AN ANALYSIS OF THE DESIGN FEATURES OF THREE MIXED-MODE COURSES IN A MASTER'S DEGREE PROGRAMME

Dee Pratt
Durban Institute of Technology
Durban, KwaZulu-Natal
South Africa
deep@dit.ac.za

ABSTRACT
This paper suggests that a system of communicative rfunctions can be used to provide a framework for analysing course design, and illustrates this with reference to three mixed-mode courses intended for use in a master's programme in Computer Assisted Language Teaching (CALT). The design principle is based on an architecture of functions necessary for effective communication, namely, the contextual, ideational, interactive social and reflexive functions. Because the principle is descriptive rather than prescriptive, and is thought to identify a deep structure of human functioning common to all social interaction, it provides a template for analyse of course design which can be applied within different educational paradigms. The template offers the course designer moving into a new milieu or medium the opportunity to gain a fresh perspective on the process of instructional design. Issues such as the educational context, course content, learning interactions, academic requirements and assessment can be now viewed in terms of how these contribute to knowledge construction, rather than whether the outcome per se is desirable: the latter issue is already addressed comprehensively in current instructional design paradigms.

KEY WORDS
Instructional design, mixed-mode, online learning, higher degree programmes.

1. Introduction

While all learning could be said to fit into the category of 'blended learning', introducing computers and the Internet into the mix of instructional media has the effect of making the course designer re-examine basic assumptions about learning and how it is best facilitated. In the case of the three mixed-mode courses analysed here, the process of reflection has been assisted by doctoral research into academic writing [1], which suggested that certain essential communicative functions need to be performed for knowledge to be constructed effectively. As academic writing is inextricably intertwined with learning, it should not be surprising that the 'architecture of functions' found to be underpinning academic writing could also be viewed as a generalizable principle informing effective course design. In this account this principle will be used to analyse the design features of three mixed-mode courses, *WebCT for Dummies*, *CALT Online* and the *CALT Research Module*. These courses were set up on WebCT as a project in the Pioneers 2002 staff induction to online learning at the Durban Institute of Technology [2].

The initial instructional design problem to be solved was as follows: how does one facilitate the development of master's students as computer-mediated learning practitioners as well as independent researchers? The proposed solution was to run the master's course partly online (*CALT Online*), so that students could experience at first-hand what it was like to participate in computer-mediated learning, as well as to have various aspects of computer-mediated course design modelled for them in the course itself. Running the course partly online would also exploit the resources available on the Internet in developing the advanced academic literacy required for postgraduate research. *WebCT for Dummies* is a live workshop intended to introduce prospective master's students to web-based learning, and the *CALT Research Module* is intended both to prepare and to screen students for the master's course. All three courses were set up on WebCT, mainly because this is the online educational administration program currently licensed to DIT, but also because of its excellent communication and student administration facilities, and the fact that it is relatively easy for teachers to learn to set up courses on WebCT. It must be stressed that, while the administrative framework of WebCT is linear, logical and compartmentalised, this does not exclude it from providing the ICT infrastructure for an holistic learning approach based on constructivist principles [3]. The target student group for the master's degree constitutes English teachers without specialist technical skills, who will very likely be using commercial software and ready-made educational 'shell' programs, such as WebCT (or Moodle), rather than actual computer programming, in their master's research projects.

2. An Overview of the Courses

WebCT for Dummies was designed for use in a face-to-face workshop situation to provide educators with hands-on experience of a web-based course and to introduce them to some key aspects of web-based learning. Although it was intended to be run in a once-off workshop session, it can also be browsed subsequently by participants, who are given 'guest student' status, allowing them continued access to the course. The *CALT Research Module* is an online semester course intended to prepare students for the CALT coursework master's by giving them practical experience of an online course and guided access to research resources on the Internet. The module was designed so as to lead students through the processes involved in choosing a research topic and preparing a research proposal. The module has short course status, which means that students can be both prepared and vetted for the master's course without the expense or loss of face incurred by dropping out after master's registration. Students are not eligible to register for the master's degree until they have successfully completed the module. The online course is intended to be used in combination with small-group technical workshops and face-to face individual discussions with course facilitators. *CALT Online* is an online version of the CALT coursework master's degree itself, based on the official SAQA-approved syllabus and outcomes. While it provides students with the SAPSE requirements for the master's and a time frame for completion, it is not so much an online course as a virtual communication nexus designed to expedite and facilitate part-time study. By this stage in their degree course students will be working in self-study mode on their research projects and dissertations, assisted by their supervisors, as in a conventional master's course.

Although the courses were designed for the same degree programme, and to some extent scaffold learning in this course, they could be seen to provide an interesting study in web-based course design, in that each course, while preparing students for the eventual submission of their master's dissertation, is different in type, focus and emphasis. This is because the courses were developed over a period of time, and in response to different student needs at different stages of the master's course. The courses can in fact be seen to represent a progression along a continuum, with live delivery, set course content and dependent learners at one end, and online delivery, no course content and independent learners at the other end: *WebCT for Dummies* would occupy the 'live delivery' side of the continuum, the *CALT Research Module,* the middle ground, and *CALT Online* the (mainly) online end.

This suggests that a relationship might exist (at least in the context of the master's programme, if not generally) between the mode of delivery, the amount of subject content a course contains, and the degree of dependency of its learners. The more dependent the learners, and the more unknown what it is they have to learn, the more necessary it would seem to have a live mode of delivery, so as to adjust the course according to both prior learning and the pace best suited to the current group of learners. If learners are entering a new field, as with most of the CALT master's students, one would expect that more subject content would be needed. The more independent, skilled and self-motivated the learners become, the less actual subject content would need to be provided in the course, as learners would by now be skilled at finding, evaluating and collating their own specialist information: at this stage they would be able to operate effectively almost completely online. The trick, of course, is to create courses which will lead learners to this point, and the three courses described in this account represent stages in the process of developing students as independent learners and researchers, which needs to be done in a structured, carefully regulated way. This is because the construction of knowledge is not random or anarchistic, but socially shaped [4], and, to become independent learners and researchers, master's students need to engage experientially in a structured way in the processes involved in knowledge construction, achieving the status of co-researchers with their supervisors, and becoming part of a collaborative and supportive academic community.

3. A Framework for Analysis

The framework for analysis of the three online courses is taken from research into written composition, in which a theoretical model of communicative functions was formulated to provide the rationale for a practical model of composing. In the course of the research, the five essential communicative functions, that is functions 'without which' the process of communication cannot occur, were found to be the contextual, ideational, interactive, social and reflexive functions. These can be explained briefly as follows. For communication to occur, it needs to be set in some kind of *context*, some form of *ideational* content needs to be generated, which is done by means of an *interaction*. All communication (human communication, that is) has a *social* loading, and is regulated by *reflexive* elements much in the nature of a feedback loop. Because knowledge is constructed in learning interactions, and can be viewed as a more specific and rule-governed type of meaning-making, then the essential functions involved in meaning-making could be seen to have relevance for knowledge construction. I have addressed the issue of how these communicative functions are realised in course design in my own courses since 2002, when my induction into web-based learning made me re-assess what I was trying to achieve in course design with the introduction of hypermedia into the usual traditional mix. At that stage I thought of the functions as 'aspects' of communication and had not yet realised that they were in fact a system of communicative functions. This became clear only after applying a rigorous

theoretical modelling process [5] to the phenomenon of written composition. When applied as a template for the analysis of effective course design, the communicative functions could be interpreted as follows:

- **Contextual:** This function relates to the social context in which knowledge is constructed, and requires the course designer to decide how learning is to be contextualised.
- **Ideational:** This function relates to the source of the knowledge to be constructed, or the process whereby knowledge actually comes into being (it also raises the question of course content).
- **Interactive:** As knowledge is constructed in learning interactions (including interactions with resources), the course designer needs to anticipate how participants will interact in constructing knowledge.
- **Social:** The social parameters, conventions or constraints operating in a given learning situation need to be identified and made explicit to learners, particularly in respect of local assessment criteria.
- **Reflexive:** This relates to how participants will reflect on and assess their performance in constructing knowledge, and includes the issue of formal assessment (if any) and how it will be carried out, as well as course assessment.

How the above functions are fulfilled is thought to be a significant factor in course design, particularly in degree courses where students will be actively involved in constructing knowledge [6] [7] [8]. The functions are not unfamiliar aspects of course design: they are echoed in a tutorial by Jonassen in the terms 'active', 'constructive', 'collaborative', 'contextual' and 'reflective' [9], but they have not hitherto been identified as the functions necessary for constructing knowledge. Using the system of functions for analysis does not categorise courses in terms of how knowledge is constructed, as with Mason's three models of online courses [10], but rather highlights the need to establish how knowledge will be constructed in a given course: the system of functions is descriptive rather than prescriptive. This is because the functions were identified within a critical realist approach [11] which attempted to establish the essence of human communication as it occurred, as opposed to how it should be (this is not to say that the investigation was value-free, merely that the value was to transcend as far as possible socially-constructed views of communication). The system of functions, then, has the advantage of not being limited to any one instructional approach or theory, but is thought to be generalizable across paradigms, that is, it is thought to provide a generalizable principle of course design. The above functions will therefore be used as a framework to point to specific features of course design which may be of interest to prospective or actual web-based learning practitioners designing postgraduate courses.

3.1 Contextual: The Social Context in which Knowledge is constructed

CALT Online is the most highly contextualised course, being a formal master's degree programme in a specialist field (computer-assisted language teaching). *WebCT for Dummies* and the *CALT Research Module*, on the other hand, are generic (deliberately so) to the extent that they could be run in other postgraduate programmes (the CALT Research Module is currently being adapted to teach Nursing students research methodology). *WebCT for Dummies* was actually designed to introduce teachers to web-based learning at a school conference workshop, and since then has been in regular use at DIT for lecturer induction to online learning. A slightly adapted Student Version has also been used to introduce students to web-based learning in the English Department's *Comm. Skills Online programme*. The generic status of *WebCT for Dummies* is due to the fact that the content it contains applies generally to web-based learning, and not to any specific academic subject. The *CALT Research Module*, too, could be used in other post-graduate or degree programmes because it introduces students to the processes of constructing knowledge at an advanced tertiary level, and not to subject-specific content. It is in fact a 'shell' course: knowledge does not reside in the course in the form of subject content, but is generated by the participants themselves in response to various prompts in the course. *CALT Online* is also a type of shell course, in which students (and supervisor) generate knowledge themselves, but, because it is highly contextualised, this is limited to the construction of knowledge germane to the CALT coursework master's programme. This brings us to the next aspect of knowledge construction, the ideational, or how knowledge is constructed in each of the courses.

3.2 Ideational: The Process whereby Knowledge Comes into Being

In both *WebCT for Dummies* and the *CALT Research Module* the students construct their own knowledge rather than being given subject content to learn, but in each course knowledge is constructed differently. In *WebCT for Dummies*, while there is apparent course content - information and advice on web-based learning - this is in fact 'faux' content: the real construction of knowledge is effected by the participants as they learn to negotiate their way around a web-based course and take part in some virtual learning activities. The lesson content, while potentially useful to prospective web-based learning practitioners, is both a distracter, to mask the fact that students are really engaging in a series of complex and difficult technical and cognitive processes, and a lure, to tempt them to venture even further down the pathways of the virtual learning environment. The *CALT Research Module* contains little subject content (apart from a note

on research paradigms): knowledge is generated by students from their own experience, Internet searches, and reading in the field. Information and literature found by students will be added to an online database where it will provide a resource which can be accessed by all students and staff. The course is designed to enable students to reconstruct the tentative and recursive process of research for themselves: the lecturer's role is to act as facilitator and respondent to the material (ideas or readings) provided by each student. It is accepted that students need some guidance in the research process, which is modelled for students by a series of tasks: the *CALT Research Module* consists entirely of a series of instructions as to the nature and parameters of the tasks, accompanied at times by examples and advice. *CALT Online*, in spite of being the most highly contextualised of the online courses, has the least subject content of all three. What it does contain are the specifications and assessment criteria for the coursework master's: this is because the course is highly contextualised and has to conform to specific local requirements. These specifications and criteria represent the social loading of knowledge construction in a specific social context, that is a higher degree course at DIT. In the *CALT Research Module*, the focus is on the process, in *CALT Online*, the focus is on the maze of social rules and conventions which students need to negotiate successfully in order to have their individual and unique contributions to the field accepted as 'real' research. A general plan and time frame is also included in *CALT Online* for the official course sections in order to assist students to work towards their dissertations in a consolidated manner rather than completing assignments piecemeal. This means that, although it is a coursework degree, students can work on their projects and complete their dissertations in the same manner as students in a full master's-by-thesis degree, that is operate as independent researchers working on individual research projects. From this point of view, there is no subject content at all in this course: students construct their own knowledge as they work towards completion of their degree.

3.4 Interactive: How Participants Interact in Constructing Knowledge

WebCT for Dummies is the most interactive of the three courses in having the most intense and immediate participation, as it is run as a live workshop in the course of a few hours. Besides engaging in face-to-face discussions, participants are invited to communicate electronically with each other and the facilitator by means of WebCT email, the discussion area, and the whiteboard. Participants in the *WebCT for Dummies* workshops tend to become engrossed with the process of interacting with the WebCT course itself: the lessons, student tools, sample quizzes, and other features of the virtual classroom. There is a strong risk that, once the mechanics of using WebCT have been explained, the workshop facilitator will become redundant as the learners become increasingly independent and move ahead at their own pace. While this offers challenges to course management, it is a desirable course outcome in terms of encouraging participants to take control of their own learning. One group of teachers refused to take the scheduled break in the *WebCT for Dummies* workshop, asserting that: 'Doing this is more fun than taking a break.' The *CALT Research Module* promotes the most interaction between students, as the task instructions specifically encourage the sharing of resources and materials and peer feedback. The course is designed to work most effectively with a small group of students, but can work with only one student interacting with a facilitator, although this puts more pressure on the facilitator (i.e. not to be too directive), and on the student, who has no 'foil' or yardstick by which to measure progress, as my current master's student has commented. *CALT Online* also promotes interaction and collaboration (the sharing of resources and ideas) between students, but there will probably be more interaction between students and supervisors, as students are by now focusing on their own projects.

3.3 Social: The Social Parameters, Conventions or Constraints Operating in the Courses

WebCT for Dummies is the least prescriptive course in terms of social conventions or constraints because these are negotiated live in the workshop situation. However, there are two pervasive metaphors operating in *WebCT for Dummies* which set the scene socially and help to ease educators into the complex and often daunting process of mastering unfamiliar technological processes. The 'for Dummies' title was used to soften the sometimes frightening effect advanced technology can have on a student group of professional educators, who are used to being over-achievers in the academic field, and can become very tense at the prospect of being reduced to beginner status. In this course, at least, you are allowed to be a complete 'dummy' and start from scratch. A happy side-effect is that it also lowers tension for the instructor, as this is obviously not meant to be a high-powered course. In the second metaphor used, the course structure follows the pattern of a typical school day so as to provide continuity between traditional and web-based learning. Most teachers enjoy the idea of being part of a traditional class again, and this gives an element of fun to the course, which also helps to reduce the tension of coping with unfamiliar technology.

The *CALT Research Module* is deliberately not prescriptive, to foster independent learning. Assessment is mostly by 'completion of task', although assessment criteria are given, usually to the effect that information must be communicated as clearly as possible to other participants, and not formal academic criteria (at least, not at the beginning of the course). I found it interesting that some of the students piloting the course, clearly

uncomfortable (and suspicious) because of the lack of prescription in the course, actually asked for marks for each task, and DP requirements. I humoured them by giving each task a mark total, and specifying that 65% must be scored to obtain a DP. Research conventions are introduced later on in the course, but are not taught formally, but rather modelled for the students. Postgraduate courses often focus heavily on academic writing conventions, as this is the area in which students are perceived to be most deficient. In my experience, however, an inadequate research writing style often masks the fact that students have nothing original or interesting to say. The research module tasks require that students read in their specific area of interest and report back on their findings: they are also asked to present arguments justifying their choice of research topic. Because the course is online, most of the report-back or arguing is done in written form, which builds fluency in articulating ideas and constructing logical arguments in writing. The progression from a conversational style of argument to a more formal academic one is not haphazard or automatic, however, and needs to be carefully scaffolded in the course.

That the *CALT Research Module* is capable of achieving this outcome is suggested by the following excerpt from a student's report-back, which shows the development of a more formal academic style in the course of only six tasks (approximately ten weeks), and without any formal instruction in research writing:

> The essays in Linda Lau's compilation are informative and have points of convergence with Warschauer, but their focus tends to be on design. Morphew does give a good exposition of a basic constructivist approach, assisting me to see Warschauer's roots. What is important here is her emphasis on the cyclical nature of research. Purcell-Robertson & Purcell (in Lau) take the next logical step to incorporate feedback. The remaining essays in this compilation are more pertinent to other phases in our research programme (e.g. evaluation, management and distribution).

At this stage the student is not yet using formal referencing conventions (but not necessarily because he cannot, as he was not required to do so): these are focused on in subsequent tasks, once students have digested the readings they have found, and have made some kind of a case for their research projects.

CALT Online is the most prescriptive of the courses in laying down social requirements, that is the socially sanctioned and institutionally refined degree requirements (for example, the various course sections for credits, and the dissertation assessment criteria) but is the least prescriptive in terms of what students must do apart from fulfilling these requirements, as by now students are working independently on their own research projects. Within the shell of the social parameters dictating degree specifications, which are made as transparent and explicit as possible, students can concentrate on creative research projects which are meaningful and useful in their teaching situations, such as the 'Guppy's Gambling Grammar' project devised by one of my students in the course of completing the *CALT Research Module*.

3.5 Reflexive: How Participants Reflect on and Assess their Performance in Constructing Knowledge

Although it can be browsed subsequent to the live workshop - which may involve some reflection on and consolidation of what has been learned - *WebCT for Dummies* is the least reflexive course of the three, in that student progress is not assessed in any way except by real-time observation. Learners are invited to assess what practical skills they have learned in the last lesson, and to give feedback in the discussion area, but this is optional. The *CALT Research Module* is highly reflexive: students are regularly asked to reflect on their own progress and give feedback on other students' research output, and there is regular feedback by the facilitator, as opposed to formal marks. In *CALT Online* the reflective process still occurs, but more in the interaction between student and supervisor. Assignments (including the CALT artefacts) are assessed formally and contribute to the degree mark: these would require detailed feedback and comment even if they were not part of the formal mark scheme, as they are integrated into the student's final dissertation, and require intensive feedback so that they can be refined and developed (or modified) for this purpose. There are still opportunities for peer feedback, however, and it is likely that supervisors will use student work to illustrate points or as exemplars for other students.

4. Conclusion

It can be seen that the three courses are in fact very different in scope, design and application, but that they all contribute in some measure to the CALT master's programme, with two of them being applicable in other web-based learning situations, constituting a type of re-usable learning object [12] . It is hoped that the above analysis has illustrated that the proposed principle makes it possible for the course designer to examine familiar aspects of course design from a slightly different perspective. This means that issues such as the educational context, course content, learning interactions, academic requirements and assessment can now be viewed in terms of how these aspects can be combined to effect the functions which are required for knowledge construction to take place. The system of functions in a sense offers a rationale for educationists' concern with the traditional elements of course design. The advantages of such a design principle are as follows. Firstly, the principle is generalizable across educational paradigms

and approaches, focusing the course designer on the means whereby the functions are performed rather than making judgements as to which educational outcomes are desirable: it provides a framework, rather, for assessing whether the outcomes deemed desirable are likely to be met. The quality of the desired educational outcome is, of course, important, but this area is already well catered for in the literature [13] [14] [15] [16]. Next, the functions are comprehensive, which means that they offer the course designer moving into a new milieu or medium the opportunity to gain a fresh perspective on the whole process of instructional design. For example, the reflexive function is not limited to formal student assessment, but includes peer and self-assessment, which practices, in spite of being considered laudable, are often not included as an integral part of course design. The reflexive function also relates to course assessment, which, again, is sometimes viewed in a perfunctory way rather than as an integral part of course design. Finally, this principle has been found to underpin successful mixed-mode courses, such as the *Comm. Skills Online* vocational Communication course, which has been found to develop academic literacy more effectively than traditional instruction in a multicultural institution (DIT) with a large proportion of disadvantaged ESL students. A disadvantage is that that there has not yet been time to carry out a comprehensive survey of instructional design principles and rubrics to see to what extent the system of functions has already been pre-empted in the literature, apart from the resonances noted above: this in fact constitutes a research project in itself, and may well be undertaken by certain of our CALT master's students in 2006. Moreover, the principle has not yet been used by course designers outside of the Durban Institute of Technology. It must be stressed that this principle could be used for the design of any type of course, and not just blended learning, and the author would be grateful for feedback on any attempts by readers to apply this principle to course design in specific contexts.

References:

[1] D.D. Pratt, A realist approach to writing: developing a theoretical model of written composition to inform a computer mediated learning application, unpublished Ph.D. dissertation, Rhodes University, Grahamstown, 2005.

[2] M. Pete, C. Fregona, T. Allinson & J. Cronje, Developing a community of online learning practitioners, 2002, <http://olc.dit.ac.za/People2.htm>.

[3] T. Turkington, Free to speak: the making of DIT online, Paper presented at the *WebCT Innovative Impact Conference*, University of Stellenbosch, 5-6 April, 2004.

[4] P.L. Berger & T. Luckmann, *The social construction of reality* (Allen Lane: The Penguin Press, 1966).

[5] R. Franck, *The explanatory power of models: bridging the gap between empirical and theoretical research in the social sciences* (Norwell, MA: Kluwer Academic Publishers, 2002).

[6] P. Clarke, Confessions of a KZN online constructivist course presenter, 2002, <http://www.und.ac.za/users/clarke/confess.pdf>.

[7] S. Conceicao-Runlee, & B. Daley, Constructivist learning theory to web-based course design: an instructional design approach, 1998,http://www.bsu.edu/teachers/departments/edld/conf/constructionism.htm.

[8] D.H. Jonassen, Designing constructivist learning environments, in C.M. Reigeluth (Ed.) *Instructional design theories and models: their current state of the art, 2nd Edition* (Mahwah, NJ: Lawrence Erlbaum Associates, 1999).

[9] D.H. Jonassen, Designing constructivist learning environments. A tutorial, undated, accessed 20 February, 2005, <http://www.coe.missouri.edu/~jonassen/courses/CLE/>.

[10] R. Mason, Models of online courses, *ALN Magazine 2*(2), October, 1998, <http://polaris.umuc.edu/~skerby/faculty/help/resuorces/mason.htm>

[11] R. Bhaskar, *A realist theory of science* (Hassocks: Harvester Press, 1978).

[12] S. Downes, Learning objects: resources for distance education worldwide, *International Review of Research in Open and Distance Learning*, July, 2001.

[13] L.R. Alley & K.E. Jansak, Ten keys to quality assurance and assessment in online learning. *World Class Strategy Papers,* 2000, <http://www.worldclassstrategies.com/papers/keys.htm>.

[14] R. Mason, Models of online courses, *ALN Magazine 2*(2), October, 1998, <http://polaris.umuc.edu/~skerby/faculty/help/resuorces/mason.htm>

[15] C.M. Reigeluth, What is the new paradigm of instructional theory, Paper 17, *ITForum,* 1997, <http://itech1.coe.uga.edu/itforum/paper17/paper17.html>

[16] A. Herrington, J. Herrington, R. Oliver, S. Stoney & J. Willis, Quality guidelines for online courses: the development of an instrument to audit online units, in G. Kennedy, M. Keppell, C. McNaught & T. Petrovic (Eds.), *Meeting at the crossroads: proceedings of ASCILITE 2001,* Melbourne: The University of Melbourne, 263-270.