Mixed-mode Communication Courses at a Multicultural Technikon: A Pilot Study Combining Web-based Learning and an Internet Search Project with Face-to-Face Classroom Instruction.

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1. Introduction

1.1 Overview
Vocational education is a key area in any country, but in South Africa, with an unemployment rate of over 40% in spite of increased economic growth, effective delivery of vocational education, particularly in technical and commercial fields, is essential not only for the country’s development, but for its survival. Moreover, further education plays a pivotal role in the process of transformation and redress in post-apartheid South Africa, which, coupled with a rapidly developing-economy, will require “lifelong learning” rather than a few years of post-school degree. Computers are popularly viewed as the solution to all educational problems, but computer technology is only effective when it can be seen to enhance learning approaches catering for specific local needs. This paper describes an attempt to enhance delivery of semester Communication Skills courses at a multicultural technikon, the Durban Institute of Technology, by running them in mixed mode, i.e., partly in conventional face-to-face lectures and tutorials, and partly over the Internet. The Comm. Skills Online project generated an incredibly rich layering of experiences in mixed-mode course delivery for the author, who personally facilitated and assessed the work of over 230 students in three different mode blends, and, in addition, supervised the computer laboratory work of over 300 students - many of whom had come to DIT from disadvantaged educational backgrounds and who were first-time computer and Internet users. This account will first give an overview of the use of Information and Computer Technology in the South African educational context. It will then focus on the learning approach used in the project, describe how it was translated into mixed mode, discuss the resulting blends of mixed-mode delivery which were used in the project, and give an account of both the enhancements achieved and the problems encountered.

1.2 The academic setting for the project
The Durban Institute of Technology, the result of a recent merger between ML Sultan Technikon and Technikon Natal, has at present over 20,000 students and is spread over seven campuses. The name of the new institution is in keeping with the newly-formulated role of technikons in
South Africa, that of “Universities of Technology”. While the use of “Durban” in the institution’s name is ethnically neutral, the student demographics are a volatile and challenging mix: predominantly African (67%), with the rest mainly Indian (Asian 21%) and students of British/Dutch descent (7%), but also with minority groups of Eritreans, Batswana, Mozambicans, Namibians, Zimbabweans, Chinese and Taiwanese to name but a few. The large African component of the student population, even when from South Africa, should not be viewed as homogenous: a multiplicity of indigenous African cultures (and languages) can be found at DIT. Staff demographics also constitute a multicultural blend, with former TN lecturers being predominantly white male, and MLS, predominantly Indian male, remnants of Afrikaner upper management, with top management positions being reserved for “high flyer” African academics. The diverse student demographics provide academic staff with a constant challenge in delivering academic programmes which are not only accessible to all students, but also professionally relevant, as DIT is primarily a vocational institution. It must be remembered, too, that while the majority of our students come from an educationally disadvantaged background, diploma/degree groups contain a hugely disparate range of academic abilities, which makes it even more difficult to design courses which will be relevant for all students.

An institution in the throes of a merger might not seem an ideal setting for the English & Communication Department’s first major venture in mixed-mode delivery. However, the breaking down of boundaries in times of institutional change can also be seen to offer opportunities for innovation and growth. Moreover, it was thought that mixed-mode delivery might provide solutions for some of the problems resulting from the merger, in particular, larger student numbers, a reduced staff complement and dwindling teaching resources.

1.3 ICT in the South African educational context
It must be emphasised that ICT (Information and Computer Technology) in the South African educational context has a somewhat different scope and purpose from that implemented in developed countries over the last ten to fifteen years. During this period South Africa has been involved in a transformation and empowerment process politically, economically and educationally. ICT use in education, then, follows a transformation and empowerment model, as in many under-developed countries, with the added advantage that South Africa is in a better position economically than most of sub-Saharan Africa, and has also had the opportunity to learn from the example of earlier innovators. In countries such as the UK and the USA, by contrast, while the introduction of ICT did indeed represent a transformation in education, this was effected through an extension of already plentiful material resources by moving into the information-rich
virtual environment of the Internet. It would be misleading, then, to assume that in South Africa use of ICT in education is merely retracing the path taken by more developed countries, or that it is a journey similarly supported and buffered by a materially-affluent educational infrastructure. Over the period where ICTs were gradually being introduced overseas, education in South Africa was undergoing a radical transformation to redress the inequalities and injustices caused by apartheid. The blueprint for this transformation process is contained in the Green Paper of 1996, the White Paper of 1997 and the CHE Report, with the role of ICT set forth clearly in the subsequent TELI (Technology-Enhanced Learning In South Africa) and NADEOSA documents. Neil Butcher, “guru” of ICT in South Africa, has contributed extensively to the arduous research, policy-making and documentation process involved in the transformation of higher education though technology, much of which is summed up in his recent SAIDE retrospective. Implementation has in fact been extremely well informed by comprehensive preliminary surveys and research, government policies and documents, and joint nationwide initiatives such as TELI and SAIDE (South African Institute for Distance Education). South Africa has not only done its homework in advance, but has done it thoroughly.

1.4 ICT infrastructure in South African educational institutions

In spite of this excellent and extensive preparation, implementation has been uneven. Apartheid education policies have resulted in huge disparities and inequalities in the present educational infrastructure. This has meant that the majority of our educational institutions do not possess the human or material resources typical of developed countries, and which provide a firm platform for the “launch into cyberspace”. Resources such as teachers, classrooms, notes, text books and libraries are a given in more developed countries, as well as basic amenities such as electricity, running water and toilets: in South Africa, this is by no means the case. The majority of schools in KwaZulu-Natal, which is particularly under-subsidised by Government in spite of having a larger population than all of the other provinces put together, do not have all of the basic amenities, let alone sufficient teachers, classrooms, notes, text books and libraries. Tertiary institutions are far better resourced, in spite of the existence of “historically disadvantaged institutions”, but the student-lecturer ratio is still generally too high for effective learning, particularly in the languages: it is not unusual for one language lecturer to hold a face-to-face “tutorial” session with a group of over a hundred students. Factors such as government cutbacks in funding, non-payment of student fees, and a low pass rate - resulting in huge subsidy loss - contribute to even historically-advantaged institutions having insufficient academic staff, learning resources, facilities and, increasingly, basic amenities such as
washroom fittings. Regrettably, the very processes - including the proposed mergers - set in place by Government to transform higher education have had the unintentional effect of leaching higher education institutions of their financial reserves and putting a severe strain on their existing resources. The outlay in setting up the infrastructure for ICT-mediated educational programmes, including the equipment and facilities, staff induction and support needed to run mixed-mode or distance education, is prohibitively expensive. Once set up, this infrastructure needs to be maintained, and financial sustainability is an overriding problem at all levels of education. However, even where finance, equipment, and trained personnel already exist at HE institutions, poor governance of available resources and a “silo” mentality can impede student access: this serves to entrench inequalities, in view of the fact that only the minority educationally- and economically-advantaged students have private access to the Internet.

In the recent SANTEC Online Conference, which attracted international participation as well as delegates from throughout South Africa, the following solutions were suggested to the problems of limited student access to computers and the Internet:15

- Longer opening hours at the (computer) learning centre
- Using blended learning approaches
- Scheduled classes where access is guaranteed, even if this contradicts the flexibility of eLearning
- Use of Internet cafés
- Provision of more Internet cafés, even through the government
- Strategic partnerships with government, private sector, donors and learning providers
- Strategic placement of computers
- Strategic preference given to subjects and learners working in pairs on a computer
- Blended learning and off-line learning, e.g. providing content on floppy disk or CD-ROM, to facilitate support for students
- Ubiquity - more widespread distribution of resources
- Free Internet access in public libraries
- Use of ultra-thin client products which can be used simultaneously by two users

1.5 The scope and purpose of ICT enhancements in HE in South Africa
While the paucity of resources generally might seem to militate against introducing yet another expensive component into the higher education
array, paradoxically it renders the shift to ICT-mediated education all the more essential. It is precisely because there are limited material resources that a shift to the information-rich environment of the Internet is necessary. For the majority of students in South Africa, ICT enhancements represent an intervention which fast-tracks them into the Age of Information Technology, virtually skipping over the Industrial Revolution in the process, and with no fall-back position because of the rapidly-diminishing material resource base. Not only do most South Africans not have access to educational resources taken for granted overseas, but they do not have access to education itself, owing to factors such as the geographical separation of communities, the loss of breadwinners through AIDS, and widespread poverty. The accelerated need for further adult education because of work-force depredations caused by the AIDS pandemic, or for sheer economic survival, means that some form of ICT-mediated distance education, while not necessarily an ideal solution, will be the only viable option for most adult South Africans, particularly those in rural areas. Personal empowerment, community upliftment and economic growth will depend heavily on some form of electronic mediation, whether this be through computers, the Internet, radio, TV or cell phone technology. The role of HE institutions will increasingly be to implement such programmes, whether delivery takes the form of distance education or blended learning. Although South Africa has arrived relatively late on the cyber-scene, some points in our favour are the rapid developments made in ICT over the last decade, and the fact that we are able to benefit from the example of implementation in other countries, particularly in less-developed countries where the contexts and needs more closely match our own. ICT pioneers in South Africa should not, then, be viewed as retracing the same path taken ten to fifteen years ago overseas, but as leap-frogging into the future, often on uneven terrain, but in the true spirit of transformation.

2. Implementing mixed-mode delivery in the project

2.1. Some key issues in mixed-mode learning

Because “information” and “knowledge” are not synonymous, it is important to ensure that the new technology is directed towards enhancing learning and not mere information-retrieval, particularly as the predominant learning mode in most South African institutions remains the transmission model, in spite of the introduction of outcomes-based education. This is a result of the “old guard” corporate technocrat mentality of the fifties, which is still entrenched in South African institutions mainly as a result of apartheid education policies. This mentality is particularly endemic in technically-focused institutions such as DIT which have strong ties with Industry. Indeed, the higher education merger process such as that recently experienced at DIT can be seen as a
Government-legislated attempt to transform the “old guard” corporate mentality into an empowerment model.21

The challenge in mixed-mode course delivery, then, is to arrive at a blend of resources and activities which has the potential to enhance learning. My induction into web-based learning in the Pioneers Online 2002 programme had emphasised the importance of a sound pedagogical base for Internet learning:22,23 assumptions about learning need to be made clear right at the outset of designing a course, and any electronic enhancements need to be thought out carefully so that they have the potential to accelerate and facilitate learning rather than adding yet another layer of difficulty. Setting up materials or exercises on the Internet in itself is not necessarily conducive to learning, nor is there any guarantee that students will actually use an online course once it has been set up. There needs to be an intrinsic reason for Internet use, for example, that it facilitates learning, or adds dimension and depth to the learning interaction itself. Moreover, in the case of students who are not computer literate at the outset (and questionnaire sampling indicated that up to 40% of respondents were not) mastery of the skills needed to use the Internet and regular Internet access need to be built into the course (less than 10% of South African households possess a computer). Finally, the induction programme emphasised the importance of good course design based on sound educational principles: we were encouraged to be clear about our course outcomes and how we expected mixed-mode delivery to contribute to the fulfilment of these outcomes.

2.2 Course design

For the mixed-mode course design a course template was used which had already been piloted by the English & Communication Department, derived from an integrated approach to language learning which the author had developed while teaching high school English. Over the last four years the Department had adapted this approach for teaching Business Communication skills by running scenario-based OBE courses in which students generated their own knowledge in professionally-orientated scenarios using basic research strategies and their own multicultural resources. Ideally, a scenario - such as the designing of a low-cost housing complex to fit an actual site by Construction Management students - would require students to find out specialist first-hand information, some of which could best be supplied by the disadvantaged students in the group, making them the “experts”. In a reversal of traditional academic norms, the best projects were often produced by economically and educationally disadvantaged students, who now comprise the majority of our student population. These students do not necessarily obtain high marks when this approach is used. However, they develop English language skills more readily in the context of an actual situation than in a
textbook, which often provides no context at all, or, when it does, provides no real incentive (i.e., an actual purpose and audience) for using language. Moreover, when language tasks are set in professional contexts, the interest and skills students bring to their chosen professions appear to spur them on to better linguistic performances.

In the context of mixed-mode course design, the most salient aspect of the “scenario” approach to language learning lies not in its use of project work, experiential learning, problem-solving in small groups, or even in its use of scenarios or simulations, but in the integrated way in which course elements are blended to imitate or model real-life professional functioning. This involves a complex interweaving of tasks in different communication modalities (i.e., speech, writing and nonverbal communication). The professionally-based scenario or project provides the matrix which integrates and coordinates the communicative tasks, such as basic research on a topic with written and oral report back. Learning is thus effectively “blended”, which is why this approach translates so readily into mixed-mode delivery. As illustrated in Fig. 1, the learning interaction takes place mainly in small student groups of five, in which intense interpersonal communication takes place, for example, interpreting briefing materials, planning projects, solving problems, making decisions, delegating tasks, and sharing information gathered from a data source (usually printed texts and interviews, when this approach is run offline).

Fig. 1. Profile of integrated project work
Because the main learning interaction is centred around a core of dynamic small group communication, effective group functioning is essential. The student groups are therefore facilitated by the lecturer, so that interpersonal and small group communication skills can be developed: these skills are also reflected in the official course outcomes. Although outwardly task-focused, group work is geared towards developing complex higher order competencies in communication, interpersonal relations and problem-solving (see Fig. 2). Where time constraints allow, opportunities for reflection are built into the course. Spady identifies the development of such higher order competencies as crucial to effective adult life-role functioning.

After the first pilot study in 2000 with Office Management and Technology students, a course template was worked out to co-ordinate and integrate course activities. A typical course template contains a scenario in which teams work on an application for a grant or award, which can easily be tailored to fit each diploma. The group work, formal test and report back (written and oral) are all woven into the grant scenario. This template was found to work well when tested out in subsequent pilot studies. In courses based around professional scenarios we have generally found that student attendance is excellent, there is a high pass rate, and the approach works well with multicultural groups, as student diversity constitutes a resource rather than a problem. Educationally disadvantaged students come into their own, as they often have highly-developed interpersonal and social skills which are an asset in the small group interactions.
The approach also has advantages for lecturers. Assessment is more interesting because of the open-endedness of student output, and work is less exhausting because it is student- and not teacher-driven. It is also less stressful to deal with large (i.e., over 100) and therefore often unruly tutorial groups in this way, as the students’ often inexhaustible energy tends to be diffused within the small group interactions. Informal peer teaching and mentoring frequently occur in the small group interactions, which shares out much of the teacher’s load in redressing inequalities in the students’ educational backgrounds. The teacher’s role becomes mainly that of facilitator and assessor, apart from occasional input of practical theory, such as how to give a talk or write a report. Materials production is facilitated: once the course template has been set up and study guides and project sheets have been prepared, scenarios tailored to different diploma groups can be improvised and slotted into a course template in a matter of minutes.

2.3 Translating the course into mixed mode

The same course template which had been developed in “offline” pilot studies was used for mixed-mode delivery. As in our previous pilot studies, the course integrated aspects of professional communication and was outcome-based. However, this time the course revolved around an Internet search for “Professionally Relevant Internet Sites”, which made it intrinsically web-focused. Unlike previous scenarios, which needed to be tailored to fit specific vocations or professions, the PRINTS project was relevant to all diploma groups, and could be used in subsequent courses without the danger of students copying project work (sites used by previous groups could easily be identified and set off-limits for the next round of students).

As well as having the course activities revolve around an Internet search, there were other electronic enhancements. Course materials and other resources were uploaded on to WebCT (Web Course Tools – an educational administrative program). Three WebCT courses were used: WebCT for Dummies, ditcom and Comm. Skills Online (with the different Diploma group indicated, for example, Comm. Skills Online for Survey). WebCT for Dummies is a basic student induction workshop for WebCT, which was designed to be run live, but can be browsed online by students; ditcom is the DIT English & Communication Department’s online resource base; while the Comm. Skills Online courses contained study guides, project sheets and other materials specific to the PRINTS project.

Our intention was to use WebCT for Dummies to introduce students to WebCT, have their course materials set up on Comm. Skills Online, and let students make use of ditcom for general learning resources (for example,
course notes, PowerPoint slide shows of lectures, and links to free language games on the Internet). Students were also given hard print copies of course notes and project materials.

### 2.4 Assumptions made about electronic enhancements

The possible enhancements offered by running the project in mixed-mode delivery are demonstrated graphically in Fig. 3, which shows the potential of mixed-mode delivery to transform the learning interaction. Not only can electronic enhancements provide greater efficiency in providing more (and more varied) resources and the option of communicating electronically, but they offer the opportunity for better quality teaching and learning as well. Many of the issues we sought to address were a direct result of the merger, for example, high student numbers, duplicating delays and costs, a lack of Audio-Visual equipment, and difficulties communicating with students after lecture hours because the campus was now spread over a wider area. We were therefore not only considering electronic enhancements for the purpose of curriculum development, but also as a means of maintaining academic quality, which was threatened by severe budget cuts and a chronic lack of staff, resources and facilities. The background to HE education in South Africa sketched earlier will have made it clear that these problems are not specific to our institution but reflect national trends. In this context, our use of ICT enhancements should not be viewed as an attempt to replicate work done previously overseas, but to find solutions for urgent educational problems which our dwindling material resources were clearly not going to solve.

Our assumptions about electronic enhancements were as follows:

- The email and discussion facilities on WebCT would facilitate after-lecture communication between lecturers and large numbers of students spread over more than one campus.

- Course materials set up on the Internet would cut down on duplicating time and costs, and would compensate for missing/faulty AV equipment.

- Student work could be posted on the Internet, resulting in better quality work for a “real” audience, as well as opportunities for peer assessment and feedback.

- Student work posted on the Internet detailing professionally relevant internet sites would provide both models and resources for other students.

- Students who found it difficult to obtain individual lecturer attention because of higher student numbers might benefit from the lecture slide shows, self tests and revision exercises set up on the Internet.
Course materials would have more appeal for students when set up on the Internet than in hard copy course notes.

Second language students who were not confident about their use of English might feel more at ease communicating via email or discussions.

The enjoyment of browsing the Internet would motivate students to do well at their studies, and would offset any initial nervousness at using unfamiliar technology.

Students would read more as a result of the project, as most of them appear to prefer “surfing the Net” to reading a book.

The Internet search process would model a useful set of study skills which would be transferable to other diploma subjects.

With reference to the last two points, we also believed that use of computers and the Internet would enhance students’ academic literacy (including print literacy), but we were not sure exactly how this might operate for our particular students in their specific context.
2.5 The different mode mixes used for course delivery

Three different mode mixes were used for course delivery owing to constraints such as total diploma group numbers, and availability of staff, computer laboratories and other facilities.

(i) Chemical Engineering and Survey: predominantly online
The course was run in computer laboratories for these two small groups (49 and 17 respectively), apart from the oral presentations. We were able to book the best general (i.e., for use by all students) laboratory on our campus, which had just been fitted out with 40 Pentium 4 computers, and which had fast Internet access. The laboratory was not equipped for teaching web-based learning, however, nor were the browser settings properly adjusted for WebCT use, in spite of the fact that the specifications had been given to the laboratory Manager. As a result, both student groups did not explore all of the potential of using WebCT, and we did not introduce web-based learning with *WebCT for Dummies*, but merely recommended this course to students for individual browsing. However, materials set up on *ditcom* were used in lectures on practical theory, which was useful in view of the backlog in duplicating (we are particularly dependent on duplicated materials, not only because of the general lack of resources, but because we can tailor these to our students needs.) No lecture rooms were available for small group discussions, which impacted negatively on group work. Team teaching by two lecturers was used for the Chemical Engineering students, as dividing them into two smaller groups would have meant that one group would have had to use inferior laboratory facilities.

(ii) Electrical Engineering (Light Current): partially online
As this diploma group was large (over 260 students) and general laboratory space was limited, it was not possible for these students to use the online courses set up on WebCT except as an optional enhancement. The Internet search project (PRINTS) was considered feasible, however, as these students were technically skilled, and some of them were specialising in computers as part of their diploma course (of respondents to the feedback questionnaire, 60% of this group had used computers before, and 40%, the Internet). As many of these students did not have private access to computers or the Internet, computer laboratories had to be booked for the Internet Search part of the project. There was not enough laboratory space for 260 students, but each member of a team of five could visit the largest laboratory in rotation, which gave all students a chance to carry out the search. The largest laboratory, however, had the oldest computer equipment and the slowest Internet access: it took 20 minutes out of a 40 minute lecture period to turn all computers on, and then not all of them actually worked. Extra laboratory times had to be
scheduled so that all students could participate in the Internet search, which meant that the lecturer supervising the laboratory work (the author) had five extra periods a week. This laboratory was not suitable for teaching (or computer use, for that matter), but a number of first-time computer users were given tuition during the laboratory periods. Because of the intrinsic interest of the activity itself, students were able to use computers to carry out Internet searches on their own after a very short briefing, sometimes as little as 15 minutes.

(iii) Information Technology: optionally online
Ironically the IT group, which comprised the most promising candidates for a mixed-mode course featuring an Internet search, had the worst time of it. Their Department initially overlooked the fact that a Communication Skills course formed a part of their diploma/degree, so there were not enough English & Communication lecturers left to take them when the request came in at the last minute (they were a group of over 350). I offered to solve this problem by including the IT group in our mixed-mode pilot study, because IT students would presumably be able to cope with the Internet and WebCT without intensive training, and they could go online in the IT computer laboratories. It turned out, however, that these students did not have sufficient access to computer laboratories for their own diploma work. Printed course materials did not arrive for two months because of the duplicating backlog, and I eventually had to provide copies of the study guide and project sheet out of my own financial resources. There were insufficient venues, and the AV equipment was often faulty or inaccessible. The students also initially had a dispute with the IT Department, which spilled over into our lectures. In an attempt to solve some of the problems, the students were divided into smaller groups of just over 100, and the Comm. Skills Online course was adapted slightly. Multiple choice was used for the standardised written test, and formal oral feedback on the project was omitted, although small-group oral communication still took place regularly, as group discussions and teamwork were an integral part of the project work. Because of the limited laboratory access on their campus (computer laboratories were being used for lecturing venues), we even made the Internet search itself optional. However, professional pride prompted most students to complete the Internet search, and some (about 25 teams, or 125 students) even managed to set up web-based presentations, although only hard copy written reports were obligatory. Setting up the websites on WebCT required four or five double periods in the Online Learning Centre teaching laboratory (which is more properly reserved for lecturer induction courses), as even the best-equipped general laboratory did not have the facilities for uploading webs on to WebCT. Some very professional web pages were displayed in the WebCT Presentation area, with a few having to be evaluated from stif...
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disks, as they were in non-standard web format. However, the most important aspect of the group work was not ultimately the quality of the work displayed, but the harmonious working together of so many students in multicultural groups, where resources such as technical expertise, software and equipment were shared amicably (there were, of course, exceptions). This is particularly important in the case of the IT students, who initially tended to polarise into cultural groups and to show a marked disinclination to work together in multicultural groups.

2.6 Course activities in mixed mode
Students worked on their projects in groups, recorded group discussions in handwritten minutes, carried out the Internet search, and wrote a formal test on business correspondence. They handed in a typed hard copy of a group report on their project, and (except for IT) gave illustrated oral presentations on their project. All students were officially registered on WebCT, so that they had the option of using the three online courses set up for them. Only the Chemical Engineering and Survey students could be shown how to use the WebCT discussion and email facilities, however, and even then they did not have the time or facilities to use these as often as we would have preferred. Lecturers facilitated group discussions and gave lectures on practical theory (i.e., how to present a talk, how to write a short report) when needed. Laboratory sessions with diploma groups were supervised, although individual students could use one of the general laboratories for Internet access from 3 p.m. to 4 p.m. Initially we had hoped to have students display their reports as web pages on WebCT, but there was neither the time nor the facilities for them to learn how to do this, so that only the IT students managed to display their reports online.

Unlike earlier integrated projects, the PRINTS project in itself did not favour educationally disadvantaged second language learners, and we were concerned in case some of them found the new technology daunting. Although teams are usually randomly selected to ensure a multicultural mix, we hit on the idea of allocating at least one experienced Internet user to each team, which worked well in terms of peer teaching: there was no danger that the one member would do all of the search work, as all students were eager to have their turn at the Internet. The project gave enough scope for academically weak students to cope, as only three sites needed to be found per team, and for above-average students not to get bored, as the requirement to work as a team meant that they could not sit back with their own work completed.

3. Results

3.1 How feedback on the project was obtained
Feedback on the project was obtained from anecdotal evidence derived from student discussions and talks, an informal student feedback
questionnaire, and a staff meeting at the end of the project. The feedback questionnaire was not exhaustive or research-validated, as it was intended only to confirm impressions we had already formed from first-hand experience or to find out more in areas which were seen as significant. As I had designed and co-ordinated the project and also had extensive first-hand experience of all three delivery modes, I was in a good position to assess both the effectiveness and the potential of the project. I was also painfully aware of any mistakes we had made in planning or execution, as I was constantly involved in trying to make things work in my own teaching situation as participant, and for everyone else, as Course Co-ordinator. This led initially to exhaustion, disillusionment, and a strong desire to have the earth open up and swallow me so that I would be spared the embarrassment of dealing with a potential debacle in which I had involved so many other innocent people. It was only later that I realised that, apart from the teething problems caused by poor computer equipment for the Electrical group (and none at all for IT) the project was perceived by participants and the rest of the Department’s staff as well-organised and effective: it was in fact one of the few instructional offerings that had got off to a good start and was running smoothly at the beginning of 2003, as the merger had caused considerable disruption to academic programmes. Staff and student feedback suggested that the students enjoyed the Comm. Skills Online course and found it highly relevant to their eventual professional functioning. Ultimately the project turned out to be a morale booster for the whole Department, as we were seen not only to be coping with change, but also to be trying out something which was not only innovative but associated with advanced technology.

3.2 The extent to which electronic enhancements were achieved

Not all of our assumptions about electronic enhancements could be tested out, let alone achieved. For example, only the Chemical Engineering and Survey students had the chance to use the WebCT email and discussion facilities to test out the following assumptions:

- The email and discussion facilities on WebCT would facilitate after-lecture communication between lecturers and large numbers of students spread over more than one campus.

- Course materials set up on the Internet would cut down on duplicating time and costs, and would compensate for missing/faulty AV equipment.

Both of these groups appeared to enjoy using the WebCT email and discussion facilities, although there was not enough time left in the first semester to exploit their use fully.

During lectures on the practical theory of professional communication, the students working in laboratories were given the option
of either following on projected overhead transparencies or using the copies of these set up as PowerPoint slide shows on ditcom. Students appeared to concentrate better when they focused on the lecturer and followed the projected transparencies with their monitors turned off. However, slide shows of lectures on WebCT have potential as a revision option. In one instance when the Chemical Engineering group needed to refer to course materials for revision during a lecture, I noticed that at least half of them turned to the online resources rather than to their hard text copies. This was an interesting development, in suggesting that some students can readily make the transition from printed text to screen text in accessing learning resources. Some of the Chemical Engineering and IT students took the opportunity to download online notes from ditcom during the duplicating backlog. One Chemical Engineering student commented enthusiastically that ditcom “has something for everyone”.

Only the IT students were able to test out the next two assumptions:

- Student work could be posted on the Internet, resulting in better quality work for a “real” audience, as well as opportunities for peer assessment and feedback.

- Student work posted on the Internet detailing professionally relevant internet sites would provide both models and resources for other students.

This was because IT was the only student group to upload reports on to WebCT. The excellent work and team spirit generated by displaying work online, where students could gauge their own progress (and better it) by referring to other students’ work convinced me that we needed to find ways to show less technically-skilled students how to do this, for example, by saving reports typed on MsWord as web pages without necessarily using hyperlinks, and uploading these straight on to WebCT. Because semester time is limited, students would then need to complete more of their writing tasks electronically, so that they could become familiar with using MsWord. This will be built into the course for the next round of pilot studies.

An outcome of the PRINTS project which was not achieved, the setting up of a professional website index online, which would serve as a potential resource for other students, could have been achieved more easily if students had recorded new sites regularly in the WebCT discussion messages instead of reporting only at the end of the project. To get around the problems caused by duplicating backlogs, the lack of data projectors, and faulty overhead projectors in even the good laboratories, notes showing students how to use the WebCT facilities have been run off well in advance for the next pilot study.
The following was another assumption which was not tested out satisfactorily:

- Students who found it difficult to obtain individual lecturer attention because of higher student numbers might benefit from the lecture slide shows, self tests and revision exercises set up on the Internet.

Students with Internet access (at DIT or at home) could do this, but we were not able to give WebCT training to the majority of the students. As we would like to offer all students who take Communication courses at DIT (over 6,000) this facility, I have prepared a User’s guide to ditcom giving information about the Department's resource base, and showing students how to access the resources on ditcom and how to use the WebCT communication facilities. The Online Learning Centre has offered to do blanket registration of all of our students, as we are using WebCT4, and have an "unlimited user" licence. Regular tuition sessions in WebCT during Forum Time will also be offered to interested groups of students who would like to make use of ditcom.

- Course materials would have more appeal for students when set up on the Internet than in hard copy course notes.
which we took in class and uploaded as background to their course materials, exclaiming, “Look, we are now on the Internet!”

• Second language students who were not confident about their use of English might feel more at ease communicating via email or discussions.

This assumption was borne out by my experiences with the two groups in computer laboratories, in spite of the effort required by ESL writers to compose written messages in English. Some of my ESL students showed extreme disappointment when laboratory time was over without their having completed and posted a discussion message of their own. They were highly motivated not only to compose their own discussion messages, but to have them read by the whole class. ESL students are not usually that eager to have their writing on general display. The fact that the tone of electronic messages was generally casual, and that everyone, including the lecturers, made the occasional typo, seemed to encourage ESL learners to write more. In the offline classroom it is unlikely that Abenicio would have introduced himself so readily or confided in me that he was Mozambican and experienced difficulty in communicating in English (his command of English is actually very good, considering it is probably his third language):

First allow me to introduce, I'm ABENICIO from MOZAMBIQUE, in my country we don't use english language so, sometimes is difficulte to communicate. I'm hear to improve and i'll need your help.

Some of our Chinese Foundation English students wanted to improve their English by corresponding with mainstream students via WebCT email. One student had posted the following message on WebCT:

I'm fred, I come from china, glad to be friend with you.

It was the second language students, not the mother-tongue English speakers, who immediately wrote in response, offering encouragement and advice:

Hi! My name is James. I'm also glad to be your friend, now firstly, tell me about CHINA. and i'll also tell you a little bit about South Africa.

hi! I'm Nonto hope u'll be able to pronounce that. i'm a first year chem. Eng. student. i am glad to know that there is someone like you out there and hope to learn more about you and also for you to know about me.

Notice how James tactfully models the correct form of “Glad to be friend with you” for his Chinese visitor. Nomkhosi below is not so strong on tact,
although her vaunted use of English is very good, apart from (inevitably) a typo omission:

Hi. How are you doing? It's a pity that your English is not as good as mine. You know what, English is my second language but of course I can speak it very fluently. I know that technologically, you are far better than myself. The secret is here "practice makes perfect". Keep on practising, read a lot of books, and of course write as many English as possible.

Her message was not meant to be patronising, however - it just came out that way. What is interesting is her clever, grammatically correct integration into her text of a fragment of a message I had posted to this group earlier, commenting that the Chinese students were more mature, and very technologically advanced, but that their English was not very fluent. This enterprising strategy of Nomkhozi's suggests that email offers ESL students a chance to model their language use on that of first language speakers in a way that could not be as easily achieved in rapid conversation or the slow exchange of printed texts.

- The enjoyment of browsing the Internet would motivate students to do well at their studies, and would offset any initial nervousness at using unfamiliar technology.

As we had anticipated, use of the Internet, even with antiquated equipment, proved to be irresistible to students. Far from being daunted by the new technology, our educationally disadvantaged second language learners could not be prised away from the Internet: I frequently had to turn off the computers to get students to leave the laboratory when other students were waiting to come in. Students were on the whole excited rather than apprehensive at the prospect of using the Internet, as seen by the following responses:

hi, Mrs. Dee it your communication student Thuthukani. It exciting to surf in webct and it's very easy. As it's my very first time to use the computer I thought it will be difficult but it's not.

But I just need one favor can you please give us a chance to enter any website.

HALLO DEE THANK YOU FOR SENDING ME MY VERY FIRST E-MAIL!! LOVE : LONDIWE

hi, mrs.DEE, Malu here. it is really exciting to use webct, it is formative and at the same time it a lot of fun but personally enjoy the chat room, I never used it before and I like it very much. There are lot of places I haven't been into neither the less, but I hope to visit
them soon.

Students were impressed with the scope and speed of job-seeking on the Internet (one of the project themes was “employment”). Second language students who had difficulty reading text books on technical subjects were delighted to find simplified versions of “The History of Electronics” (or Surveying, or Chemistry) on the Internet. The Electrical Engineering students in particular were pleased that “English” involved an Internet search instead of the formal teaching of Literature or Grammar. In their oral report-back many of these students commented on the usefulness of the Internet search for their technical diploma subjects: they found “shopping lists” of electronic components they would need for their fourth-semester design projects, and examples of the kinds of technical design reports they would be required to write.

Students were allowed to browse generally, provided that their project work was done first, as our students tend to have a limited world view and little general knowledge because they read so little, mainly owing to the lack of libraries in schools. Responses to the feedback questionnaire suggest that they made good use of the opportunity to browse general sites.

- Students would read more as a result of the project, as most of them appear to prefer “surfing the Net” to reading a book.

My impression (borne out by the questionnaire responses) is that students read far more than usual as a result of using the Internet, and in particular, were obliged to develop the browsing, previewing and skimming skills which are so important in processing study materials, simply because of the huge amount of data the Internet search threw up. Students were also obliged to make more decisions and judgments about the materials they found than they would have in an offline project, which would have yielded far more limited data, or in conventional lecturing, where the textbook or lecturer’s notes would have absolved them of the necessity for thinking for themselves. Decisions about which sites to use in their project had to be discussed with other team members, which meant that knowledge was negotiated rather than remaining inert. Students were also required to carry out a simple evaluation of the websites they chose, which obliged them to focus on the way in which information was communicated, potentially sensitising them to the effectiveness of their own communication.

Student responses to the feedback questionnaire suggested that 78% of respondents read more than usual, and 33% much more than usual. Even if what they read had been educationally worthless, the development of mechanical reading skills and exposure to English at a level students could understand would have been beyond price. What is more important
is that discovery of something they enjoy reading can set in train the habit of reading for students. For the majority of our students, reading in English is not a recreational activity but a joyless imperative from parents and teachers. Student responses indicated that at least 30% of reading was professionally related (higher in the case of Electrical Engineering students), which suggests that the reading of electronic texts on the Internet has the potential to enhance not only their diploma studies but also their eventual professional functioning.

- The Internet search process would model a useful set of study skills which would be transferable to other diploma subjects.

  It is the integrated project approach itself which models study skills, and not the Internet search per se: within this approach students learn to collaborate in groups to carry out a data search on a professionally related theme, to find and select relevant information, to come to conclusions and to report back orally and in writing, i.e., they learn how to conduct basic research. The Internet enhances this basic research capacity not only in terms of the efficiency and speed of the search process itself, but also in stimulating students mentally with the scope and variety of resources on the Internet, and in requiring higher-order decision-making, data-sorting and organising skills.

3.3 The development of academic literacy

That students were able to carry out their projects, largely unassisted after the initial briefing, and come to conclusions about the data they had recovered on the Internet, in itself meant that they had developed the basics of a high-powered form of academic literacy. As the PRINTS project was geared to professional functioning in their diploma subjects, it was likely that transfer to learning/research in these subjects would be made.

Some specifics about the surface manifestations of academic literacy in written and oral expository texts were noted by project staff. Students in the pilot study made better use of graphic materials in both their reports and oral expositions, communicating information clearly by means of good quality graphs, tables and illustrations. This was attributed to exposure to multimedia texts on the Internet. The best web-page reports from the IT student group were not just technically advanced, but much better in terms of structure, logic, and style than is usual with their conventional academic work; they were also laid out and hyperlinked so that they were user-friendly and communicated well, i.e., the visual and spatial aspects of communication were being combined effectively with verbal (print) aspects. As we had found in previous professionally-orientated projects, the students’ professional expertise appeared to have enhanced their language work. Many of the reports echoed the more
colloquial tone of the Internet, which we did not see as a problem as long as the reports were interesting to read and well communicated, which most of them were. The oral presentations tended to be much better than usual, with more animated “talking about” and less “off-by-heart” learning of speeches. Graphic materials used with talks were better than usual on the whole, and better integrated into the talks (it is very difficult to describe an Internet site without graphic illustration.)

Academic literacy is not about reading, writing or oral exposition as discrete skills, however, but about the ways in which these skills are harnessed to the ends of learning. In South African institutions there is a trend towards facilitating the development of academic literacy in mainstream academic programmes rather than by means of remedial-type interventions. In our current situation 60% of our students would require some form of intervention, which is simply not feasible. Linking the development of communication skills with professionally-orientated projects can be a powerful tool for the development of academic literacy, because the approach combines meaning-making at an interpersonal level with the constructing of knowledge on a wider social scale,31 i.e., as interpreted by group of professionals or technical experts. What society in general accepts as knowledge then becomes infused with the incontrovertibility and passion of the student’s first-hand experience, and it is this passion which ultimately transforms learning, and not electronic enhancements per se.

4. Conclusion

In spite of the many problems we experienced, staff and student feedback on the Comm. Skills Online project suggested that course work was enhanced by the use of WebCT and the Internet. However, we concluded that, if use of technology by students becomes an end in itself, as tended to happen with the two groups working entirely in computer laboratories, the learning interaction itself can become compromised: it is not so much an issue of the proportion of time spent in laboratories or classrooms, but an issue of focus. As the learning approach used in this pilot study centres around group work, sufficient emphasis needs to be put on group work, whether face-to-face or online. Running Communication courses in mixed-mode delivery did not realise all of the benefits of the electronic enhancements we had identified, but it achieved them to a degree which made it worthwhile to run further pilot studies, and to keep feeding back insights from the pilot studies into mainstream teaching. Future pilot studies will be run with small groups of students, however, as the DIT infrastructure does not at present support large-scale mixed-mode projects because of the lack of general computer laboratories and Internet access for students. In the next round of pilot studies the Online Learning Centre laboratories will be used to teach students how to use WebCT, so that the
facilities and resources set up on it can be exploited fully. Regular electronic communication will be a course requirement: progress reports on projects and records of team meetings will be recorded electronically on the WebCT email or discussions. A better-equipped teaching venue will make it possible to teach students how to collate these electronic texts to compose their reports on word processor, and how to upload their reports on to the WebCT presentation area. The technical skills students develop in the process will not only facilitate their studies but will improve their employment prospects. Rooms will be booked for small group interactions so that students can have group discussion time away from computers.

Our overall strategy for mainstream teaching will be to encourage all Communication students to use the departmental resource base, ditcom, whether they do so from home or from the general DIT computer laboratories. Training sessions on how to use ditcom will be held in the Online Learning Centre for interested groups of students during College Lecture times. Our part-time Communication students in particular could benefit from being registered on ditcom, as they have difficulty communicating with academic staff after hours, and most of our mature students in full-time employment have access to computers and the Internet at the office.

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In conclusion, there are clearly two “layers” to this project. At face level, our intention was to achieve optimum learning using modern technology: at a deeper level, we wanted to empower our students by opening to them a virtual new world. We do not labour the empowerment aspect of our work with our students, who want to be regarded as modern and capable citizens of the world, and, understandably, resent being typecast as educationally-disadvantaged second language students. For them, the opportunity to “surf the net” means being “in sync” with their
worldly-wise and sophisticated hip-hop cousins in the USA and UK - it is “super-cool”. This is not to say that they do not realise the significance of their “giant leap” into cyberspace. I cannot put it better than my colleague, Linda Herbert: “You can see their eyes literally light up as they go on to the Internet.”

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