The English Teacher Vol XXVIII October 1998

LANGUAGE TEACHER TRAINING AND THE IMPLEMENTATION OF THE ELECTRONIC DELIVERY OF COURSE MATERIALS AND COMPUTER MEDIATED COMMUNICATIONS

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ABSTRACT

An action research framework is used to describe a project that uses the same methodology, i.e. action research, to implement electronic course delivery for 'off-campus', or 'flexible mode', post-graduate students, and computer mediated communications (CMC) for all the post-graduate students enrolled in the TESOL/TLOTE programs at Deakin University, Australia.

At the commencement of this project in 1996, a questionnaire about student access to and use of the Internet was conducted. This questionnaire was repeated in 1997. Analysis of the questionnaires is presented. One result indicated that before the use of CMC and the electronic delivery of course materials would be successful for students, a training program in the use of CMC would need to be developed and implemented. The development, implementation and the outcomes of the training program, started in March 1997, are discussed. The training program and the development of course materials for an electronic format suggested a relationship between the principles of language teaching and the development of course materials, and introducing and using CMC. The paper concludes with questions that will require further research.

Introduction

Action research is described by Nunan (1992:229) as "a form of self-reflective inquiry carried out by practitioners, aimed at solving problems, improving practice, or enhancing understanding. It is often collaborative." If Nunan's description contains the criteria by which action research can be identified, this paper will demonstrate that what was done, and is planned by the TESOL(Teaching English to Speakers of Other Languages)/TLOTE (Teaching Languages Other Then English) staff at Deakin University, is action research. The simpler of the action research models suggested by various authors concerned with educational research (eg. Richards and Lockhart, 1994, Kemmis and McTaggart, 1988, Davis, 1985) is used as the framework for this paper.

This framework involves five major 'spiralling' stages in the research process: planning, acting, observing, reflecting and replanning. The 'spiralling' steps for this project have been multi-dimensional, with many crossover points. The project concerns the electronic delivery of course materials to 'off-campus' or 'flexible mode' students, and the introduction of computer mediated communications (CMC) for all students enrolled in the TESOL/TLOTE programs. The following description of action research is offered to set the context of this paper and the evolving nature of the project:

> Action research '... enables you to try new ideas with a minimum of risk, it makes the task of bringing about change manageable by forcing you to make improvements step by little step, it allows you to introduce changes for the better so gradually that they are almost imperceptible to others in the environment who might otherwise be unsympathetic, and it allows you to involve others ... in the change process' (Davis, 1985:87).

A description of the original project plan, the first stage in the action research 'spiral', is presented as an anchor. One aspect of the analysis of questionnaires of the students about their use of and access to computers, implemented as a part of the 'action' stage of one component of the 'plan', is then presented. The training needs that were evident in the analysis, a form of 'observation', and the training programs that were planned and implemented, 're-plan' and 'new action', are then discussed. 'Considerations for implementation' developed by the staff for the continuation of the project, a 'reflection' step in the intertwined action research spiral, are shown to have congruence with the basic principles of language teaching. These 'considerations' may also be useful for language teachers to be mindful of when using the internet with their students. The future directions for research, more 'reflection', will conclude the paper.

STEP 1: PLAN

In August 1995, the TESOL/TLOTE staff at Deakin University submitted a proposal to fund a project to make courses available electronically. The 'plan' was to use 'new technologies' to add more flexibility to the 'delivery' of the programs offered, and to provide an added mode of communication for students and staff.

At this initial planning stage the proposal was not about CMC, rather it was about the means of delivery of course materials. The CMC aspect of this evolving project developed directly from reflecting on the methodologies implied in our courses, on the nature of the communication technologies themselves, and on 'hunches' about what was possible and would help achieve the dual goals of better teaching and better learning.

After the proposal was approved, the staff 'observed' that skills in the development and use of' the required technologies, even for our purposes, were limited. This resulted in a 'reflection' that the original plan needed amending and staff training would be necessary. This has been slow and developmental, and aimed to avoid the introduction of the 'cutting edge' of the 'new technologies' from becoming the ~bleeding edge'.

A new plan began. Team- and self-training in the use and operation of the 'new technologies' revealed many benefits and difficulties. Another period of 'reflection' about the use of the technologies followed. This reflection concerned the development of new approaches to course delivery and the uses of CMC.

An example of such a reflection concerned the use of the World Wide Web (WWW) as one of the possible modes of course 'delivery'. The World Wide Web could facilitate this 'delivery', and would make it immediately possible. The 'web' is innovative in the way that users can access the information they want, when they feel they want it, quickly and efficiently. The malleability of presenting the text-based content of the courses on the WWW was a parallel to what was attempted with the more traditional means of course 'delivery': lectures, seminars, study-days, study guides and readers. Other modes of presenting information could also be incorporated into the materials 'on the web': audio, video, graphics.

The 'webbing' of the course materials could allow for inter-activity. This could be through an embedded e-mail facility in a WWW 'browser', or through a dedicated e-mail program provided by the University. This facility, e-mail, allows students to interact with each other, with their lecturers, and with other interested parties, from the one technology. A further level of inter-activity is available through the University network's electronic conference program. This program is a means of synchronous and asynchronous pair or group communication.

Another part of the 'plan' was the 'action' of surveying the students. Surveys of the students' access to and use of computers, and their computer training needs, were conducted in 1996 and 1997. These surveys indicated that the students needed training, and issues of access and equity became evident.

STEP 2: ACT

Of 132 articles in the compendium of abstracts and papers of the 1995 ASCILITE (Australian Society for Computers In Learning In Tertiary Education) conference (Pearce et a!., 1995), one mentioned student access to the internet as a concern. Most papers assumed that students had access at their university, or could access the internet from an undefined elsewhere, or did not mention the issue. 'Reflection' on this aspect resulted in an investigation of student access to required hardware and software to operate CMC.

The issues of access and equity have yet to be satisfactorily addressed by the University's administration. In times of economic restraint they are unlikely to be. However, the issues are at least being more thoroughly discussed by researchers and academics. The 1997 TCCL (Teaching in the Community Colleges List, 1997) conference papers are indicative of this change where six of the 66 papers discussed the issues in depth. The participants in the on-line conference sessions at the TCCL conference also discussed the issues at length.

The surveys have become a database from which more informed 'observations' and 'reflections' can be made. Research of the 'target users' has avoided making the assumptions apparently prevalent. This preliminary 'act', a needs' analysis, a primary principle of language education, has demonstrated the benefits of such procedures in action research. The 'plan' was amended as a consequence.

The surveys had three main aims:

- To investigate how many of the students had access to computers, and where this access was
- To discover how many students had access to modems and the internet and where this access was
- To determine the training needed by the students to use the internet, and what type of training, if needed, was preferred.

Table 1: TESOL/TLOTE Post-Graduate Student Survey Results (Access, Use, and Training) 1996, 1997

Questionnaire Items	1996 Total No. of Respondents = 158 Response Rate = 76%	1997 Total No. of Respondents = 131 Response Rate = 65%
Access to a computer at home	78%	71%
Access to a computer elsewhere	16%	21%
No access to a computer	6%	8%
Access to a modem/ the internet at home	24%	30%
Access to a modem/ the internet elsewhere	31%	35%
Have used the internet (eg. e-mail) at home	17%	18%
Have used the internet (eg. e-mail) elsewhere	23%	14%
Would like or require training in the use of computers for study purposes (general training)	62%	59%
Would like or require training in the use of computers for the internet	78%	73%

There were 158 respondents to the questionnaire in 1998, a response rate of 78%, and 131 respondents in 1997, a response rate of 65%. Of the total respondents in 1996, 86 (54%) were enrolled as off-campus students. In 1997, 77 (59%) off-campus students responded. Table 1 (above) shows the main results obtained from the questionnaires. The implications of these figures are discussed briefly here. The figures in Table 1 were previously analysed in other articles about the important issues of access and equity, and the finer analysis of different sections of the student cohort (Brogan, 1996, 1997, and forthcoming). The need for the project to keep the introduction of the electronic delivery of course materials and the introduction of CMC as an 'optional extra' is apparent. In 1997 only 30% of students has access to the internet at home. For equity, the course materials cannot be redesigned with only these students being considered.

The 1997 survey showed that fewer students had access to a computer in their homes (71% in 1997 compared with 78% in 1996), and more of these students did not have access to any computer facilities (8% compared with 6%). Of students with computers at home, more had access to a modem (30% in 1997 compared with 24% in 1996), although fewer of those with modems were using their modems (62% compared with 7 1%). Although more students had access to the internet in 1997, fewer were using this facility than in 1996. These observations are a conundrum when one considers the increasing promotion of the internet and its ability to be used as a successful teaching and learning tool. The one figure that has remained relatively constant is the need for general computer training and training in the use of the internet.

These figures are different to those for the entire student population at Deakin University. In 1996, the University's Information Technology Services Division reported that 45% of on-campus students (61% of total number of students at Deakin are enrolled in the on-campus mode) and 9 % of off-campus students were accessing the internet for communication purposes, an average of 27% (ITS, 1997: 5). The general student body is accessing the Internet more than the TESOL/TLOTE students. This may be because these students are involved in the study of one of the most complex of human behaviours, language. It may also be that the majority of students are undergraduates who are more inclined to use 'new technologies'. Both these propositions remain unexamined. However, the specific characteristics of the TESOL/TLOTE students have assisted interpreting these figures.

The student cohort in the TESOL/TLOTE programs has identifiably different characteristics from the general student body. They are mostly women (83% in 1996, and 79% in 1997), are all post-graduates, are all teachers who have been working in a traditionally non-technological context, are concerned primarily with the teaching of an aspect of human behaviour that has resisted representation using computer technology, ie. the communicative use of language, and finaily were, in the main, studying in the off-campus mode. The future directions of the project incorporate these characteristics.

The project has taken into account what was revealed by the survey of the students. These 'observations' meant further 'reflection' on the uses of the technology. Consideration was also given to any possible disadvantages to those who do not have or do not want access to the technology. The original plan was revised to make all aspects of the introduction of the electronic delivery of course materials and the introduction of CMC an optional component of the course. Those who want to and who can access the new forms of delivery of course materials and CMC are able to, and this is encouraged. However, the materials they access will not be different to the materials that they would be able to receive if they were not able to access the required technology. The content of the electronic materials remains the same, but is presented differently.

The 'electronic' materials have had to be synonymous with the currently available print-based materials. The issue was the presentation of this information in a way that reflected what we wanted the students to do with the information, and the considerations necessary to do this. The considerations concerning the electronic presentation of the course materials are discussed later. Again the multidimensional, spiralling nature of action research is noted. The 'observations' and the 'reflections' that followed the 'action' of the student survey have resulted in 'replanning' and new 'action'.

The second major component of the project, the introduction of CMC for all students, was similarly amended. The CMC facilities are available to all the students, but are considered an additional mode of communication to those used currently. There is no compulsion on students to alter their preferred, traditional forms of communication, but they are encouraged to experiment with and use the newer forms. This encouragement has led to a new 'plan' to 'act' upon, the training of the students in the use of CMC.

The survey indicated that many of the students wanted and needed training in the use of the internet. Interestingly, those students who already had access to the internet wanted training. Those who are currently 'on-line' apparently feel uncertain about their skills in using the internet.

The type of training preferred was on-campus introductory training in a small group setting. The training regime focused on a limited number of objectives all of which aim to demystify CMC and demonstrate the ease of use of this means of communication. The cognitivist or mentalist paradigm underpins the development of the training program that encourages interaction in the fuller sense.

The training program was conducted over a number of weeks in one-hour sessions that were an optional component of the course. The training sessions were held during the students' lecture times for the on-campus students, and during the study day weekends for the off-campus students. To date, each group has had two one-hour training sessions that have:

- Provided a general introduction to the theoretical background of the use of computers in educational settings
- Explained what a modem is and what it does in the simplest terms
- Demonstrated the University's communications software package, and introduced students to the World Wide Web. (Although the WWW is perhaps the most 'user-friendly' means of access to the internet, it is also the most timeand equipment-hungry means. Operation of the browsers to access the WWW can be learnt quickly, although the time required finding what is useful can be lengthy. The staff agreed that the WWW features of graphics, sound, motion and hyper-linked text should be introduced, but that the other more relevant CMC programs should be emphasised. This initial introduction to the WWW was consequently limited.)
- Demonstrated and practised the electronic library access and database facilities. Practical tasks, eg. the reserving of a library book, were used to reinforce the learning.
- Demonstrated and practised the use of the University's preferred e-mail program, especially the file attachment feature. Students were given practical tasks to complete using e-mail (eg. students registered with TESL-L, an ESL related e-mail based 'bulletin board', and accessed a file from the TESL-L archives.)

The second of the training sessions for students has just been completed, and the following discusses the 'observations' made during the training sessions, and the 'reflections' that followed these observations.

STEP 3: OBSERVATION

Responses of the participants in the training programs have confirmed what the survey results demonstrated. There is an on-going need for training in the use of computers for study and communications purposes. Previous reference was made to other observations throughout the project. These observations concerned the need for the staff to develop the uses of the internet in a manner that reflects our students' level of knowledge about these uses and their abilities to access these uses. They were also concerned with the need for the proposed uses to reflect our principles of learning and teaching.

The responses of the participants to the training program have indicated that more time for training is required, especially to practise the skills learnt. Further training sessions of a longer duration are now being discussed. Positive responses to the training program were given about the simple manner in which a complex phenomenon was introduced. Confidence levels in using the internet improved. However, some students mentioned that they could not see any use in accessing the internet at this stage of their professional or academic careers.

A survey of students' learning in computer training programs in the United States found that the amount or type of training was not a significant factor in students' ability to use computers (Speier et aL, 1997). This was also not a factor in ability to learn to use computers. This research found that it was change in attitude towards the use of computers that most directly correlated with ability to use computers, or to learn how to use computers. Addressing the required attitudinal changes was a part of the TESOLITLOTE training program. From informal observation, the positive attitudes that the students had towards their learning seemed to affect the students' learning of the required skills. Students were reminded what Higgins said in 1985 when writing about computers for language learning: 'The computer, despite its apparent sophistication, is still a very stupid machine which cannot handle any inputs which the displaced program writer has not foreseen' (Higgins, 1985:138). This quotation positively affected the students who were feeling the alienation implied in an article in a TESOL journal headed: 'Technology is driving the future, the steering is up to us' (Murray, 1996:3). The training sessions will continue, and will keep emphasising the attitudinal shifts necessary to facilitate ease of use of the technology.

The observations to date have indicated that the introduction of the electronic delivery of courses and of CMC must be an optional component of the course. They also indicate that on-going training in the use of computer technologies for study and communications purposes needs to be a component of the course. A further observation discussed in more depth is the need for the materials developed for the electronic delivery of the course to be within the framework of the subject matter itself. This subject is the teaching of language.

The following section concerns the fourth step in the action research process, 'reflection'. It will outline a set of 'considerations' that developed as a result of 'reflecting'. These 'considerations' resulted from research of the student training and the process of adapting course materials for the WWW.

STEP 4: REFLECT

Other 'reflections' in the project are noted throughout this paper. The 'reflection' to be discussed in this section concerns the relationship between the development of the course materials for electronic presentation and the subject matter of these materials, ie. language teaching methodology.

'Observations' of the student survey, the student training, and the discussions amongst staff have indicated that a set of 'principles' were needed to direct future developments. The students involved in this project are all teachers who are learning to teach language. Consequently, the suggestions that follow developed from summarising the major considerations for teachers of language found in language teaching methodology texts. The considerations suggested are rooted in the cognitivist view of language teaching and are an eclectic collection gleaned from such texts as Nunan's (1991) *Language Teaching Methodology - A Textbook for Teachers, Harmer's (1991) The Practice of English Language Teaching, Lewis and Hill's (1992) Practical Techniques for Language Teaching, and Ur's (1996) A Course in Language Teaching*, amongst others (eg. Doff, 1988; Hubbard et al., 1988). The authors of these texts assume that teachers can already exhibit creativity and confidence, and imply or overtly state that the following considerations should be considered major tenets of English language teaching. These considerations were not chosen because they 'fitted' what was being done, rather it was noticed that what was being done, and how it was being planned, 'fitted' these considerations. This symmetry between what was already taught and how it was taught and what was planned for this project was a bonus for the project' development. This symmetry between the media and the message will assist the students to learn more about language teaching by doing what they are learning. The students are already asked to note any symmetry between what is being taught and how it is being taught, and to respond to the staff and each other. This will continue to be encouraged as the new means of presenting the learning materials and the new means of communicating about what is being learnt are introduced. In summary these considerations are:

- Language teachers need to research their own language classes
- Students need to do something with the language they are learning
- Communication takes place in real situations in real time
- Learning about language processes is as important as learning about language forms
- Learning cannot take place without experience.

Although these considerations relate directly to language teaching, they are applied to the project, especially the electronic delivery of course materials, in the following ways:

Consideration 1:
Research Your Own Class.

On-going analysis of the learning needs of language students is a primary concern of any language teacher. Previous studies (eg. Brindley, 1989; Nunan, 1988) note needs analysis, or researching the needs of learners, as one of the determining factors in language students' success.

Research of our 'class' was done in a number of ways. The questionnaire was one form of research of the 'class', the informal and formal observations of and responses from the student training sessions another. The research of our 'electronic practices' is also incorporated into the project. Responses to the staff about the materials are encouraged by using as many means of communication as possible. The research of our own 'class' also includes reviewing of the literature related to on-line instruction.

An example of the research of the wider 'classroom' involves staff training. This training has prompted a design for the WWW course 'delivery' cognisant of this course being concerned with one of the most complex and personal of human behaviours: language. The design needs to be complete, yet cogrntively flexible, non-linear and allow for a multi-dimensional means of accessing and using the materials presented. This implies a 'feedback-loop' mechanism (Woodward, 1991), a practice that teachers of language are already aware of, be it explicitly or implicitly, and a practice that further informs the research process.

Consideration 2:
Students Need to Do Something With What They Are Learning.

It is arguable whether a teacher can ever teach anything. Harmer's (1991) concept of the 'teacher as facilitator' and Long's (1983) research into the effectiveness of different modes of learning a second language suggest that a teacher needs to facilitate learning by having the students actually do something.

In language lessons, the focus is on learning how to do something useful with the language, on performing some meaningful action. The point of any language lesson will be to perform something that the student may need to do when using the language being learnt. This is similar to the methods employed in the introduction of the use of CMC, and the development of the on-line learning programs. The students will be able to learn something that is useful and meaningful, and do something with what they have learnt.

Consideration 3:
Communication Takes Place in Real Situations, in Real Time.

Language learners' abilities to memorise vocabulary, explain grammar, or complete a multiple-choice test is no proof of their ability to communicate. None of these abilities prove that learners are able to use a language they are learning in real situations without hesitation. Real communication takes place instantaneously and in situations where the learner may not know what is going to happen next. Normally, one sentence or one answer is not enough. The ability to understand and be understood in real life is needed.

In the project, this principle translates to the added responsiveness provided by the technology. Students' engagement with the learning materials, with each other and the staff is enhanced by the synchronous and asynchronous communication capacities of the technology, and the facility offered by such tools as hyper-text. Real situations and real time can be manipulated, and the virtual situation and virtual time add a dimension to the levels of manipulation of the learning resources and the communication tools now accessible. An example of this principle in action would be a student reading a section of their study guide and then being able to link instantly to a related article on the WWW. This could be followed by an 'e-mailed' question to their lecturer about the article, an on-line conference session with other students, or a library search for related articles. The engagement of the mind of the learner is the real situation, and the learning is taking place in that learner's 'real' time.

Consideration 4:
Learning Processes is as Important as Learning Forms.

The debate about the importance of learning language forms continues. From a South East Asian perspective this debate is being enlightened by researchers such as Tickoo (1995), and Gaudart (1995). These researchers have focused on the teaching of EFL.

Despite the controversy surrounding such aspects of language teaching methodology as the explicit teaching and practising of grammar rules, language learners do need to learn about communication processes if they wish to be successful communicators. Such communicative processes have at least the following characteristics:

- Choice of words: usually first language speakers have a choice of what to say and how to say it. Learners of a language often express this desire to be able to express themselves spontaneously in their second language.
- An Information Gap: usually communication takes place between people who have information to share. The communicative purpose is to bridge an 'information gap'.

In the language teaching methodology texts previously cited, language teachers are encouraged to set up or employ situations where students can spontaneously use the second language and share information with each other in that language. Similarly, the project intends that students develop their learning, and communicate about their learning. An added choice of mode of communication (CMC) exists. The representation of the learning materials to make them rhetorically more sensitive (ie. the 'tendency to adapt messages to audiences', Littlejohn, 1996: 107) is also a component of the project. The 'information gap' in the project is the communication activities incorporated into each mode of the existing learning program. The creativity that is available through the WWW for both the learner and the teacher would be the equivalent of the 'choice of words'. The modes of learning are increasingly being made more manipulable by the learner.

The methodologies currently taught and used in the programs are congruent with the other uses of the explored technologies. These methodologies highlight inter-activity in its fuller sense, the communicative imperative, and the ability to manipulate the ideas being presented. Accepted and researched techniques in language teaching methodology, eg. collaborative group work and incorporating students' formative evaluations into course design were already distinguishing features of the course content and the modes of learning provided. These techniques were transferred to the electronic context.

Consideration 5:
Learning Cannot Take Place Without Experience.

Students can best learn a language by using it. Language learners need to become involved in their learning experiences and are more able to this when there is a real communicative purpose. Language learners also need to have the freedom to choose their language. In any communicative lesson, the teacher needs to eventually give control to the students. In a 'good' language learning classroom, the teacher will organise communicative activities but will not control them.

The project has recognised this principle. Students are encouraged to engage with each other, the staff, and any resources that they can find on the internet in a way that is purposeful for their learning. Apart from the features of the WWW for research and for ease of manipulation of learning resources, the project encourages e-mail contact, and on-line conferencing. Other electronically based utilities for learning such as the library databases or library catalogues are also incorporated into this project. Students could learn about their chosen content area, language teaching, through their experiences and through the experiences of others.

The methodology implied in the learning materials designed for the WWW, and the use of CMC, concords with and reflects our teaching and learning methodologies. The results of the questionnaire and the observations of the student training sessions have indicated a requirement for further training. These two 'findings' have resulted in replanning.

STEP 5: RE-PLANNING

The action research process is currently in one of the many 'reflection' and 're-planning' stages. The resolution of practical issues, such as the legal complexities of gaining copyright clearance for electronically represented learning resources, is now the 'action'. New questions are raised and constitute the beginnings of new plans.

The research to date shows that much initial training of both students and staff is required, that the methodology of the project concords with and reflects our teaching and learning methodologies, and that important issues of access and equity need to be explored. As a consequence, the future research questions that the TESOL staff will attempt to address will include:

- How can the access and equity issues involved in this project be addressed?
- Are there identifiable 'qualities' or 'attitudes' that students can learn to better use CMC?
- Why did those students who had access to the Internet not use this access?
- Why are there identifiable differences amongst different groups of students in their use of and access to the internet?
- What type of access do those students who are currently on-line have: unlimited, controlled, incidental?

Does the introduction and continued use of CMC mean an increased workload for staff, and if so, what measures can be taken to alleviate this increase?

The staff have these new questions to add to the continually developing pian. These areas will research ('act') the following questions, and the 'observations' that are made following the research will guide the 'reflections' that will lead to another 'plan'.

Conclusion

This project may never be able to be fully documented, but as results of research become available, they will be provided to anyone interested.

One of the key aspects of action research is that it is an evolving process approach to investigation. While one question is answered, other questions arise. These other questions may or may not be important and this is one of the difficult aspects of this approach. The project team started from a base of relative ignorance, yet decisions had to be made about what would be worthwhile investigating. Although the knowledge base has increased, the number of decisions that need to be made about future directions has also increased. Refinements are

made to achieve the dual goals of the project. These refinements derive from the analysis of the students' access to and use of computers, and from reflections on current approaches to language teaching methodology. New directions are set, and are balanced with the available resources of time, personnel, available training and equipment.

The project design process has included the traditional aspects of designing for electronic delivery. However, it has an added component that the 'product' is never considered complete, as suggested by the action research methodology that was chosen. It will never be able to be 'signed off in the accounting sense. The design process continues, and includes formal and informal student and staff training, the 'story-boarding' of the learning materials, the tentative 'webbing' of these materials, the two-way formative evaluation and reconstruction of these materials, the introduction of CMC to students, and continued research of the students' access to and use of the internet.

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