

Interactivity in Web-based Teaching of Linguistics Courses

by

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Abstract:

Many current digital Information Communications Technologies (ICTs), including the web, have become integral tools in the pedagogical process. Four main features of modern digital ICTs make them stand out as very useful educational tools. These are integration of multimedia, flexibility of use, connectivity, and interactivity (Blurton 1999). This paper focuses on interactivity. Drawing from three years of web-based design of linguistics courses at the University of Hong Kong, it is argued that enhanced interactivity is the single most important reason why university teachers should practise web-based teaching alongside traditional face-to-face classroom teaching. Interactivity has been the subject of much discussion in constructivist approaches to teaching and learning which rely on more active participation in the learning situation on the part of the learner (Daniel and Marquis (1983), Moore (1992), Wagner (1994), Markwood and Johnstone (1994), Barnard (1995), Parker (1999) and Brogan (1999)). A novel notion of *conversational learning community* as a kind constructivist learning environment is introduced. It is shown that *instructional interactivity*, defined as active communication in a conversational learning community between instructor(s), learners, course materials, and links to remote experts and resources, is a central aspect of the learning situation. This conceptualisation has important consequences for course design and delivery. We interpret our web-based course design, using WebCT, as

a practical implementation of this new notion of conversational learning community. Main features of the WebCT that highlight this central notion of interactivity are outlined. It is concluded that web-based teaching actually enhances interactivity both within and beyond the classroom setting.

1.0. Introduction*

At the beginning of the 21st century, we are faced with an age of rapid technological development in information and communication. Issues of educational reform have never been more urgent than now. The main challenge is how we can design our educational system, in general, and our methods of instruction, in particular, to produce graduates who are better prepared to take up jobs in a knowledge-based environment characterised by a pervasive use of information communications technology (ICT). The Hong Kong-based South China Morning Post (SCMP) newspaper editorial of March 9th 2000 formulates the challenge quite appropriately as follows:

"If Hong Kong is to remain a vibrant city, it needs a workforce peopled by creative thinkers and problem solvers. That cannot be supplied by pupils who sit obediently taking notes as a teacher intones instructions."

* The pedagogical activities reported in this paper form part of a Teaching Development Grant, titled, *The Use of Information Technology in Teaching Language and Linguistics Courses*, of which I am Principal Investigator. I wish to thank my co-investigators, Dr. K. K. Luke and Dr. Arto Anttila, for fruitful cooperation on many aspects of IT and Teaching. I am grateful to Dr. Rita Chan and Dr. Craig Blurton of the Centre for Advancement in University Teaching (CAUT) for assisting me with references on the latest theories of learning, especially those making use of ICTs. I thank my Research Assistants, Sophia Lee and Carmen Lee, for helping me with many practical aspects connected to the writing and presentation of this paper. I am grateful to my past students whose enthusiastic embrace of WebCT has provided the data for this paper. Many of them continue to interact with me as lifelong friends.

The main problem posed here is that *passive* or *receptive* methods of instruction must give way to more *active* and *interactive* methods of instruction. Freire (1970) describes passive methods of teaching or what are termed digestive and nutritionist pedagogies in the following way. A pedagogy based on a digestive concept of knowledge is suggested by controlled reading, by classes which consist of only lectures, by the use of memorised dialogues in language learning, by bibliographical notes which indicate not only which chapter but which lines and words are to be read and the methods of evaluating the students' progress in learning.

Interactive learning, on the other hand, promotes a more *active* approach in the knowledge dissemination and acquisition processes. Blurton (1999: 9) describes interactive or constructivist methods of learning as involving "...self-paced, self-directed problem-based...learning processes".

While it can be said that it is the rapid changes in information communications that has created such an educational challenge, interestingly enough, this situation of rapid changes in technology does actually present teachers, course designers, and university administrators with opportunities to successfully produce a literate workforce for our society.

ICTs, especially modern digital ones, include various types of computers; digital cameras; local area networking; the internet and the World Wide Web; CD-ROMs and DVDs; and applications such as word processors, spreadsheets, tutorials, simulations, electronic mail (email), digital libraries, computer-mediated conferencing, videoconferencing, and virtual reality (Blurton 1999). Four main features of these modern digital ICTs make them stand out as very useful educational tools. These are integration of multimedia, flexibility of use, connectivity, and interactivity (Blurton 1999).

The main focus of this paper is an examination of just one of these features: *interactivity* (but see, for instance, Kwok and Bodomo 2000 in which some of the other issues are also discussed). While interactivity has been a subject of considerable attention in the search for newer and more active methods of teaching and learning (Brogan 1999, Parker 1999), there still remains a lot to be discussed as to how it can be enhanced in learning situations involving a mixture of web-based course administration and face-to-face classroom instruction. It is quite clear that the introduction of ICTs into distance learning curricula is crucial in enhancing interactivity, given the situation where teacher and student are separated by distance. It is shown here that even in traditional face-to-face classroom teaching situations, where there is unity of time and unity of venue, the use of the web, one of the new digital ICTs enumerated above, along with other accessories and software that together give us what is termed web-based teaching in a course, plays a crucial role in enhancing interactivity. The paper is organised as follows. Section two defines interactivity and shows the important role it plays in constructive/active learning theories. In section three, I describe the main features of my course and show how interaction was achieved. The fourth section of the paper points to certain challenges that should be overcome to create more opportunities for enhancing interactivity in web-based teaching of linguistics courses.

2.0. Interactivity and its role in Constructive Learning Theories

2.1. What is interactivity?

Thompson (1996), which is the Oxford Compact English Dictionary, is a first useful place one should turn to in an attempt to understand the term *interactivity*. Certain words in this lexical field including the verb *interact* and the adjective *interactive* should help us to better conceptualise the term *interactivity*. To *interact* according to the OED is to act reciprocally; act on each other, while the adjective,

interactive, according to the OCED means 1. To be reciprocally active; acting upon or influencing each other. 2. (of a computer or other electronic device) allowing a two-way flow of information between it and a user. From these related words, we can see quite clearly that *interactivity* involves active communication between two or more individuals or between an individual or groups of individuals and one or more electronic devices.

Beyond these general definitions of *interactivity*, there are more specialised studies and approaches to the term in works that include Daniel and Marquis (1983), Moore (1992), Wagner (1994), Markwood and Johnstone (1994), Barnard (1995), Parker (1999) and Brogan (1999). The key concepts that run through most of these studies include 'active learning', 'two-way communication', 'critical conversation', etc. All these contrast sharply with what would take place in traditional passive/lecture type instruction as described in Freire (1970) and the SCMP (2000) referred to much earlier in the paper. Parker (1999:14) indicates that 'interaction can be defined as active learning and can be as simple as pushing the "play" button on the VCR.' An interesting aspect of understanding the nature of interactivity is an enumeration, within the literature, of different types of interactivity.

Moore (1992) offers three types while Markwood and Johnstone (1994) provides four types of interactivity. In Moore's typology we have learner-content, learner-instructor, and learner-learner interactivity. Learner-content interactivity is illustrated by a student reading a book or a printed study guide (Parker 1999). The interactivity or otherwise of the content is very much a function of how the material is structured and accessed. This point is crucial in deciding how best to place course notes on the web. Instructor-learner interaction is the core of the teaching process. The success of the course design will depend largely on whether the conversation between teacher and learner is such that the learner can increase self-direction and construct new knowledge or not. Learner-learner

interaction involves students working together to discuss, debate and attempt to solve problems that arise in their study of the course materials. Moore (1992) provides us with a very useful framework to discuss how interactivity was achieved in our teaching.

Markwood and Johnstone (1994:94) describe interaction as the "silent, critical, creative conversation within the learner's mind that is spurred and supported by the learning environment." The study outlines four different types of interaction that trigger what it calls critical conversation. The first is interaction with media where individual students scrutinise textbooks, videotapes or any other course material. In our case, this involves a major textbook supplemented by a number of other book sections and course notes. The second is interaction with resources. Here individual students or groups may collaborate with tools such as those used by professionals, including word processors, electronic libraries, laboratories and studios. The third type of interaction according to Markwood and Johnstone (1994) involves interaction with experts. This would mean students conversing with instructor or other experts in real time. This aspect of interaction is yet to be much explored in my course. The last type of interaction is one of interaction through electronic exchange, with students electronically or digitally sharing the results of newly formed knowledge over a period of time (Markwood and Johnstone 1994).

Moore (1992) and Markwood and Johnstone (1994) provide a solid foundation on which to build our idea of interaction and draw up a typology of interaction within the larger framework of what we call a *Conversational Learning Community* (CLC). In conceptualising a CLC, we see the pedagogical process as taking place in an interactive conversational learning community. In this community, we have instructor(s), learners, course materials, and links to remote experts and resources. This constellation then gives us the following typology of interactivity:

- i. *Instructor-learner* interaction either via physical face-to-face interaction (at lectures, tutorials, demonstrations, and consultations) or via digital ICTs (email enquiries, bulletin board enquiries and clarifications, and very rarely chat rooms) or a mixture of both.
- ii. *Learner-learner* interaction within or without an ICT medium, where students are involved in communication with each other in the classroom, in the corridors, on web-based bulletin boards, in chat rooms, and by emails.
- iii. *Learner-resource* interaction which involves learners actively communicating with textbooks, hard-copy hand outs, lecture notes, and with ICT-based current and remote resources such as online lecture notes and outlines, CD-ROMs, glossaries, calender of activities, progress reports, quizzes, and links to experts and more resources

For us then *instructional interactivity* may be defined as *active communication in a conversational learning community between instructor(s), learners, course materials, and links to remote experts and resources.*

This section of the paper has attempted to give a close examination of interactivity, ending with a quite specific interpretation of the term. Interactivity has been shown to be the single cementing factor that binds together all the elements of what we have termed a *Conversational Learning Community*. Before going on to show how web-based teaching strategies were attempts to implement this idea of interactivity within a conversational learning community, we will briefly examine the place of interactivity within current learning and pedagogical theories.

2.2. The role of interaction in constructive/active learning theories

Theories of learning within education and allied fields such as psychology and cognitive science have proliferated over the years. New pedagogical methods based on these theories are turning away from passive methods of teaching which require no action on the part of the student beyond listening and taking notes to interactive delivery methods which enable the student to control and manipulate the instruction environment. These active and interactive approaches to instruction may be situated within the framework of what may be called constructivist theories of learning.

According to Blurton (1999:9), "[M]odern constructivist education theory emphasises critical thinking, problem solving, "authentic" learning experiences, social negotiation of knowledge, and collaboration - pedagogical methods that change the role of the teacher from disseminator of information to learning facilitator...". Works like Piaget (1973) and Strauss (1994) illustrate such new pedagogical theories.

A whole website has been devoted to an exposition of the major theories of learning by Greg Kearsley (1994-2000). This website titled, Explorations in Learning & Instruction: The Theory Into Practice Database has outlined about fifty of such theories. These include the following:

ACT* (J. Anderson) , Adult Learning Theory (P. Cross) , Algo-Heuristic Theory (L. Landa) , Andragogy (M. Knowles) , Anchored Instruction (J. Bransford & the CTGV) , Aptitude-Treatment Interaction (L. Cronbach & R. Snow) , Cognitive Dissonance Theory (L. Festinger) , Cognitive Flexibility Theory (R. Spiro), Component Display Theory (M.D. Merrill), Conditions of Learning (R. Gagne), Connectionism (E. Thorndike), Constructivist Theory (J. Bruner), Contiguity Theory (E. Guthrie), Conversation Theory (G. Pask), Criterion Referenced Instruction (R. Mager), Double Loop Learning (C. Argyris), Drive Reduction Theory (C. Hull), Dual Coding Theory (A. Paivio), Elaboration Theory (C. Reigeluth), Experiential Learning (C. Rogers), Functional Context Theory (T. Sticht), Genetic Epistemology (J. Piaget), Gestalt Theory (M. Wertheimer), GOMS (Card, Moran & Newell), GPS (A. Newell & H. Simon), Information

Pickup Theory (J.J. Gibson), Information Processing Theory (G.A. Miller), Lateral Thinking (E. DeBono), Levels of Processing (Craik & Lockhart), Mathematical Learning Theory (R.C. Atkinson), Mathematical Problem Solving (A. Schoenfeld), Minimalism (J. M. Carroll), Modes of Learning (D. Rumelhart & D. Norman), Multiple Intelligences (H. Gardner), Operant Conditioning (B.F. Skinner), Originality (I. Maltzman), Phenomenonography (F. Marton & N. Entwistle), Repair Theory (K. VanLehn), Script Theory (R. Schank), Sign Theory (E. Tolman), Situated Learning (J. Lave), Soar (A. Newell et al.), Social Development (L. Vygotsky), Social Learning Theory (A. Bandura), Stimulus Sampling Theory (W. Estes), Structural Learning Theory (J. Scandura), Structure of Intellect (J. Guilford), Subsumption Theory (D. Ausubel), Symbol Systems (G. Salomon), Triarchic Theory (R. Sternberg)

So what is the role of interaction in these theories of learning? Do all these theories emphasise interaction, or are there some of them which by nature of their very conceptualisation are more amenable to the features of interactivity that we have outlined above? We will briefly mention three of these theories which we consider to be the most relevant. They are the constructivist theory of Bruner, the conversation theory of Pask and Vygotsky's Social development theory.

An exposition of the constructivist theory is contained in works such as Bruner (1966, 1983, 1986, 1990). According to Keasley (1994 - 2000), a major theme in the theoretical framework of Bruner is that learning is an active process in which learners construct new ideas or concepts based upon their current/past knowledge. The learner selects and transforms information, constructs hypotheses, and makes decisions, relying on a cognitive structure to do so. As far as instruction is concerned, the instructor should try and encourage students to discover principles by themselves. The instructor and student should engage in an active dialog (i.e., socratic learning). The task of the instructor is to translate information to be learned into a format appropriate to the learner's current state of understanding. Curriculum should be organized in a spiral manner so that the student continually builds upon what they have already learned.

The role of interaction is fairly prominent in such a theoretical conceptualisation. Once again interactionist terms like 'active process', 'active dialogue' come to the fore.

The next theory that is of immediate relevance to an interactive approach to teaching is the conversation theory as contained in Pask (1975). The fundamental idea of the theory is that learning occurs through conversations about a subject matter which serve to make knowledge explicit. Conversations can be conducted at a number of different levels: natural language (general discussion), object languages (for discussing the subject matter), and metalanguages (for talking about learning/language). In order to facilitate learning, Pask argued that subject matter should be represented in the form of entailment structures that show what is to be learned. Entailment structures exist in a variety of different levels depending upon the extent of relationships displayed (e.g., super/subordinate concepts, analogies). The critical method of learning according to conversation theory is "teachback" in which one person teaches another what they have learned. Pask identified two different types of learning strategies: serialists who progress through an entailment structure in a sequential fashion and holists who look for higher order relations. (Kearsley (1994-2000) [<http://www.gwu.edu/~tip/pask.html>])

The third theory of much relevance to interactive approaches to learning is the social development theory as conceptualised by Vygotsky (1962, 1978) The major theme of Vygotsky's theoretical framework is that social interaction plays a fundamental role in the development of cognition. Another aspect of Vygotsky's theory is the idea that the potential for cognitive development is limited to a certain time span which he calls the "zone of proximal development" (ZPD). Furthermore, full development during the ZPD depends upon full social interaction. The range of skill that can be developed with adult

guidance or peer collaboration exceeds what can be attained alone. Kearsley (1994-2000) [<http://www.gwu.edu/~tip/vygotsky.html>]

With terms like 'active dialogue', 'conversations about subject matter', and 'social interaction' resonating across these theories, it is clear that interactivity has a central role to play in these theories of learning, which may all be grouped under the general framework/paradigm of constructivist methods of learning as described above.

Indeed these three theories may be seen as forming a useful foundation for the idea of *conversational learning community* that we evolved as a conceptual framework for designing web-based courses. Terms like 'active dialogue', 'conversations about subject matter' and 'social interaction' do form the core of what we may term a *conversation learning theory*. The main idea a conversation learning theory is that enhanced interactivity, whether face-to-face or online, would lead to an effective reciprocal, two-way, communication within the learning situation. This enhanced communication is the backbone for the efficient exploitation of the resources, experts, and links by both instructor and learners within the learning community.

[Diagram:

Conversation Learning theory licences conversation learning community. The sort of web-based design that we present in the next section constitutes an implementation of this idea of conversation learning community.]

3.0. A Description of the design of a Web-based course

I have now explained a number of issues, including the need to use ICT in education, web-based teaching, and interactivity and its role in constructivist teaching methods. I will in the rest of the paper provide a description of a specific course within my web-based teaching

programme, and how interactivity was achieved in the course design. I begin with the choices available for a course designer.

3.1. Choosing a Web-based Course Tool

In deciding to do web-based teaching or facilitate web-based learning, course designers have, at least, two options. They can choose to develop their own tools or they can choose from the repertoire of many course tools called asynchronous web-based software suites (<http://www.outreach.utk.edu/weblearning/>) that are already available on the market. Robert Jackson (2000) describes the key features of asynchronous course tools as follows on the Web-based Learning Resources Library. "Key characteristics of major players in asynchronous suites typically include capability for secure student login via standard java browser, centralised database-centred syllabus with links to internal or external web pages, on-line, time-monitored quizzes with randomised dynamically-generated testing, discussion groups, and integrated email. Systems also provide instructor development tools to ease transition from other media to these products". (<http://www.outreach.utk.edu/weblearning/>) In the following, I briefly list and comment on a few of them. These include: Blackboard CourseInfo, Lotus LearningSpace, Topclass, and WebCT

Blackboard CourseInfo claims to enable educators to enhance in-class instruction and/or deliver distance learning by bringing their course materials, class discussions, assignments and quizzes to the Web. (<http://product.blackboard.net/courseinfo/>)

Lotus LearningSpace (<http://www.lotus.com/>) purports that its version 4.0 will deliver e-learning that's flexible and powerful for all kinds of users -- learners, administrators, planners, course developers, and content providers.

TopClass (<http://www.wbtsystems.com/>) runs on an Oracle database and so provides a robust and scalable foundation for delivering,

managing and measuring online learning in any organisation. (<http://www.wbtsystems.com/products/products.html>)

WebCT (<http://www.webct.com/>) is said to be a low cost, asynchronous delivery and course management system developed by University of British Columbia for higher education faculty. A collection of development tools and custom CGI scripts, it is maturing into an integrated tool suite. WEBCT was purchased by Universal Learning Technology in May of 1999.

3.2. Web-based course design via WebCT

Prior to 1998, I used to do web-based teaching by simply putting my course materials on the internet without any course tool. This created a number of problems. First, it was difficult for me, as course designer, to manipulate access to the material in terms of passwords and accounts for the learners. Second, many other interactive features such as bulletin boards, chat rooms, and secured records for student activities were not possible. As such, I hardly was able to design and implement the conceptual notion of *conversational learning community* that we have referred to above.

In 1998, when I began designing and teaching courses on various aspects of linguistics, I read an announcement from the University's computer centre asking staff members to come to take a course in WebCT. I decided to register for the course and that turned out to be one of the best decisions I have ever made with regards to efforts at teaching development. Since taking that WebCT designer course, I have gone on to computerise all of the four courses that I teach in Linguistics at HKU.¹

¹ I thank people at the Computer Centre, University of Hong Kong, including Fanny Chau, Dickson Chau and Alice Lam, for technical support, especially at the early stages of my encounter with WebCT.

I have described the course design of one of the courses in Bodomo (1999), a collection of the first set of WebCT courses at the University of Hong Kong by the Computer Centre. On this score then I am one of the earliest WebCT course developers at HKU.

Further development of WebCT course design has led to the award of a joint Teaching Development Grant (TDG) titled, *The Use of Information Technology in the Teaching of Language and Linguistics courses*. Further information on the project may be found at the project website at the following address:

[<http://www.hku.hk/linguist/staff/TDGBodomo.html>]

The courses designed under this project include:

LING2016 [Syntax II: The Theory of Grammar](#) at
<http://ecourse.hku.hk:8900/public/B0257/> taught by Dr. A. B. Bodomo

LING2006 [Syntax 1: Describing Grammatical Patterns](#) at
<http://ecourse.hku.hk:8900/public/LING2006/> taught by Dr. A. B. Bodomo

LING2002 [Conversation analysis](#) at
<http://ecourse.hku.hk:8900/public/Ling2002/> taught by Dr. K. K. Luke

LING2018 [Lexical-Functional Grammar](#) at
<http://ecourse.hku.hk:8900/public/LING2018/> taught by
Dr. A. B. Bodomo

LING2011 [Language and Literacy](#) at
<http://ecourse.hku.hk:8900/public/LING2011/> taught by Dr. A. B. Bodomo

In the rest of the paper, while giving some excerpts from some of my earlier course designs, I will concentrate on describing just one that I

have recently designed to teach a course on the relationship between Language and Literacy.

3.3. WebCT design of a course on Language and Literacy

The Language and Literacy course is a one semester six credits course for second and third year students of Linguistics and related disciplines.

The course usually begins with an attempt to get students (usually about 20 - 30 in number) to understand the concept 'literacy'. The course materials and lectures and tutorials are designed in such a way that students are supposed to discover for themselves that the concept literacy is NOT limited to just the ability to read and write. Students are supposed to discover for themselves the various linguistic, cognitive, social, and educational issues surrounding the concept. Students are encouraged to gain an understanding of the role of language and literacy in the socio-economic development efforts of many societies through various activities such as discussions, debates, classroom presentation, tutorials and interview of resource persons.

Topics covered in the course often include:

- i. Definitions and types of literacy;
- ii. The relationship between language and literacy;
- iii. Writing and other symbolic systems;
- iv. Computer Literacy and Language educational technology
- v. The origins, history and acquisition of literacy, and
- vi. Comparative analyses of the language and literacy situations in selected parts of the world, including Hong Kong, Mainland China, and South-east Asia.
- vii. Literacy and socio-economic development

3.3.1. How interaction was achieved in my course

I will now attempt to explain how interaction was achieved in my class. This begins with the creation of a learning community. We have stated in section 2 above that our course design, whether in the form of face-to-face classroom lectures or WebCT course page activities like discussion and presentations, is guided by the conceptual notion of a *conversational learning community*, comprising instructor(s), learners, current resources and remote experts and resources.

The first task then in my course administration is often to get the group of about 20 - 30 students to communicate and interact with each other and create a sense of community. The first exercise towards this goal is often in the form of internet search. The following excerpt from the course explains the exercise:

Ling2011: Reading Assignment/Homework:

1. Literacy Information Mining on the web:

Students should form groups of 2 - 3 people. Each group should search the world wide web with key words 'literacy', 'language', (and combinations of these) and choose 10 sites. These sites should be analysed with a view to finding out what literacy is and what common issues are discussed concerning language and literacy courses. Each group of students should spend five minutes in the next lecture explaining how their understanding of literacy has been affected by these 10 websites.

This exercise is meant to get students to create physical and electronic networking among themselves and it often succeeds to a large extent because I have noticed that later groups to be formed in the class often reflect this earlier grouping.

Other exercises include short group discussions on issues in class during the first two weeks.

Once this sense of community is created, the rest of the instructional activities aim to consolidate and strengthen it, developing it into a real conversational learning community. I do this both through my face-to-face classroom activities and my WebCT design activities.

Face to face classroom activities include a mixture of lectures, student presentations and tutorials. Very little ICTs are used here. The main tools employed by me at lectures and tutorials are traditional classroom educational technology such as projector/overhead machines, black- and whiteboard and lecture hand-outs, and assignment feedback sheets. As the semester advances, I have often noticed that student presentations become more and more ICT-mediated, the most typical presentation tool being the powerpoint.

Surprisingly, greater and more sustained aspects of the interaction between students often take place on the WebCT homepage for this course. In the next subsection, I will describe some of the main features and resources of this tool, showing what kinds of interactivity takes place and how.

3.3.2. Some interactive WebCT features of the course

Diagram [screen snapshot of the course homepage on powerpoint]

Course Highlights

Teaching materials

Contents with glossary definitions

The Contents with Glossary Definitions module of WebCT serves as a kind of on-line dictionary for the students. The Syntax course on the one hand and Language and Literacy course on the other involve a vast amount of definitions of basic issues. Terminologies and other technical phrases easily pile up even at the very beginning of the course, and they are very crucial for a sustainable comprehension of the subject matter. This aspect of the course tool thus comes in handy, as I often use it to outline and define some of the most important terminologies for each topic. Students are asked to regularly refer to this site as they read through the lecture notes. The more active than would be the case.



contents

we tend to call them *PRO*.

(the *PRO* which is subject of infinitive clause is not the same as the null subject of finite clauses)

These two sentences, which have about the same structure, can be represented on a tree diagram as follows:

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graph TD
    IP1[IP] --- I1[I]
    IP1 --- Ibar1[I-bar]
    I1 --- V1[V]
    Ibar1 --- VP[VP]
    VP --- V2[V]
    VP --- IP2[IP]
    IP2 --- D[D]
    IP2 --- Ibar2[I-bar]
    Ibar2 --- V3[V]
    D --- S1[She]
    V1 --- W1[will]
    V2 --- W2[want]
    V3 --- C1[come]
    Ibar1 --- ME[me]
    Ibar2 --- T[to]
    Ibar2 --- C2[come]
    subgraph Control
    S1 --- W1
    W1 --- W2
    W2 --- ME
    ME --- T
    T --- C1
    end
    subgraph PRO
    S2[She] --- W3[went]
    W3 --- PRO[PRO]
    PRO --- T2[to]
    T2 --- C3[come]
    end
    S1 --- S2
    W1 --- W3
    ME --- PRO
    T --- T2
    C1 --- C3
  
```

(a) She will want me to come
 (b) She will went PRO to come

control

empty category A category which is covert (silent, null) and hence has no surface phonetic form. Empty categories include traces, PRO and pro.

Definitions of technical terms in Linguistics are included in the glossary list so that students can easily [check](#) the meanings while browsing

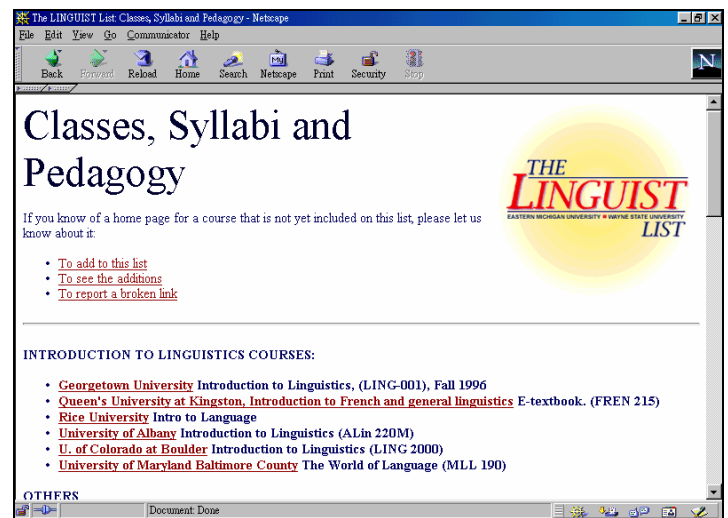
Links to Useful References

The Links feature of WebCT allows a course developer to make useful pointers to various websites that are of relevance to the course. I have made links to such useful resources on the internet as the Linguist's List, which has a large collection of various other courses related to my course by other teachers in other universities world-wide; and the International Lexical-Functional Grammar Association (ILFGA) website, which has useful references and other information on a specific theoretical approach to the analysis of natural languages.

For the language and literacy class, I have made links to the numerous sites about literacy, including the LiteracyOnline sites. This issue of making links implements the conceptual notion of having remote resources as part of the conversational learning community that we create.

Student Access Statistics

This feature is a very valuable aspect of WebCT in terms of helping the teacher to track and manage student progress. Each time I post a new course material



Links to useful web sites are provided to students so that they can find useful references and other information related

Student Tracking

on the web I demand that students read the material before the next scheduled class. Before the start of the class, I log on to assess how many students have already accessed and, presumably, read the material. This I can gauge by looking at the number of students logging on, and also by what pages they visited. Indeed, I could even have an idea of which particular students accessed the material, and their frequency of access. It turned out, however, that sometimes actually more students had accessed the pages than the access statistics indicated. Some students simply asked their friends to download copies of the material for them without they themselves accessing the material from their own accounts! One way to solve this problem, if it is thought of as such, is for the teacher to actively discourage this oblique access to the course material on the web.

WebCT Student Tracking - Netcape

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Stop

Student Tracking

Personal Information		Access Information		Articles		
Full name	Login ID	First Access	Last Access	Hits	Read	Posted
Chan, Kwok Yin Eric	h9634315	Sep 9 15:02 1998	May 27 13:35 1999	452	58	6
Chan, Siu Ping Annabel	h9604492	Sep 22 14:29 1998	May 19 10:42 1999	155	50	0
Chan, Sze Wai Gloria	h9620544	Sep 21 14:50 1998	Dec 11 4:09 1998	154	49	0
Chan, Wai Man Mandy	h9601930	Sep 14 19:03 1998	Jun 22 14:17 1999	268	55	0
Cheng, Kin Ying Jeanne	h9610319	Sep 10 0:16 1998	Jul 17 23:35 1999	171	60	0
Choy, Pui Ling Kate	h9621300	Sep 14 16:09 1998	May 20 0:09 1999	235	58	1
Fong, Shung Wan Sonia	h9605414	Sep 17 9:05 1998	May 16 17:58 1999	155	29	0
Ho, Joyce	h9600413	Sep 16 15:07 1998	May 20 12:08 1999	150	43	0
Hon, Pui Yee Teresa	h9613674	Sep 9 15:02 1998	Aug 9 13:56 1999	313	60	0
Kei, Ching Dorothy	h9618150	Sep 9 15:47 1998	Jun 13 17:44 1999	184	32	0
Kwan, Ling Huen Mandy	h9620550	Sep 14 15:25 1998	May 19 18:41 1999	240	53	0

Home Listing: Select Query Show Whole Class
Paste from Clipboard Copy to Clipboard

Document: Done

History of Pages Visited by Alice Lam

[Prev 10 Accesses] [Next 10 Accesses]

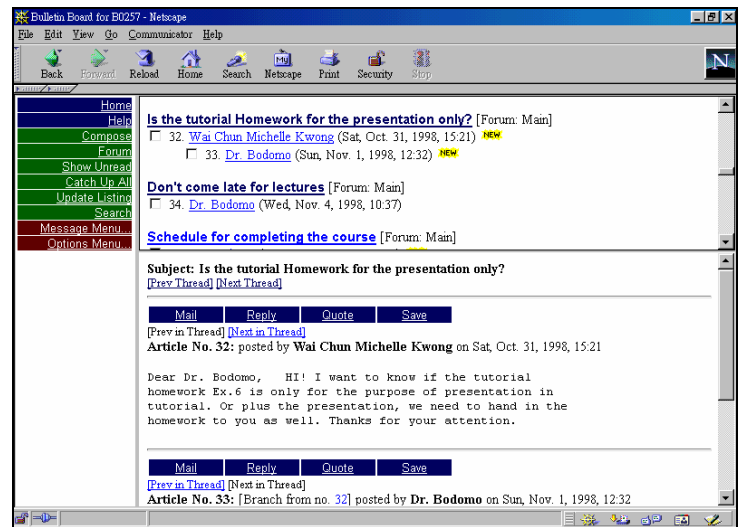
Page Name	Time of Access
49 Empty Categories	Thu Jul 22 12:40:59 1999
48 Empty Categories	Thu Jul 22 12:40:00 1999
47 Head Movement	Thu Jul 22 12:39:09 1999
46 Empty Categories	Thu Jul 22 12:38:03 1999
45 Syntactic Structure	Thu Jul 22 12:36:37 1999
44 Categories and the Lexicon	Thu Jul 22 12:36:34 1999
43 Preliminary II	Thu Jul 22 12:36:30 1999
42 Preliminary I	Thu Jul 22 12:36:25 1999

Discussion Forum

WebCT's Bulletin board and Presentation feature together provide a useful discussion forum for participants in my Linguistics courses. This is indeed the most useful feature with respect to incorporating interactivity in the course. Through the bulletin board, I can readily send information to the class and to individual students about the course. These include reminders of deadlines for assignments, clarifications about specific points, and pointers to any errata in my course notes. Students, on the other hand, can use this forum to ask me questions on aspects of the course and to post general messages to other students on the course. Groups of students can use the presentation forum to upload and discuss a topic, which they may subsequently write up and present to the whole class.



bulletins



Bulletin board is used as a channel for announcements of course related events, questioning and answering as

Show examples of each of the tools in the language and literacy course (on a slide): content (course outline), glossary (list of words), presentation (list topics), bulletin (a compressed list of topics, especially on biliteracy and literacy restriction), student and page tracking, homepages (Amos and Connies), calendar etc.

4.0. Opportunities and challenges for the future

4.1. Opportunities

The foregoing has outlined how I have designed my course on WebCT so as to enhance interactivity, a crucial element in a conversational learning community and indeed in any other effective learning situation. A possible question to ask then is how successful we have been. Success, failure and other issues of evaluation are difficult to measure accurately. They may be from the point of view of the instructor or the student. In the following, I shall briefly point to some qualitative features which make me think that, from an instructor's point of view, interactivity has been achieved in the course. I will also draw from some comments that students made as part of end of semester formal evaluation of my course.

From an instructor's point of view, certain features of communication and academic activity, if they are part and parcel of a course, would serve to indicate that the teaching endeavour is successful. Three of these features include critical thinking, initiative on the part of students, and academic rigour.

4.1.1. Critical thinking

I noticed that as time went on, not only were students more forthcoming in discussing and interacting with me and with their fellow students, they were also becoming more critical in their thinking. At certain points during the course, students were beginning to question and argue some of the points from me and from their fellow students. Sometimes, I present an issue with regards to the definition and conceptualization of literacy and how it relates to language and then ask students to evaluate these views by applying them to the Hong Kong situation and, indeed, other situations that they know. For instance, the class grappled over a period of time with the relationship between the concepts 'bilingualism' and 'biliteracy'. A

lot of discussion ensued on this topic as shown on the bulletin board transcripts.

(Bring in some excerpts from the bulletin about biliteracy)

I consider critical thinking within the conversational learning community as a strong indicator of the success of interactivity in the learning situation. This may be compared with Markwood and Johnstone (1994)'s idea of critical conversation.

4.1.2. Initiative

Another indicator of success with regards to the learning situation is initiative on the part of students. Half way through the course, I noticed with great joy that students did often introduce their own topics of discussion (examples from bulletin) and techniques of information gathering and processing. At one point in time, I had wanted to introduce the concept of biliteracy in the context of our discussion of bilingualism, but was pleasantly surprised to log onto my WebCT to notice that one student had already started a topic of discussion on it. (slide example from bulletin) In terms of methodology, one student surprisingly introduced the notion of annotated URLs on her homepage, something I wanted to introduce to the students. I encouraged students to follow her example. In our knowledge-based economy innovation has become a crucial element of an efficient workforce. Initiative is an essential element of innovation, and the pedagogical process should aim at promoting it. (see slide example from Connie's homepage).

4.1.3. Academic rigour

A third measure of the fact that my class achieved an enhanced constant interaction was the academic rigour I noticed in the essays that many of the students wrote for me. Students were often generally very knowledgeable about the different shades of opinions regarding a particular technical issue. Indeed, some students even began to

question some aspects of the textbooks against the realities of the Hong Kong situation that they know best.

In every evaluation situation, it is often best to hear from the horse's own mouth, i.e. those most affected by the situation to be evaluated. The crucial question is how the students perceived this attempt to enhance interactivity in their learning situation by the use of web-based teaching?

As at the time of writing, complete figures of the evaluation process have not yet come in but the written comments of the students from the official evaluation process point to a positive appraisal of the element of enhanced interactivity in the web-based learning process, as shown by the following anonymous open-ended questions:

Department of Linguistics

Anonymous open-ended comments about the course: LING2011

1. What aspects of this course did you find most beneficial?

- Handouts and WebCT
- It provides me the opportunity from knowing nothing about literacy to become knowledgeable on the subject.
- WebCT: useful tool for interaction.
- I know more about WEB-CT & become more “computer-literate”.
- The use of WebCT
- The assignments & the tutorials.
- The web, ie bulletin board is very useful in helping students to learn more about the topics by talking about it.
- Presentations help us understand it too
- The WebCT is a good place for students & lecturer to discuss different things outside class.
- Knowledge learned

4.2. Challenges

In the course of web-based design of my course on language and literacy and indeed other courses, I have experienced a number of issues which, rather than perceiving them as problems and obstacles, I will perceive as challenges to be overcome towards an improvement of web-based teaching. A discussion of these would be very welcome.

4.2.1. Low written interaction at the beginning

I have described some initial steps I take to get students to form groups and begin interacting with each other. It is however often a bit difficult to get them to start writing and sending messages of discussion on the bulletin board. Indeed some students never post a single message throughout the course, though they may keep reading every bit of discussion going on.

[Show figures from student tracking minus names in the form of a graph].

I have often made several posts without any responses. In these posts, I ask questions, and exhort students to start making use of the forum. The interesting aspect here is that, it takes just a few students to begin and most come on board. In extreme situations of low participation, I remind them that active participation counts towards the coursework mark.

4.2.2. Multimedia integration: graphics and sound

An aspect of my web-based course design that stills awaits attention is the integration of graphics and other kinds of multimedia alongside text. I have incorporated some drawings in syntax courses.

[Show diagrams on PRO and object movement]

However, I am yet to add graphics in other courses. It must however be mentioned that, in spite of the fact that graphics are important, recent research has shown that they are not that crucial in processing text information. For instance, a joint study by Stanford professor of

Communication, Marion Lewenstein, and others, shows that graphics may not be that important in reading information on the net. According to this study people read 92% of the text on Web pages, but they looked at only 22% of the graphics on the same pages. [<http://www.poynter.org/eyetrack2000/index.htm>]. This shows that even if one incorporates graphics in web-based design of courses, one should do that sparingly.

Other communication tools that one might consider incorporating into web-teaching are ICQ and web-based mobile phones. I have spoken to some of the students with low written interaction on the bulletin page and they have mentioned that they prefer more synchronous means of communication with their friends, such as ICQ.

5.0. Summary and conclusion

This paper has attempted to demonstrate that interactivity is an essential aspect of student-centred course design endeavours. As the SCMP quotation at the beginning of the paper indicates, society seems to require universities and other learning institutions to produce graduates who are creative thinkers and problem solvers; and who at the same time are literate enough to function well in a knowledge-based economy where there is a pervasive use of ICTs. To achieve this educational goal, we need to reform our methods of instruction, moving away from more passive methods of teaching to more active and interactive methods. Based on three years of web-based course design and delivery, this paper has proposed some ways of designing more interactive courses.

Basically, teachers ought to construe their learning environment as one of conversation between instructor and learner. Important components in this environment include instructor(s), learners, course materials, and links to remote experts and resources. All these components are glued together by instructional interactivity. Three

types of instructional interactivity ought to be recognised. There are instructor-learner, learner-learner, and learner-resource interactivity.

While there still remain some challenges, it has been shown that by doing interactive web-based teaching many positive things such as critical thinking, initiative, and academic rigour may be achieved. Moreover, we may conclude that interactivity on the web seems to enhance even traditional classroom and tutorial sessions. Interactive web-based teaching allows teachers to achieve a better management of the course, both on cyberspace and in the traditional classroom. Interactivity thus has the potential of rendering the gap between traditional face-to-face classroom education and distance education redundant (Bodomo 2000). Between my first lessons in WebCT course design three years ago and now, a whole pedagogical paradigm shift has occurred in me. I am determined to overcome various challenges and go on to even greater heights in the search for more interactive web-based courses in Linguistics. To quote from the motto of one of my favourite soccer teams, "We know no stopping."

6.0. References

Barnard, R. 1995. Interactive Learning: A key to successful distance delivery, *The American Journal of Multimedia*, 12, 45 - 47.

Blurton, C. 1999. *New directions of ICT-use in education*. UNESCO's World Communication and Information Report 1999. on-line available at:

<http://www.unesco.org/education/educprog/lwf/d1/edict.pdf>

Bodomo, A. B. 2000. Interactivity in Web-based Distance Educational Courses, paper to be presented at the plenary session of the Ghana Computer Literacy and Distance Education Conference, July 2000, Accra, Ghana.

Bodomo, A. B. 1999. WebCT course design for Syntax II: The Theory of Grammar. In *Web-based Course Development Using WebCT at the University of Hong Kong*. Computer Centre, HKU. Pages 52 - 54

Brogan, Pat. 1999. Using the web for interactive teaching and learning: An imperative for the new millennium. A white paper, Macromedia's Interactive Learning Division.

Bruner, J. (1966). *Toward a Theory of Instruction*. Harvard University Press, Cambridge, MA.

Bruner, J. (1983). *Child's Talk: Learning to Use Language*. Norton, New York.

Bruner, J. (1986). *Actual Minds, Possible Worlds*. Harvard University Press, Cambridge, MA.

Bruner, J. (1990). *Acts of Meaning*. Harvard University Press, Cambridge, MA

Daniel, J. and C. Marquis. 1983. Independence and interaction: Getting the mix right, *Teaching at a Distance*, 15, 445 - 460.

Freire, Paulo. 1970. The Adult Literacy Process as Cultural Action for Freedom in *Harvard Educational Review*, 1970, 40, 205 - 212

Jackson, Robert, H. 2000. Web-based Learning Resources Library [http://www.outreach.utk.edu/weblearning/] Email: rhjackson@utk.edu

Kearsley, Greg. 1994-2000. Explorations in Learning & Instruction: Theory in Practice Database [http://www.gwu.edu/~tip/] (gkearsley@sprynet.com) <http://home.sprynet.com/~gkearsley> website available as at: May 21, 2000

Kwok, Percy and Adams Bodomo. 2000. "The integration of Information Communications Technology (ICT) into secondary school curricula in Hong Kong and Ghana: Re-conceptualizing educational communication" Paper to be presented at the 19th CESE 2000 at Bologna (Italy) 3-7 September 2000

Markwood, R. and S. Johnstone. 1994. *New Pathways to a degree: Technology opens the college*. Western Cooperative for Educational Telecommunications, Western Interstate Commission for Higher Education, Boulder, CO.

Moore, M. 1992. Three types of interaction. *The American Journal of Distance Education*, 3 (2), 1-6.

Parker, Angie. 1999. Interaction in Distance Education: The critical conversation. *Education Technology Review* 13.

Pask, G. .1975. *Conversation, Cognition, and Learning*. Elsevier, New York.

Piaget, J. 1973. *To Understand is to Invent*. Grossman, New York.

South China Morning Post (SCMP). 2000. Newspaper editorial of March 9th 2000, Hong Kong

Strauss, M. J. 1994. A constructivist dialogue. *Journal of Humanistic Education and Development*, 32 (4), 183 - 187

Thompson, Dela. 1996. (ed.) *The Oxford Compact English Dictionary*. Oxford University Press, Oxford, England.

Vygotsky, L.S. 1962. *Thought and Language*. Cambridge, MIT Press, MA.

Vygotsky, L.S. 1978. *Mind in Society*. Harvard University Press, Cambridge, MA.

Wagner, J. 1994. Learning from a distance. *The International Journal of Multimedia*, 19, (2), 12 - 20.