that "fosters a culture of enquiry". Contributions in this category are technical, administrative, organisational, supportive, encouraging and community-building. Although a somewhat broad category, the role of the tutor in fostering a culture of enquiry may be particularly important for online tutoring where face-to-face contact is limited.

As this brief review indicates, there is considerable consensus about tutor roles and categories of exchange between tutor and learners in online group discussion. Technical, administrative and organisational or managerial support are needed. The content of exchanges may be "social" and/or "affective" and include cognition/knowledge construction and meta-cognition/development. However, none of the existing frameworks has been applied to analysis of one-to-one online dialogues. Indeed, their application may be limited in learning contexts such as Learning through work (LtW) where learners design their own programmes and undertake job- or organisation-specific projects. Here tutors engage with learners as individuals, learners have more opportunities to set the agenda, and dialogues are likely to differ in nature

and content from exchanges between groups of learners. For these reasons, we concluded that research into on-going online dialogues between tutors and adult learners in the context of a work-based learning programme would address a neglected area.

Our initial research aim was: to explore the types of issues that emerge from asynchronous online dialogues between individual tutors and learners on LtW programmes.

Our purposes were to help new online tutors prepare for their role and to contribute to existing knowledge about the issues emerging from online tutor-learner dialogues. We conjectured that findings might also inform guidelines to help learners work more effectively with their tutors and contribute to the development of support materials and web site facilities.

Learning through work: the context

LtW is designed for people who are in work and wish to study part-time for a full HE award or credit towards one. Since 2001, the University of Derby (UoD) and six other HE institutions have offered LtW in partnership with Ufi/Learndirect. Ufi/Learndirect provides access to the LtW web site – a managed learning environment designed to support work-based learning. UoD offers opportunities for learners to engage in individual and group programmes of study leading to credit and awards ranging from short certificates of achievement to doctor of practice.

LtW has two key components: planning, managing and reviewing learning through the design of an individual learning contract (LC); and work-based projects or independent study. Programmes are planned and structured around the workplace. As a negotiated programme, LtW is based on a broadly constructivist perspective of valid knowledge where socially situated individuals relate the familiar contexts of their work environments to the requirements of an academic award. Individual programmes are aligned with Quality Assurance Agency level descriptors for awards at various levels in the HE sector. LtW combines learner-managed tasks and learner-managed processes, which Coomey and Stephenson (2001) describe as the most appropriate model for online work-based learning. As a discursive, adaptive, interactive and reflective process, LtW has all the characteristics of Laurillard's (2002) conversational model.

The mode of delivery is "blended learning" (Konrad, 2003). Online communication is central but combined with event-based activities, self-paced learning and, depending on personal preference and convenience, telephone communication and/or individual face-to-face tutorials. The tutor's role is to provide on-going support to help learners design, develop and demonstrate their learning.

Methodology

In the spirit of LtW, the study was based on a constructivist perspective and uses a qualitative approach to gain insight into the key issues and topics raised in online dialogues. Our approach combines features of discourse and content analysis. Like discourse, conversation and textual analysis, we construed language and meaning as situated and constructed (Pachler and Daly, 2003). However, we did not explore the structure of naturally occurring language. Our aim was to categorise the content of exchanges although, unlike traditional content analysis, we were not concerned with

frequency or statistical significance. Based on his experience of participating in online dialogues through LtW, the scheme leader suggested some potential categories that served as points of departure. However, analysis was essentially grounded in the data.

The data comprised 670 messages exchanged between tutors and learners and stored in a password-protected "Dialogue" facility. Analysis was conducted by an external researcher who accessed messages exchanged from the start of the learners' contracts up until various dates between February and July 2004, as detailed in Table I. Of almost 400 learners, undergraduate and postgraduate, working both individually and in groups, we focused on nine postgraduate learners. We had originally planned to study a wider range but decided to select a small sample after initial analysis of the transcripts of three learners with over 100 messages uncovered such rich data. The nine learners were following different programmes and differed in their usage of blended learning.

For the purpose of analysis, messages were segmented according to semantic units of meaning. A semantic approach enabled us to identify topics and ideas presented as single statements, questions or phrases, which might be developed through a single exchange or over a chain of exchanges. Here a single exchange refers to a pattern of initiation and response. In a chain of exchanges, initiation and response are followed by feedback (Sinclair and Coulthard, 1975), which may then lead to a further response and so on. In this way, dialogues are extended and provide opportunities for developing understanding between the two parties and for knowledge construction.

Units of meaning were grouped into common themes and a list of codes devised to represent the emergent categories. Categories were modified, developed and regrouped as analysis proceeded. New categories emerged and some early ones were dropped. Administrative and academic issues emerged early in the analysis, as did examples of tutor activity such as giving advice and feedback. However, the notion of a distinct category of affective support did not emerge until later in the analytical process; and early categories labelled "learning contract" and "component" were spliced. As analysis proceeded, some codes were grouped hierarchically, with higher-order codes providing an overview of general direction and lower-order codes allowing for fine distinction between categories (King, 1998). For example, the academic category was subdivided into: valid knowledge, progress and plans, focus, research and writing.

Involving participating tutors in the evolution of the study, and particularly the emergent categories, strengthened internal validity; that is, the match between

| Learner pseudonym | Start of contract | Date messages accessed | Total number of messages |
|-------------------|-------------------|------------------------|--------------------------|
| Patrick | 1 October 2003 | 25 February 2004 | 22 |
| Jemma | 3 March 2003 | 04 March 2004 | 108 |
| Bill | 30 September 2003 | 01 May 2004 | 20 |
| James | 11 October 2002 | 12 July 2004 | 71 |
| Lisa | 30 April 2002 | 25 February 2004 | 216 |
| Laura | 8 April 2003 | 12 July 2004 | 41 |
| Nina | 7 October 2003 | 05 April 2004 | 18 |
| Mark | 22 May 2002 | 25 February 2004 | 135 |
| Zelda | 29 September 2003 | 12 July 2004 | 39 |
| | | | 670 |

Table I.
Showing learners and the
number of dialogue
messages analysed

the researcher's observations and the developing theoretical ideas (LeCompte and Goetz, 1982). Tutor involvement also helped us to develop a typology with practical as well as conceptual value. Initial concerns that "researcher presence" might affect the nature and content of tutors' e-communications were dispelled when tutors reported several months into the study that they were not mindful of the research in their communications with learners or conscious of the researcher "logging-in" under their names. External validity or the transferability of theoretical propositions to other contexts (Hartley, 1994) was strengthened by comparing the emerging typology with existing frameworks.

Access and ethics

Ethical concerns may be amongst the reasons that conferences and group discussions are more commonly subject to analysis than one-to-one exchanges. LtW offers a unique opportunity in terms of access to data and learner consent. Access is possible because messages sent through the dialogue facility are stored and retrievable. By agreeing to the site's terms and conditions of use and its privacy statement, learners give permission for their personal data, including communications sent via the LtW site, to be used for research purposes. Personal e-mail and other tutor-learner communications outside of the LtW programme are not covered by the agreement and were not accessed.

Obtaining implicit consent may be considered less acceptable than explicitly requesting consent from individuals to use their data for a particular purpose. Therefore, we sought specific permission from learners selected for the research and assured them that messages would not be traceable to individuals. Identities were further protected by paraphrasing all but a few very brief phrases, rather than quoting learners verbatim and at length. As the participating tutors had initiated the study, they were clearly consenting.

Findings: dialogue activity

Our focus was the content of online dialogues. However, the way in which issues were raised and addressed was also relevant to our purpose of helping to prepare new online tutors for their role. Consequently, we also identified and categorised learner and tutor activity using the same data segments.

Learner dialogue activity was categorised as: asking questions, reporting on progress and plans, seeking feedback, giving feedback and disclosing feelings. Although we did not seek statistical correlations between activity and topic, some patterns emerged. Learners generally asked questions about: administrative matters (such as the process of submitting assignments and the timescale for receiving the results of assignments), the LC (detail, evidence and level indicators required) and academic work (recommended reading, courses offered by the university, and the presentation of assignments). Reporting covered topics such as: completed and outstanding work, changes in job or career direction or their work situation, decisions and reasons for decisions and changes in the direction and focus of their research. Seeking feedback included asking for tutors' views on: ideas about adopting a theoretical/academic approach to independent study, handling a low survey return rate and a proposed module topic. Feedback to tutors generally took the form of appreciation for their time and for useful advice. Learners disclosed feelings such as anxiety, stress and lack of confidence that were hindering their progress.

Unusually for tutorial situations, the majority of dialogues were initiated by learners, with tutors responding to learners' questions and comments. Five main categories of tutor activity were identified: giving direct answers, advising and suggesting; explaining and elaborating; signposting and referring and giving feedback. "Giving direct answers" refers to information-giving responses such as clarifying the system of paying for programme modules or e-mailing useful documents or lists of potentially useful articles. "Advising and suggesting" involved more in-depth, detailed discursive responses about, for example, how to structure an assignment. Suggestions were phrased so as to encourage learners, to challenge their thinking and promote ownership of their learning.

"Signposting and referring" were techniques used by tutors to encourage learners to undertake their own research. For example, learners were offered "signposts" to other sources of help including LtW and other online resources and journals. When a query fell outside of their sphere of knowledge, tutors referred learners to other staff, including specialist tutors, sometimes providing full contact details.

"Feedback" refers to tutors' comments on learners' ideas, work in progress and submitted assignments and served a formative or summative function. Through specific formative feedback tutors affirmed learners' cognitive skills and knowledge, recognised their progress and offered suggestions for improvement. Both specific positive feedback and direct responses to learners' expression of hindering feelings about their learning provided encouragement and reassurance. Summative assessment feedback included detailed comments about the structure, presentation, content, arguments, writing style and breadth of reading evidenced in learners' work and, where appropriate, suggestions for improvement.

Findings: dialogue content

The main topics covered in online dialogues were categorised as: administrative/organisational, programme design, technical, social, affective and academic.

Administrative/organisational

Dialogues with an administrative or organisational content were concerned with procedures, arrangements and terminology. Exchanges helped learners to understand the meaning of university language, regulations and systems, the credit and grading systems, enrolments procedures, timing of assessment boards, costs and payment arrangements. Financial support and arrangements for face-to-face meetings are also included in this category.

Programme design

Programme design is undertaken through the negotiation of the LC. Dialogues developed learners' ability to understand the concept of the LC and to use it effectively as a framework for reflecting on and planning their learning. As construction of a LC is mandatory for individual learners, and the language and process may have been unfamiliar, it is not surprising that programme design issues were common dialogue topics.

Learners raised issues about the nature of evidence needed for different components, the level of detail required, financial support and how to address the effect on their LC of changes in career. Sometimes, queries related to the involvement of

workplace colleagues or mentors. Tutors explained: the structure of the programme and how components bearing different credit values could be combined, the role and function of the LC and the need to link programme aims, components, level indicators, learning outcomes, evidence and credit value into a programme design with a clear rationale.

Some issues related to specific components within learners' programmes rather than the LC as a whole. Accreditation of prior experiential learning was the subject of several exchanges and raised issues about focus, learning outcomes, evidence, the process of making claims, and describing learning experience in the accepted language. Other exchanges related to potentially relevant taught modules, the required length of assignments, or workplace changes that impact on the programme.

Technical

Technical dialogues helped learners to navigate and use the LtW and learndirect web sites, and to access online materials and literature. For example, some learners had queries about downloading the LC for completion offline and uploading files from Word. When responding to learners' queries, tutors encouraged learners to use the dialogue facility to keep in touch and share their evolving thoughts and ideas.

Social

Dialogues are interwoven with social exchanges, which helped to build and maintain good relationships. In their initial message, tutors welcomed learners, introduced themselves and their role. Thereafter they offered season's greetings, expressed positive views about meetings learners, invited them to make contact and to use their personal names, acknowledged receipt of messages and work and expressed pleasure at learners' successes. Jokes, literary quotations, holiday dates, information about illness and domestic events were exchanged.

Affective

Commonly, messages containing emotional content were initiated by learners who described their feelings about their studies, plans and progress. Tutors' responses of reassurance, encouragement and praise served a motivational function. In specific terms, learners expressed "hindering emotions" of anxiety, worry, frustration, confusion, stress, lack of confidence, a sense of "going round in circles", distress about change in work situations, fear about "losing the plot" and feeling stuck. Far less common, but present nevertheless, were expressions of "energising emotions" such as excitement about new ideas for a dissertation, and being "on a roll".

Tutors responded to hindering emotions by encouraging learners to "have a go", "keep going", follow their professional interests, send drafts for feedback and maintain contact by phone or via the dialogue facility. They praised learners' progress, expressed confidence in their ability, and focused on their skills and personal qualities. Reassurance took the form of general advice not to panic or worry, and more specific reassurance about a learner's relevant experience and skill.

Academic

Academic content refers to the learning process itself and development of academic skills. Five subordinate categories were identified: valid knowledge, progress and

plans, focus, work-based research and writing. As academic topics were prominent and our purpose was to support and develop online tutoring practice, more attention is given to the academic category than any other.

Publications, individuals and training/educational courses were all identified as sources of valid knowledge. In commenting on work in progress, one tutor explained the distinction between expert knowledge based on the learner's experience and knowledge constructed from her data. In response to a query about the value of attending a course as opposed to reading around a topic, the tutor identified interactivity as an advantage of attended courses, but also pointed out that the range of perspectives required for this level of study could only be gleaned from the literature.

While valid sources of knowledge are likely to be discussed when learners start their assignments, issues to do with progress and plans work may be raised throughout their learning programmes. For example, one learner expressed concern about meeting a deadline; another sought advice on whether a deadline was realistic; a third enquired about the tutor's progress in reading and commenting on her work. Study-related problems and possible options were discussed. One learner wanted advice about dealing with a new job and its effect on her planned study. At decision points, tutors presented options, for example, by pointing out that online or attended courses could be included as components, assessed and credited as part of a final award, or that course materials could be used as a resource to support a negotiated component.

The focusing category included exchanges about the process of identifying a specific, manageable topic for in-depth study. To do this tutors variously suggested that learners: follow their interests; identify relevant issues and debates from the literature; or analyse a workplace situation they wished to study. Tutors recommended learners to discuss a number of issues before selecting one for exploration.

Work-based research is at the heart of postgraduate learning within LtW. Having specified a topic and devised project aims, learners begin their research. A few exchanges were around the nature and purpose of research, ethics and theoretical frameworks, although more focused on data collection methods and the research process. In response to comments by learners, one tutor described research as complex, iterative and messy, and identified its purpose as helping to formulate better questions rather than find answers. A tutor pointed out the need for learners to clarify whether they aimed to ask a research question or to validate or refute a hypothesis. To explore the possible effects of different perspectives, learners were encouraged to consider their data in relation to more than one model.

Exchanges covered research methods, selecting the most appropriate research method and the characteristics of qualitative and quantitative data. Other considerations included: resources, research design, the "neutrality" of questions, the value and implications of gathering qualitative and quantitative data, ethics and possible respondent concerns about the use of data, and avoiding sampling bias. Learners were advised that writing about research method required them to explain the reasons for their choice, discuss alternative methods and be explicit about the advantages and disadvantages of their chosen method. Other issues included: the difference between case study and survey method, the benefits and potential problems associated with using comparative case studies and the need to pilot questionnaires. One chain of exchanges developed into a detailed dialogue about the research process from formulating a research question through compiling and piloting a questionnaire to data analysis.

While all dialogues with an academic content provided opportunities for developing cognitive skill, work in progress and submitted assignments were particularly important in this respect. Assignments enabled learners to develop and express their understanding and tutors to provide specific and detailed feedback. While work-based assignments take a variety of forms, learning how to write in an academic style and follow academic conventions is an important part of this process alongside demonstrating skills in critical evaluation, developing arguments and constructing knowledge. Consequently, exchanges covered bibliography and references, presentation, grammar and language, style and structure as well as content, analysis and discussion.

Learners sought clarification about the Harvard citation conventions, the need to reference cited authors and the difference between a reference list and a bibliography. As well as answering these questions, tutors explained why full referencing was needed. Academic conventions such as register, line spacing, and the use of terminology, jargon, acronyms and abbreviations were discussed. Tutors commented on summaries and signposting, thoroughness, clarity and succinctness, and offered advice on how to order and link different sections. They pointed to the need for learners to explicate their role in their employing organisation, locate their research in the literature, provide evidence for assertions and claims, balance breadth with detail and critically analyse the models they cited. Synthesis, discussion, evaluation and reflective analysis were emphasised by tutors.

Discussion

Slicing the data in two different ways enabled us to illuminate the data from different perspectives. As a result we categorised online activity and constructed a typology of dialogue content. We found that online activities mirror those of effective face-to-face learning encounters, suggesting that conventional tutoring methods can be transferred to an e-learning environment. That learners commonly initiated dialogues, suggests that using online dialogue encourages learners to participate actively and to own their learning. Despite differences in research context, terminology and configuration, comparison with existing frameworks support these findings. Learner activities of asking questions, seeking feedback and giving feedback feature in existing frameworks. Tutor activities of giving direct answers, explaining and elaborating, and giving feedback, mirror categories labelled by other researchers as “cognitive” exchanges (Henri, 1992) or “pedagogical” roles (Berge, 1995; Teles *et al.*, 2001). Disclosing feelings, and encouraging and reassuring have parallels in Henri’s (1992) social category and are included in Littleton and Whitelock’s broad notion of “fostering a culture of enquiry”. However, two further categories – “reporting progress and plans” and “signposting and referring” – are absent from other frameworks. These “new” categories may have emerged because we studied extended, one-to-one dialogues situated in individually constructed programmes. They may also be more significant for work-based learners.

The hierarchical typology of dialogue content (Figure 1) highlights the role of tutors in addressing non-academic topics. Administrative/organisational, technical and programme design content provide the “hard” underpinning or infrastructure, and the social and affective categories provide the “soft” underpinning. Tutoring takes place in non-academic dialogues as well as those with academic content. For example, dialogue in the hard underpinning categories helps learners to develop their knowledge about

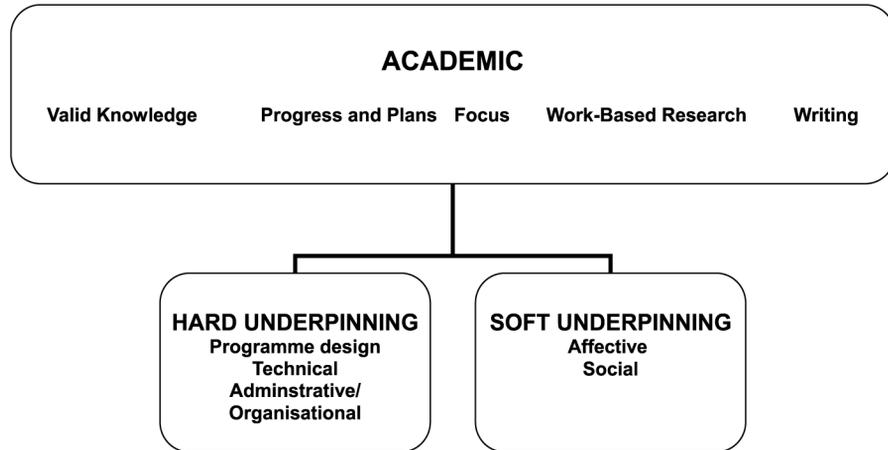


Figure 1.
A typology of topics
discussed in online
dialogues

institutional and regulatory structures and systems, their confidence and skill in using information technology and their ability to maximise the benefits of e-learning. Dialogues in the soft underpinning provide supportive relationships that enable learners to develop personal skills such as self-confidence and motivation. In other words, e-learning environments can support the cognitive, social, motivational and affective processes of learning (Tynjälä and Häkkinen, 2005).

The notion of an underpinning framework is reflected elsewhere, although this term is not used. Littleton and Whitlock (2004) introduced the notion of “fostering a culture of enquiry” to describe technical, administrative, organisational, supportive, encouraging and community-building contributions by tutors in online conferences. Berge (1995) and Teles *et al.* (2001) found that tutors played managerial, social and technical roles as well as a pedagogical one. Salmon (2001) emphasised access, motivation and socialisation, especially in the early stages of online learning, and the need for technical and well as e-moderator support. However, none of these authors explicitly distinguishes between “hard” and “soft” underpinning. By doing so we emphasise the importance of learning relationships and the infrastructure of the learning environment. Existing frameworks include either affective or social activities and roles, in some cases conflating these two concepts. For example, the social category identified by Teles *et al.* (2001) includes humour, empathy and, interestingly, meta-cognition. Henri (1992) used the term “social” to describe statements unrelated to the formal content of a message, such as greetings and expressions of feelings. Our typology differentiates between dialogues about social non-study related issues and affective dialogues about study-related feelings.

Implications for practice

The presence of academic dialogue does not guarantee learning, but does suggest that learners can interact with their material and with ideas at the level of critical analysis and knowledge construction in the online environment. If tutor and learner are willing to engage in online dialogue, the processes used in conventional learning situations can be replicated in remote learning contexts. One-to-one dialogues may facilitate such replication more readily than other forms of CML tutor-learner interaction.

In particular, the proposed typology suggests that dialogue that covers a range of topics is likely to promote successful learning. The typology may help programme designers and tutors to categorise a list of frequently asked questions and appropriate responses as a resource for tutors/and or learners.

Limitations and future research

The typology needs to be considered within the context LtW's blended learning approach where learners communicate via media, such as personal e-mail, telephone and face-to-face meetings as well as the dialogue facility. As none of these communications was logged, recorded or analysed, we accessed only a portion of the many possible dialogues between learners and tutors. It is also important to reiterate that this paper describes work in progress. The typology needs to be considered in relation to dialogues between tutors and learners working at entry level four, where widening participation issues are likely to arise. Further analysis of dialogue data using different research methods is needed to illuminate the tutoring process and the evolution of ideas through a chain of exchanges on a particular topic. Comparative case studies might explore differences and similarities in tutoring style; a narrative approach could illuminate learners' progress through Salmon's (2001) stages and discourse analysis could be used to access the progression of particularly meaningful or extended dialogues.

References

- Barratt, E. and Lally, V. (1999), "Gender differences in an on-line environment", *Journal of Computer Assisted Learning*, Vol. 15 No. 1, pp. 48-60.
- Bennett, S. and Marsh, D. (2002), "Are we expecting tutors to run before they can walk?", *Innovations in Education and Teaching International*, Vol. 39 No. 1, pp. 14-30.
- Berge, Z.L. (1995), "Facilitating computer conferencing: recommendations from the field", *Educational Technology*, Vol. 35 No. 1, pp. 22-30.
- Booth, S. and Hulten, M. (2003), "Opening dimensions of variation: an empirical study of learning in a web-based discussion", *Instructional Science*, Vol. 31, pp. 65-86.
- Browne, E. (2003), "Conversations in cyberspace: a study of learning", *Open Learning*, Vol. 18 No. 3, pp. 243-59.
- Coomey, M. and Stephenson, J. (2001), "On-line learning: it is all about dialogue, involvement, support and control-according to research", in Stephenson, J. (Ed.), *Teaching and Learning On-Line: Pedagogies for New Technologies*, Kogan Page, London, pp. 37-52.
- Doubler, S.J. et al. (2003), "When learners learn on-line, what does the facilitator do?", paper presented at the British Educational Research Association Annual Conference Edinburgh, 11-13 September.
- Harlen, W. and Doubler, S.J. (2003), "Learning about learning from an on-line course", paper presented at the British Educational Research Association Annual Conference, Edinburgh, 11-13 September.
- Hartley, J.F. (1994), "Case studies in organizational research", in Cassell, C. and Symon, G. (Eds), *Qualitative Methods in Organizational Research: A Practical Guide*, Sage, London, pp. 208-29.
- Henri, F. (1992), "Computer conferencing and content analysis", in Kaye, A.R. (Ed.), *Collaborative Learning through Computer Conferencing: The Najaden Papers*, Springer, Berlin, pp. 117-36.

- Issroff, K. and Scanlon, E. (2002), "Using technology in higher education: an activity theory perspective", *Journal of Computer-Assisted Learning*, Vol. 18 No. 1, pp. 77-83.
- King, N. (1998), "Template analysis", in Symon, G.C. and Cassell, C. (Eds), *Qualitative Methods and Analysis: A Practical Guide*, Sage, London, pp. 118-34.
- Konrad, J. (2003), "Review of educational research on virtual learning environments (VLE) – implications for the improvement of teaching and learning and access to formal learning in Europe", paper presented at the European Conference on Educational Research, University of Hamburg, 17-20 September.
- Lally, V. (2000), "Analysing teaching and learning interactions in a networked collaborative learning environment: issues and work in progress", paper presented at the European Conference on Educational Research, Edinburgh, 20-23 September.
- Laurillard, D. (2002), *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology*, 2nd ed., Routledge, London/New York, NY.
- LeCompte, M.D. and Goetz, J.P. (1982), "Problems of reliability and validity in ethnographic research", *Review of Educational Research*, Vol. 52, pp. 31-60.
- Light, P., Colburn, C. and Light, V. (1997), "Computer mediated tutorial support for conventional university courses", *Journal of Computer Assisted Learning*, Vol. 13 No. 4, pp. 228-35.
- Littleton, D.P. and Whitelock, D. (2004), "Guiding the creation of knowledge and understanding in a virtual learning environment", *Cyberpsychology & Behavior*, Vol. 7 No. 2, pp. 173-81.
- Macpherson, A., Homan, G. and Wilkinson, K. (2005), "The implementation and use of e-learning in the corporate university", *Journal of Workplace Learning*, Vol. 17 Nos 1/2, pp. 33-48.
- Pachler, N. and Daly, C. (2003), "Computer-mediated communication and teachers' professional learning", paper presented at the British Educational Research Association Annual Conference, Heriot-Watt University, Edinburgh, 11-13 September.
- Salmon, G. (2001), "Psychological and group learning perspectives: their relevance to e-learning", paper presented to E-Learning, London, available at: www.atimod.com/research/presentations/PsyGroup.htm (accessed February 2001).
- Sinclair, J. and Coulthard, M. (1975), *Towards Analysis of Discourse: The English Used by Teachers and Pupils*, Oxford University Press, Oxford.
- Smith, C.D., Whiteley, H.E. and Smith, S. (1999), "Using email for teaching", *Computers and Education*, Vol. 33, pp. 15-25.
- Stephenson, J. (2003), "A review of research and practice in e-learning in the work-place and proposals for its effective use", pre-conference paper for AERA, available at: www.icml.com
- Teles, L., Ashton, S., Roberts, T. and Tzoneva, I. (2001), "The role of the instructor in e-learning collaborative environments", *TechKnowlogia*, May/June, pp. 46-50.
- Tynjälä, P. and Häkkinen, P. (2005), "E-learning at work: theoretical underpinnings and pedagogical challenges", *Journal of Workplace Learning*, Vol. 17 Nos 5/6, pp. 318-36.
- Wilson, T. and Whitelock, D. (1998), "What are the perceived benefits of participating in a computer-mediated communication (CMC) environment for distance learning computer science students?", *Computers in Education*, Vol. 30 Nos 3/4, pp. 259-69.

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