CHAPTER 1   NATURE OF STUDY

Background To The Study

This research explores the experiences of Australian distance learners with CMC in distance learning. It also examines the impact of membership in equity groups and sub-groups on these experiences. Whilst it is acknowledged that the experiences of each student is unique, any aspects of commonality in the subjective experience of CMC in distance education is explored and compared. Additionally, as respondents in this study are enrolled across nine different tertiary distance education providers, areas of common challenge and experience should be of interest to academia in general.

Cyber education is no longer the realm of science fiction. Instead it has rapidly become an integral part of the modern university. Computer-mediated communication (hereafter referred to as CMC), it is hoped, will extend opportunities for learning outside the pre-existing parameters of distance education and thus enhance the learning opportunities for all distance learners. CMC is defined as the process of exchanging thoughts, ideas, and information through the medium of a computer keyboard and screen which is connected to other computers (Berge & Collins, 1995, p. 16) through the channel of the Internet. There are numerous ways in which distance learners can communicate through the Internet. These include e-mail, faxing, participation in online forums and in real-time chat, receiving subject notes and information and for conducting research via the worldwide web, and conducting online searches of global databases and academic libraries (Chapman, 1999, p. 2).

There are two major benefits in the utilisation of CMC in third-generation distance learning. The first is its ability to allow interaction between students and their teacher

(Chapman, 1998, p. 4). The advantage of this is that students may feel part of a learning community. By being able to send and receive communication to and from other students and the lecturer/tutor, dialogue can take place to enhance knowledge and therefore learning outcomes. This communication can take place both synchronously (in 'real' time) and asynchronously (not dependent on time), overcoming time-zone differences or trying to catch someone during office hours. Such opportunities for distance learners to participate in discussions with not only their lecturers but also their peers have not been plentiful in the past.

The second benefit is the equalising effect that CMC can have in a student's life. As it is primarily text-based, the current technology can transcend the social cues that at times disempower people in face-to-face contexts because of a pre-existing disability, impairment, disfigurement, or their racial background (ibid, p. 5), thus providing a vehicle for them to participate in tertiary study. According to Grint (1989, p. 189), CMC can provide electronic bridges to lead students over

> ...some of the conventional blocks on participation: no powers of public oratory, interruption or loquaciousness are necessary; rapid exits from unpleasant or threatening encounters are viable; and no physical presence is required. In short, CMC seems to offer an electronic mask to transcend a number of factors that delimit participation.

Thus with access to the required technology and the knowledge and skills to be able to utilise the technology, CMC can be the most wonderful tool for conducting integral aspects of higher education, whether that be in the context of an online dialogue with a lecturer or collegial peer, accessing and receiving coursework from a distant organisation, researching global databases for information, or submitting a completed assessment task online. In reality, however, does CMC effectively overcome the obstacles previously experienced by learners, of the marginalised groups of learners which it hopes to assist? Can all students participate equally in this new phase of distance education?

The notion of equality concerns parity among different social groups along a given measure (Sutton, 1991, p. 477). The term 'equity', from the Middle English 'equite' meaning to be equal or fair, and implies a freedom from bias or favouritism (Merriam-Webster Online Dictionary, 2003). In an educational context, it connotes the access of different social groups to education (Vick, 2001, p. 49), and for distance learners, this is no exception. The OECD argues that the main vehicle to promote learning in a population, which in turn will enhance a nation's economic and social development, is the equality of opportunity (or equal access to education) for all learners (Matthews & McClure, 2002, p. 3).

However, inherent in such policies of equal opportunity is the notion of 'sameness'. Germov (1994, p. 9) reminds us that treating individuals in the 'same' manner does not ensure treating them equally. To treat distance learners as the same can work to reproduce the initial class disadvantages, rather than emancipating them from these. Similarly, Secada (1989) argues that 'equality' is not synonymous with 'equity', and that to achieve equality amongst different groups of people, society should strive for temporal "equitable inequalities", to make "overcompensations" that reflect the needs and strengths of the different groups represented.

Thus for all students to have parity in relation to access to, participation in, and successful outcomes of tertiary education, some groups of students will need to be treated 'differently' to gain similar outcomes. These groups - those who have been traditionally marginalised in academia and who fall by definition into equity groups - will need to be given additional assistance in relation to resources and skills, so that they may fully participate in higher education. Two other methods to promote equality for marginalised groups is through culturally inclusive curriculums (Germov, 2001, p. 244) and through learning and assessment tasks that take account of a students intellectual strengths and learning styles (Gardner, 1985).

Equity in distance education, and the democratisation of learning, suggests a parting from the often mass reproduction of education which can treat distance learners as a number, towards a system where the learner as an individual has his or her needs addressed.

Statement Of Problems And Aims

Research problems can develop from the researcher's personal experience, from theory, or from a review of literature (Burns, 1997, pp. 26 - 28). However, the most informative research is born out of personal experience. This certainly is a truism for this research. For the past 18 years this researcher has been a distance learner, and knows first-hand the challenges that must be surmounted for learning to take place, as do the 34 other respondents whose experiences are detailed herein.

CMC offers a host of opportunities for the successful completion of higher education. There are numerous potential benefits possible through the combination of computer technology and the Internet. For example, rural and remote students can have the opportunity for students to feel a 'part' of a broader learning community through online group discussion and tutorials. For the financially disadvantaged, it can mean being able to take part in higher education without the cost of attending on-site. For students who care for others, such as children or parents, it can provide the means by which post-secondary schooling can be achieved without forgoing their responsibilities. For the employed, it can provide further training to improve job security.

Implementation of CMC in distance education, however, may assume that students possess a pre-existing practical knowledge of computer technology. It also may assume an equality of students in terms of access, competency, and opportunity. However, not all students have had the opportunity, the desire, or even the confidence to gain instruction in this medium. Often factors such as having little or no income, geographical isolation, gender, time constraints, and disabilities can all play a part in distancing students from the very technology that should provide them with greater opportunities to access modern academia. Given the beliefs by many that computer-mediated education (CME) is now replacing many of the traditional modes of distance education, to what extent does the lack of knowledge and access set up, and perpetuate, a sub-class within distance-learners; students who are relegated to 'looking from the outside in'?

Statement Of Research Questions And Sub-Questions

Research Questions:

1. To what extent can computer-mediated communication be considered a level learning arena for all students?

2. What benefits to the facilitation of learning does CMC offer the same students?

3. What barriers are perceived by students enrolled as distance learners in tertiary institutions towards accessing CMC?

4. How does membership in one or more of the equity groupings affect the perceived learning experience?

5. Of the barriers identified, what suggestions do respondents have for tertiary institutions and educators to ensure inclusive distance education in the new millennium?

6. What strategies might be required by universities to enhance CMC learning for all students?

Sub-Questions:

1. What relationship exists between Indigenous students and the utilisation of CMC in distance learning?

2. What relationship exists between student geographical location and the utilisation of CMC in distance learning?

3. What relationship exists between student disabilities and the utilisation of CMC in distance learning?

4. What relationship exists between student cultural background (specifically linguistic background) and the utilisation of CMC in distance learning?

5. What relationship exists between student socio-economic situation and the utilisation of CMC in distance learning?

6. What relationship exists between student gender and the utilisation of CMC in distance learning?

7. What relationship exists between student age and the utilisation of CMC in distance learning?

Scope Of Study

When examining the scope of this research, there are several points to make. Firstly, the issue of the social phenomena under investigation has directed the choice of research method - the case study approach - in this particular instance. Case studies are, by definition, 'bounded' systems (Burns, 1995, p. 364). This means that the case under study must be definable as a particular social entity, that is, representative of a larger number of cases. Case study methodology gives the opportunity to collect qualitative data on the subjective experiences of participants which may be hidden in large-scale quantitative studies. Within the methodology, however, quantification has been possible through the respondent's initial responses to the survey questionnaire. This has allowed not only a means by which to compare data from respondents, but also provides an opportunity for the triangulation of data within this specific study. Triangulation is the gathering of information via several different techniques or from different points of view (Allen, 2001, p. 26).

The second aspect in relation to the scope of this study has been the decision about whom to study. However, the choice here was also clearly defined. The respondents formed a purposive sample of distance education students who are using CMC as the means of their distance learning. Methods of data collection will be further discussed in Chapter 4. As an outcome of these two positions, this study examines perceptions of equal access to CMC by distance education students enrolled in seven tertiary institutions in Australia, plus two off-shore institutions (one located in the U.S.A. and the other located in the U.K).

The choice of research and subject selection in turn affected the third point relating to scope: that of boundaries on the length of study. Following the completion of the survey questionnaire, respondents who had indicated their willingness to be interviewed as case studies for this research were then followed up. In most cases, this was by means of a lengthy telephone interview (again governed by the fact that the respondents were geographically located around Australia (predominantly in Queensland, New South Wales and Victoria – although one respondent lives off-shore).

Due to researcher and respondent variables, these interviews were conducted anywhere between one day and twelve months from the completion of the survey questionnaire, thus allowing a longitudinal comparison of their initial stated responses to the perceived barriers and/or benefits of CMC in distance learning in the survey questionnaire to those articulated in the interview process. The interview provided the opportunity for respondents to elaborate on their experiences with CMC in distance learning, and to identify any changes that they perceived had taken place in terms of advantages or barriers. It also enabled distance learners to articulate suggestions for the enhancement of CMC in distance learning. A small number of the sample were interviewed in-person when opportunity allowed.

Although this was a relatively small sample of individuals (n = 35), they were chosen because of their 'typicality' and 'convenience' to the researcher (Burns, 1995, p. 371). Due to the wide variance in geographical location, age, socio-economic background, ethnicity and gender of those surveyed, this group can be argued as typically reflective of tertiary students studying via Distance Education. Additionally, with a moderate number of tertiary education providers being represented in the study, it can be understood that the perceptions of distance learners (DLs) to CMC are not unique to one university or geographical location or one particular group of students. The results of this study, therefore, have external validity, defined by Merriam and Simpson (1995, p. 223) as the degree to which the findings of a study can be generalised under similar conditions to other situations.

Significance Of Study

With the global shift into electronic education, the mode of instruction in Distance Education has shifted away from a heavy reliance on print media towards Computer Mediated Education (hereafter CME) through CMC. This research will examine the perceptions of barriers in gaining access to the necessary technology and knowledge to successfully communicate in cyberspace, which in turn has repercussions on a student's

successful learning outcomes. The results of the study will highlight areas that institutions will need to address when incorporating computer technologies as part of their distance learning programs so that equitable student access – the expressed desire of most, if not all, tertiary providers - can be optimised.

The nature of this research and the findings, will be of value to all those involved in the mode of electronic distance educational instruction throughout the national and global community. It is anticipated that the findings of this research will build upon research already conducted nationally and globally, and suggest models that universities may wish to employ to enhance access, retention and successful outcomes of all students who are distance learners.

Organisation Of The Thesis

The following chapters develop these themes more fully. Chapters 2 and 3 both examine the issue of equity challenges in distance education. Chapter 2 explores the benefits and disadvantages of CMC in third-generation distance learning, specifically those factors that relate to learning, communication and technology. Chapter 3 further investigates the issue of equity in distance learning, through a socio-cultural perspective. Technology aside, it examines the contexts in which distance learning takes place, including the notion of access to higher education by disadvantaged socio-cultural groups of individuals. These various aspects make the notion of equal opportunity in distance learning an oxymoron.

The case study methodology that forms the basis of this research is discussed in Chapter 4. This chapter describes the methodology of the research process, from the compilation of the survey questionnaire to the completion of the interviews, and spans the years from the initial pilot study to the subsequent research. The research instruments (letter of Introduction, survey questionnaire and interview schedule) are included in the Appendices.

Chapters 5, 6 and 7 examine the data gathered from the case study respondents. Chapter 5 catalogs the distance learners' responses to the survey questionnaires and highlights some

of the main themes. Respondents have listed information in three broad areas: their distance learner profile; the reasons behind their choice of distance education as the mode of study for their tertiary studies; and their responses to CMC in distance learning.

Chapters 6 and 7 recount the personal stories of the 35 distance learners who took part in this study. The respondents are divided into four categories on the basis of their distance learner profiles. These divisions range from those distance learners who do not fit the criteria of any equity group (Category 1), through distance learners who are representatives of one equity group (Category 2), distance learners who fall into two equity groups (Category 2), and finally to distance learners who fall into three or more equity groupings (Category 4). Chapter 6 examines the experiences of those participants in Categories 1 to 3. Respondents in these first three categories represent three-quarters of the sample.

Chapter 7 details the experiences of the fourth class of respondents, those by their distance learner profiles fall into three or more equity groups. Of note is that these participants represent just under a quarter of the respondents in this study. The chapter then goes on to summarise the main themes of the interviews, including both the perceived value of distance learning utilising CMC to these distance learners and also the challenges to successful completion of study.

The final section of this thesis, Chapter 8, draws together the various strands of computer-mediated distance learning, equity issues concerning distance learners, and the responses to both the survey questionnaire and interview by the case study respondents. On the basis of this investigation, this chapter raises some recommendations for universities that are currently engaged in, or considering the implementation of, CMC in distance learning applications. It concludes with two suggested directions for future research in relation to CMC in distance education.
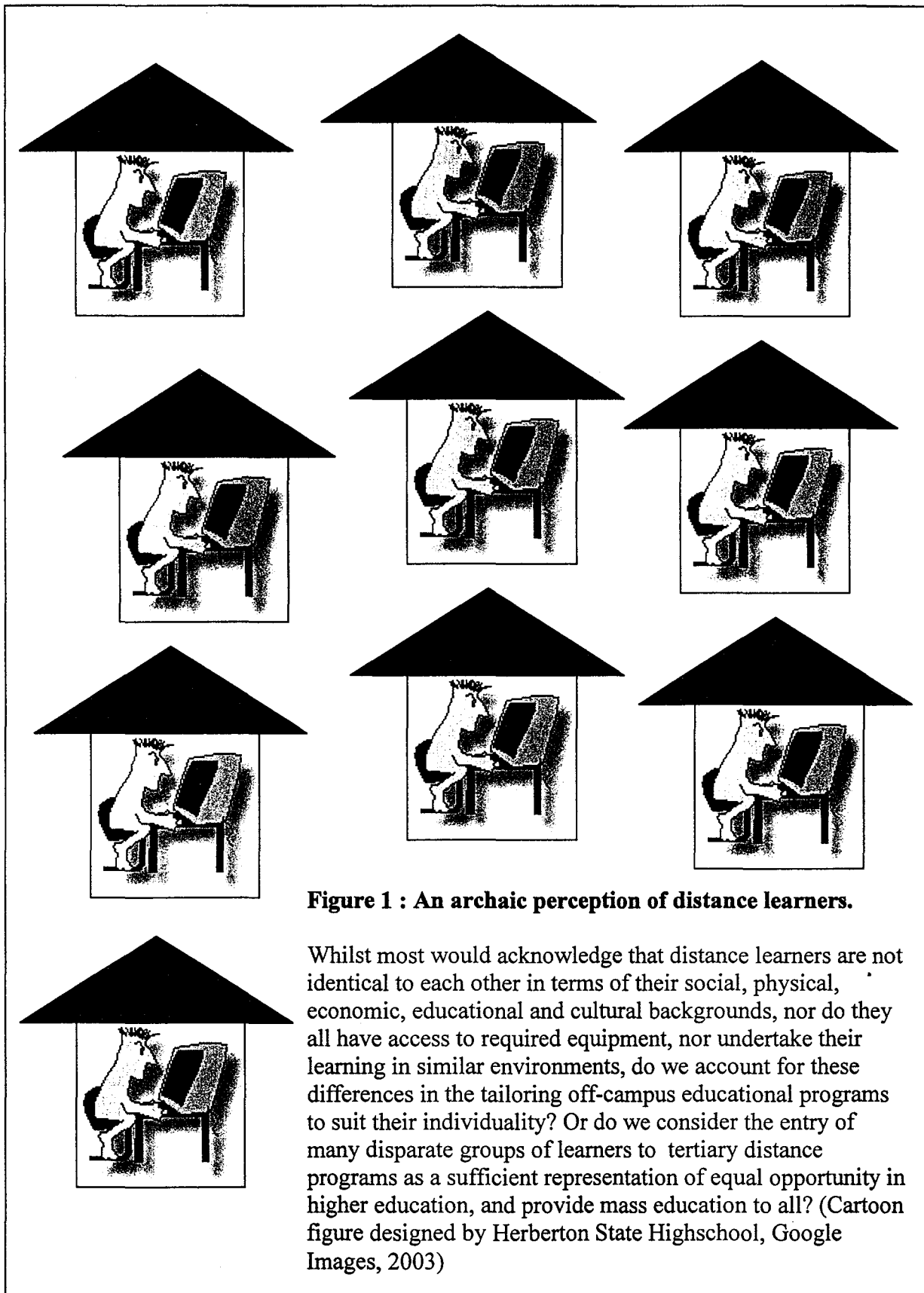
Figure 1 : An archaic perception of distance learners.

Whilst most would acknowledge that distance learners are not identical to each other in terms of their social, physical, economic, educational and cultural backgrounds, nor do they all have access to required equipment, nor undertake their learning in similar environments, do we account for these differences in the tailoring off-campus educational programs to suit their individuality? Or do we consider the entry of many disparate groups of learners to tertiary distance programs as a sufficient representation of equal opportunity in higher education, and provide mass education to all? (Cartoon figure designed by Herberton State Highschool, Google Images, 2003)

CHAPTER 2   LITERATURE REVIEW

EQUITY CHALLENGES IN DISTANCE LEARNING: FACTORS RELATING TO LEARNING, COMMUNICATION AND TECHNOLOGY

"I do not fear computers. I fear the lack of them." (Isaac Asimov)

Introduction

There are many facets in the exploration of equal access to, and the attainment of positive outcomes in higher education, by distance learners utilising computer-mediated communication. Some of these factors relate to the process of learning through external modes of tertiary education, whilst other factors relate to the medium of the technology itself. This chapter will explore these major themes.

Societal influences can also create equity challenges in distance learning, including the circumstances which distance learners find themselves in (and often not by self-choice). These themes will be explored separately in the following chapter.

Distance Education Defined

In simple terms, distance education takes place when the learner and teacher are separated in terms of distance, and where technology such as print or voice is used to replace the face-to-face communications of the classroom or lecture hall (Gottschalk, 1995a, p. 1). Thus distance education combines an opportunity for those who may find accessing on-campus higher education difficult due to factors such as accessibility and cost, or the need for a flexible delivery of learning in terms of time, place and pace (Beller & Or, 1998, p. 3).

National statistical data on distance learners are difficult to source. The Department of Education, Science and Training (DEST, 2001) cited the proportion of distance learners enrolled in higher education in Australia to be approximately 17% of the total enrolments of tertiary students. However, discrepancies abound in statistical data. The same agency cites that the total number of distance learners (both full-time and part-time) during the year 2001 totalled 107,288 students, some 14.34% of the total number of enrolled tertiary students, which is reported to have been 748,138 (DEST, 2003b). In 2002, external enrolments in Australian tertiary institutions were 112,974, which equated to 14.18% of the total number of tertiary students, which stood at 796,328. And in 2003, there were 120,176 external students, which represented 14.48% of the 829,499 tertiary students (DEST, 2003b). Whilst these figures do represent a small increase in the need for off-campus tuition on a national level, this is still a far cry from any anticipated acceleration in demand in distance education (Berge & Collins, 1995). However, at an institutional level, large variances occur. For example, according to DEST (2003b), in Victoria during 2003, Deakin University's external enrolments were almost 36% of total students. In NSW, external students comprised 69.31% of the total student population at Charles Sturt University, whilst at University of New England, distance learners accounted for 73.49% of the total student population. The national statistics may be skewed as some tertiary providers do not as yet cater for distance learning.

Phases Of Distance Education

There are different styles and types of distance education, but broadly speaking these can be understood as falling into three historical phases or 'generations' of distance learning (Nipper, 1989, p. 67). Each of these phases are linked to the specific production, distribution and communication technologies utilised during each of these phases. Whilst this thesis concerns itself specifically with the third and most recent of these phases, an understanding of the first two phases is also important.

The 'first generation' of distance learning refers to correspondence learning with its basis on written or printed material. This form of learning expanded rapidly at the end of the nineteenth century with the establishment of rail systems and new printing techniques, both of which allowed the production and distribution of large quantities of

teaching material to geographically isolated learners. In this phase, the characteristics of student-teacher and teacher-student feedback is that they are predominantly slow, sparse, and often only restricted to periods when the student submits scheduled assignments. The first generation of distance learning is based on the theoretical premise that teaching is the transmission of knowledge

The 'second generation' of distance learning has integrated multi-media technology (such as cassettes and broadcast media) with the printed materials of the 'first generation'. Whilst similar to the 'first generation', student-teacher and teacher-student feedback of this phase also includes telephone contact. Both the first- and second-generation models of distance learning have utilised either one-way or two-way communication styles between the teacher/lecturer/tutor ("T") and the distance learner ("DL"). These models can be graphically represented as below.
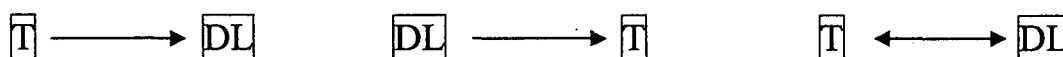

Figure 2 : Models of one-way and two-way communication styles in First- and Second-generation distance learning

In these models of learning, Nipper (1989, p. 68) argues that the learning process is an individual exercise, removed from the learner's social world and the learning community of the university. Some distance education providers around the globe still base their distance education courses on these two models.

The 'third generation' of distance learning utilises computer-mediated communication through the means of the Internet. Through the potential of this medium, distance learners may have the opportunity to experience being part of a learning community, despite being removed from the physical structure of the university institution. In third generation distance learning, the learners may not be geographical isolates as was generally the case in first-generation distance learning. Those residing in cities in close proximity to tertiary institutions may choose DL due to full-time work commitments or other factors.

If the technology is used to its fullest potential, distance learning can become a social process, one in which communication is a key component. Whilst the one-way and two-way modes of communication still remain available in this third phase, one-to-many or many-to-many communication models are also possibilities for the distance learner (Harasim, 1989, p.50). Paulsen (1998, p.7) develops this model to identify four communication possibilities in an online environment: 'one-online', 'one-to-one', 'one-to-many' and 'many-to-many'.

In a model to represent the communication possibilities in the third generation of distance learning (Figure 3), the solid arrows indicate multiple possible avenues of communication flow between teacher/lecturer/tutor and the various distance learners in a virtual classroom such as a subject forum, whilst the dashed line indicates that two-way communication remains a possibility in other online spaces, such as personal e-mail. The broken bolded line surrounding the teacher/lecturer/tutor indicates that they may or may not be present in group discussions.

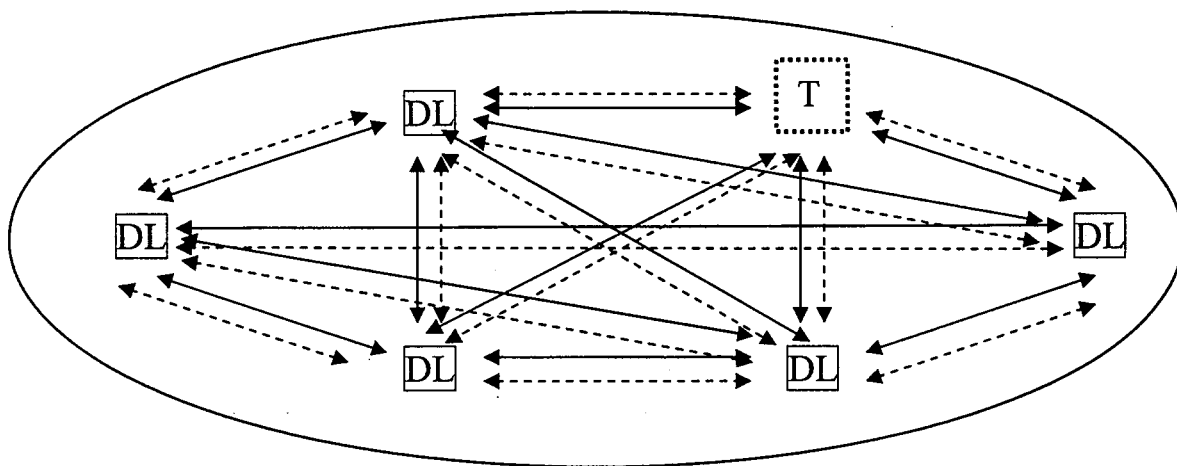Figure 3 : Model of the multiple possibility communication styles in Third-generation distance learning.

This multi-modal model of communication has the possibilities to emulate some of the interactions of on-campus dynamics.

The technology of third-generation distance learning is known as computer-mediated communication. It is reliant primarily on computer hardware and software plus Internet

access. Computer-mediated communication (hereafter abbreviated to CMC) uses the technology of computer networking to facilitate communication, and hopefully learning, to spatially-dispersed learners (Jonassen, et al., 1995). It includes such components as electronic mail (e-mail), computer conferencing, and bulletin boards.

Distance Learning

Distance learning is the presumed outcome of distance education. Learning can be defined as

> ...a process that extends, in some way, the existing views of the world which individuals have. It adds to their life experience, by altering or building on the meanings that they have made of the world and the way it works. (Reid, et al., 1989, p. 10)

It should be noted, however, that the provision of distance *education* does not automatically lead to distance *learning*, because learning is much more than the transmission of educational information from teacher (or institution) to student. For learning to take place, students must actively engage with the material they receive by processes such as reading, listening and writing (involving lower levels of thinking) to discussing, theorising and problem-solving (which involve higher levels of thinking). Lower levels of thinking do not require much engagement in the learning on the part of students. Though this has been the common way of conducting first-, and to a lesser extent, second-generation distance education, it can promote a cycle of surface learning. Here passive or 'surface' learning is defined as when "...students are too busy accepting information that they have no time or motivation to process it." (CEA, 2001a, p. 1)

In the famous distinction by Biggs (1987), surface learning meets institutional or course requirements through practices such as memorisation or rote learning. Biggs contrasted surface learning with 'deep' learning, a process of active involvement through interest in the content, and of being able to relate new knowledge to old. The concept of deep learning is an active concept of engagement, using strategies such as group discussion to enable the construction of knowledge.

Active Versus Passive Learning In CMC

The promotion of 'active learning' strategies reflect the antithesis of the traditional "fill up the student's head with knowledge" approach to education. Active learning involves, as stated, student involvement with the educational materials, and "...is important in ensuring that context knowledge does not become inert once it has been learned." (VBOS, 1997, p. 141)

For many students who are distance learners, the opportunity to engage in activities which produce higher-order levels of thinking (such as discussion, debating, reporting to the group, and hypothesising), has been lacking in previous generations of distance learning. The exception has been those students undertaking study in a field that they are employed in, or who have friends and family who are interested in the area of study or actively involved with it. Whilst student interaction in face-to-face teaching environments is noted to produce higher order, active learning, the lack of adequate student interaction in distance learning creates a barrier to successful learning, particularly in relation to higher-order reasoning and open-ended problem-solving (Behm, 1990). Brookfield (1989) argues that without the opportunity for critical or reflective thinking on the part of distance learners, the resultant learning is passive, and not easily retained. The use of computer technologies, when combined with other complimenting media, have been found to provide the distance learner with a balanced, productive, and interactive learning environment (Bates, 1995: Eastmond, 1995; Nipper, 1989).

This barrier of active involvement in learning and the production of higher-order reasoning has the potential therefore to be overcome with the emerging computer technologies of third-generation distance learning. These are capable of facilitating an interpersonal communication dimension within the distance learning environment that has been absent from earlier generations of distance education. Electronic forums are ways in which deep learning can be facilitated.

However, simply placing educational material online does not equate with deep learning. There is however the risk that online information which requires predominantly reading, as compared to doing, will promote surface learning. Saunders

(1998) notes both the importance and the challenges of incorporating active learning opportunities in what has been traditionally a passive learning environment where higher levels of thinking may not have been present. Similarly Bates (1995, p. 51) concurs "the issue of interactivity is a crucial aspect of learning through technology." To promote cognitive learning in DLs, online materials or courses need to be organised in such a way so as

> to make students think about what they are doing. In this way, sites do not do all
> the cognitive processing that is required for learning, but equally, do not
> abandon students to understand it all for themselves. (CEA, 2001f)

Thus with careful planning and understanding, online material such as webpages, whilst perhaps having the appearance of a passive text, can be designed to be interactive so as to foster deep learning.

Collaborative Learning and CMC

Thus CMC provides the opportunity to facilitate interpersonal communication amongst distance learners at a distance. Collaborative learning, sometimes referred to as group learning, involves interaction amongst the learners in which learners are encouraged to work together (collaborate) on academic tasks, the benefit being that the learner

> ... is an active participant in the learning process, involved in constructing
> knowledge through a process of discussion and interaction with learning peers
> and experts. (Harasim, 1989, p. 51)

Collaborative learning, according to Webb (1982), allows group members to learn by two beneficial channels. Firstly, collaborative learning can create the emotional and/or intellectual climate conducive to learning, and secondly, it can provide the mechanisms to promote learning, such as student's actively constructing knowledge through verbalisation, conflict resolution processes and by cognitive restructuring.

Whilst acknowledging the importance of collaborative learning for DLs, Grint (1989) noted in his experience, that despite being given the opportunities to participate in such

opportunities, only a minority of students were actively participating in online debates. To gain understanding as to the reasons why technology which "...embodies such great potential...." (Grint, 1989, p. 189) is only being used by small numbers, he interviewed a small group of DLs to gain some insight, and noted the following responses. Sensory overload is one significant factor. Whilst technology is capable of storing vast amounts of information, logging onto online conferences can be overwhelming due to the amount of information it contains, and trying to keep up with the information. Time was another deterrent for the part-time respondents in Grint's study. Many felt that their time budget for personal study was too tight to allow for casual CMC use, although he noted that these same respondents would lurk rather than actively participate in forums. Grint's respondents also spoke of the feeling that communications in online forums are more open to ridicule, and as such deter active participation. This perception relates to "...the link between the written word and high levels of expertise." (ibid, p. 191)

Community Identity And CMC

Closely linked to the concept of collaborative learning is the feeling of community or group identity. Rohfeld and Hiemstra (1995, p. 92 - 93), found that the lack of face-to-face interaction experienced by distance learners retarded the building of group identity and cohesion and argued that overcoming the lack of face-to-face in-person contact is important in developing ways to foster the feeling of community for distance learners. This is because

> Most, if not all, of the conversations among learners and between learners and facilitators take place without the benefit of face-to-face speech, vocal tones, non-verbal expressions, and other social-context cues that can support the process. (Rohfield & Hiemstra, 1995, p. 102).

Fernold (1995, p. 1 - 2) argued for the importance of community building in distance education courses. Compared to on-campus learners, he described distance learners as on the whole, older, unemployed or employed, having a family, living far from their study centre, and socially separated from their teachers and peers. It is crucial then for distance learners to develop a feeling of community for the success of their study.

Harasim (1989, p. 55) found however that computers in third generation distance learning can potentially contribute to a sense of community within the group, forging a social bond that can offer important motivational and cognitive benefits with the learning activities. Tucker (1998) studied the way in which a community of peer interaction could be established between distance learners. He found that a combination of delivery techniques that included the addition of on-campus intensive courses (for example, Residential schools) to existing distance education techniques encouraged the feeling of a collegial community. This supports the current trend with most universities involved in distance education.

In her study on CMC in education, Saunders (1998) found that the development of an interactive Internet site became an important aspect of instruction by fostering both collaborative learning and community for external students. Examples of interactive sites include subject forums or virtual classrooms, to name but two variants. Reid et al (1989) have previously noted the importance of small group involvement is an important aspect in the formation of group identity.

The process of small group formation can either be organised through students themselves on- or off-line, or by others, for example the lecturer. Chapman (1998, p. 14) suggests caution in the process of student self-selection for small group participation as the process can be complex and waste a great deal of time. Thus it might be more beneficial for small groups to be initially pre-selected by the lecturer or tutor. In this way, later changes in the small group constituency might be possible.

Size of small groups will vary according to their function and purpose. Collaborative assessment tasks do not work well with large numbers. Chapman (ibid) suggests group assessment tasks work best with two to four participants, but for discussion groups, up to twenty-five DLs can work effectively. Large numbers of participants on forums can lead to challenges in encouraging participation by all members, in addition to the vast amount of contributions large groups can generate. They can also be impersonal, leaving students feeling insignificant. Moreover, large groups can remain unco-operative and noise-filled places, far removed from the utopian site of communal co-operation and discussion (Kollock & Smith, 1996).

Thus community identity and collaborative learning are important factors in deep learning, but need to be constructed and managed carefully so that the learning is optimal for all participants. For equal participation might mean the silencing of some and the promotion of dialog from others.

Distance Education And Economic Rationalism

In addition to providing the opportunity for the personal attainment of education, and hence the opportunity for well-paid employment, DE is also recognised as having the opportunity to meet the needs of national economic wellbeing. This duality of function Moran (1990, p. 53) argues that as a system, distance education supports the functions of the state in two major ways. Firstly, higher education is viewed to be an investment in human capital by the state, business and industry, with the skill and knowledge of the workers contributing to economic capital by maintaining profits. Secondly, it legitimates and reproduces the status quo by simultaneously maintaining the social and economic dominance of capitalist elites, including continuation of their unequal access to and control of the means of production which assist capital to maintain its rates of profit, and ensuring social harmony.

Furthermore, CMC provides the opportunity for Australian-based tertiary institutions to participate in a global education market. Indeed, in 2002, a market research study by IDP (2003) revealed that 10.7% of International student enrolments were enrolled in distance education programs.

Access to distance education in Australia is based on a "user pays" system of either up-front or deferred payment options through the Higher Education Contribution Scheme (HECS). The latter allows those who do not have the finances to pay for their educational expenses at the outset, to pay them later as they are able to with the presumed income from post-education employment. Whilst this is an advantage, Ardagh (2000, p.1) argues that the "user pays" system of education is based on economic rationalist assumptions, which work to disadvantage the disadvantaged in society.

Computer Technology In Third-generation Distance Education

The popular optimism that the new era of distance education conducted through CMC will improve educational access and quality rests on several hopes. The first aspect relates to creating greater opportunities for people to access post-secondary education. The application of computer-mediated technologies connected with electronic mail make it "...a dynamic force in distance education, providing new and interactive means of overcoming time and distance to reach learners." (Gottschalk, 1995c, p. 1) Accessing education increases the likelihood of people increasing their income, through better-paid positions of employment rather than manual labour positions. These hopes of CMC providing an equitable playing field are echoed in many quarters, including feminists such as Herring. Along with her colleagues, she argues that one of the technology's greatest strengths is its ability to break down socio-economic, racial and other traditional barriers to the sharing and production of knowledge. (Herring, et al, 1992), which is a lofty ideal in our global village.

A second aspect is that for disadvantaged groups of people who may not have been previously able to attend on-campus due to fear of harassment, can now be part of a discussion group. CMC, it can be argued, offers "...an electronic mask to transcend a number of factors that delimit participation." (Grint, 1989, p.189) With this hope comes the belief in online communities, social hierarchies that exist in the real world "...will be dissolved and that flatter, more egalitarian social organisations will emerge." (Kollock & Smith, 1996, p. 109)

A third anticipation is that CMC will overcome many of the traditional communication barriers reported by distance learners in the first- and second-generations. Hsu and Bruce (1998, p. 48) explain that

> Advanced technology has brought hope to the problems of communication barriers. With the rapid improvement of speed and capacity of computers, instantaneous feedback of multiple channels from the instructor is now possible.

The communication available through CMC can be both synchronous (taking place in 'real time') or asynchronous (taking place over time), or a combination of both. Chat-

rooms are examples of synchronous communication, whilst e-mail is an example of asynchronous learning. One of the wonderful attributes of asynchronous communication is that communication can take place across global time-zone differences. For distance learners, it also means the possibility of forwarding complex messages or requests in the middle of the night to the receiver, and in most cases, for the cost of a local phone call. Many DLs regard the absence of spontaneous and real-time exchanges a disadvantage in their communications (Grint, 1989, p. 189), and the synchronous aspects of CMC help to overcome this perceived disadvantage.

Others write of the democratising possibilities of CMC in enabling a DL's ability to access information and resources on the World-Wide Web (hereafter WWW) through the utilisation of CMC. In relation to conducting research, Leedy (1993, p. 82) notes that the Internet can provide worldwide access to information from thousands of sources on every conceivable object. Herring (1993, p. 1) notes

> ...that computer-mediated communication is inherently more democratic than any other communication media. Thus philosophers and social theorists see in CMC a more equal access to information, empowering those who might otherwise be denied such information, and leading ultimately to a greater democratization of society.

Thus it has been perceived that CMC will enhance greater access, participation and successful learning by distance learners in post-secondary education. In the collision between the lived reality of distance learners and the sometimes surrealist nature of online learning, are these hopes being transformed into truisms?

Access To Computer Hardware And Software

Six essential ingredients are seen as necessary if students are to be able to participate in on-line learning in third-generation DE. The first three of these relate to computer hardware and software, whilst the second three relate to Internet access (discussed in the following section).

1. **Computer** – There have been rapid changes in computer hardware and software requirements over the four year span during which this research has been conducted. Four years ago, what was required by distance learners to participate in their CMC requirements is vastly different from today's requirements. Four years ago, recommendations such as "...any computer made after 1995 will be able to handle nearly everything the Internet has to offer with differing levels of success." (Moraitis, 1999, p. 16) were common by tertiary providers. The 'basic entry level' machine necessary for participation in online learning was a 486 (IBM), or the MacIntosh equivalent. Today the requirements are vastly different, requiring more powerful computers to handle the multimedia functions of the WWW. At the time of writing, for example, the University of New England (2003), recommends that in order to access the online webpages and courses, the use of a computer system which is less than 5 years old (for example, utilises Windows 98 or Macintosh OS9), with a minimum Central Processing Unit (CPU) speed of 300Mhz (200Mhz for Macintosh). Computers with a slower CPU can be used but cause greater challenges accessing online learning. For example when trying to download with a slower CPU than recommended, timeout faults can occur making downloads of large documents impossible. It also increases financial costs for distance learners due to longer times spent online downloading information. The recommended CPU speed will mean less waiting and smoother operation of most aspects of the computer. UNE online (ibid) also recommends the higher cost purchase of a good 17 inch liquid crystal display (LCD) screen to reduce eye strain if a student is required to undertake a great deal of reading online.

   Today's 'basic entry' equipment for online learning will, however, become as quickly outdated as did those that were 'basic requirements' four years ago. It is reasonable to suppose therefore that in the course of a part-time distance-learner's course of study, they may need to upgrade their computer system at least once, if this trend is anything to go by.

2. **Hardware** – the 'basic entry level' for electronic learning requires enough memory to cope with the required software and downloads. Four years ago, computers from the 1995 era had usually 32 to 64 MB RAM. Whilst this memory capacity was

enough to run text-driven applications of the Internet, such as sending text e-mails, it is not enough to run the more recent memory-hungry graphics images that often accompany information located on the WWW. This has ramifications for the type of materials being sent in on-line learning applications and therefore, what students are able to download. Smaller memory capabilities also have implications for the choice of software (programs) which can be installed and run on them. At UNE (2003), for example, distance learners commencing in 2004 are recommended to have a computer system which runs at least at 128 MB or 256MB, depending on the system being utilised. Lesser memory capability directly affects a DLs ability to view larger files or more complex multi-media applications on the WWW.

Memory up-grades are possible generally, but there are technological limits to how much can be added to the existing system, and each upgrade will cost money. Memory is also necessary for the loading of applications such as modem (if not in-built) and software (such as that required for the Internet). In addition to a computer having sufficient memory for computer applications, students need to have sufficient additional memory available for the downloading of files, the installation of software or any associated updates, plus compilation and storage of completed assessment tasks (UNE, 2003).

3. **Software** – is required to participate in electronic learning. In order to be considered for distance education, note Lewis, et al. (1995), certain hardware and software items are essential. The computer must be connected to a suitable network and supplied with appropriate software to allow it to be a communication device. Software is required to run not only programs for Internet access (such as Microsoft's Internet Explorer 5.0, 5.5, 6.0 and Netscape Navigator 6.2, 7.0), but also other programs which enable, for example, word-processing for assignment compilation and submission. Software is also necessary to receive downloads such as attachments from other parties, and also to communicate online. Whilst many tertiary providers and their students utilise Microsoft capabilities, these are susceptible to many virus', and to overcome this, may choose alternative but non-compatible software.

Licensing agreements accompany purchases of software, but for those students purchasing second-hand computers or computers who install software as part of a corporate licensing agreement, challenges can be faced should anything happen to the installed software on a given computer, such as infection from a virus.

To summarise, computer technology is required for distance learners to access distance learning through CMC. On-campus students have access to on-site computer labs with relatively up-to-date computer equipment that have necessary capabilities for accessing information on the Web, thus alleviating the necessity and urgency to procure technical equipment at the outset of their higher studies. Off-campus students, on the other hand, are usually in situations where they need to purchase computer equipment and hardware (either new or second-hand) or gain ready access to the technology elsewhere (the home of a friend or family, at work, or at the local library). For external students, especially those who do not have mobility, have low socio-economic resources, or are based in rural or remote locations, initial access to computers can be problematic.

The simple fact of having a 'minimum' requirement of technology will preclude some students from the possibilities of distance education through CMC. In addition to concerns over an individual's lack of technical access to the necessary computer hardware or software required to participate in the information age, Spender (1995, p. 28) reminds us that we have to be proactive in considering how to avoid the gulf between the technological "haves" versus "have nots", not just on our own shores but also in technology poor and developing countries.

In an American study entitled *Bridging The Digital Divide: The Impact of Race On Computer Access and Internet Use*, Novak and Hoffman (1998) argued that to increase participation of every person in the information revolution, each would need access to a personal computer. The study found that access to a computer translated into usage of computers. In other words, whether it be at home, school, work, community centres, or elsewhere, access to a personal computer is the crucial mechanism by which individuals will become involved initially in computer technology, and subsequently access the Internet. In Australia, according to the national census in 2001 (ABS, 2001), usage of a personal computer at home varied according to specific age groups: 14.2% of people aged 0 – 14 years, 17.9% of people aged 20 – 44 years, 8.7% of people aged 45 – 64

years, and 1.2% of persons aged over 65 years reflecting that Australia too is a long way from parity in relation to access to computers. Naturally, these age-groups can be part of the one household. Household ownership of personal computers in Australia is estimated to be almost 50%, half the population (ABS, 2000, p. 1)

Some humanitarian programs have evolved to assist the underprivileged in accessing computers. These organisations distribute donated computers to those in need. Whilst a wonderful idea, computers in such programs might not be compatible with the software required for the CMC 'basic minimum requirements' of tertiary study, or have enough capacity or capabilities to access the Internet.

As seen over the duration of this study, the equipment necessary to undertake distance education using CMC has rapidly advanced. A rule of thumb is that the power and memory required doubles each year. Conversely, what is purchased is worth half as much after one year and a negligible after 4 years, whilst add-ons to increase computer memory cost money to upgrade. The consequence is that for people with little disposable income, funding necessary purchases can be difficult.

Moreover, the majority of distance learners are part-time students. Following current trends, with the usual six years that it takes to complete a three-year undergraduate degree part-time, it is reasonable to anticipate that a distance learner will need to upgrade at least their computer's memory capability, if not the whole system, at some point along the course of their study. This is especially the case if the student commences with a computer system that is already a few years old.

Access To The Internet

Once the 'entry level' equipment is in place, the next three requirements to take part in CML is the gaining of access to the Internet. This normally requires access to a phone line, a modem, and access to an Internet Service Provider to be in place before online education can become a reality.

1. **Phone Line** – Whilst most households in first-world countries have a connected phone line, it is not to be considered a given in every household. Indeed in Australia

it is claimed that 97% of households are connected to the phone line (Child Research Net, 1998). There are many reasons for this including cost of equipment and phonecalls. Some households rely on a mobile phone due to costs of reconnection in moving.

2. **Modem** – is the apparatus which links the computer to the phone line, making access to the Internet a possibility. In most computers being sold today, whether lap-top or desk-top varieties, modems are in-built. However, for older computers, modems must be purchased as additional hardware and connected to the personal computer and phoneline. Whilst it is spoken of the cost of technology decreasing, household finances to purchase equipment cannot be assumed. Internet connection/modem:

   For online learning, a 56k modem is considered the minimum requirement, and files should be able to be downloaded from the Internet at a minimum of 2,500 to 3,000 bytes/sec (UNE Online, 2003).

3. **Internet Provider Service (ISP)** - the organisation through which Internet access can be purchased. The ISP has a computer permanently hooked up to the Internet. There is a charge for this service that varies in pricing according to the chosen plan. The plan includes connection fees, on-line charges and service charges. The Lumley Report (Pollard, 2000) notes that Internet access providers are one of the fastest growing industries in Australia. This would indicate that demand for Internet services is growing. However, the ABS (2000, p. 1) notes that in 1999, only 25% of all Australian households had Internet access in their homes. Perhaps the proliferation of ISP's can be attributed to vying for chunks of the economic pie, and not necessarily equating with greater access for those who do not already have so.

It should be noted that technology is developing at such a rapid pace and changes are inevitable. As this thesis is being prepared, alternatives to Internet connection via a single telephone line are being put into place. The ABS (2003d, p. 2) notes the continued growth in broadband connection which delivers access speeds of greater than 255kbs, with digital subscriber lines increasing by 65% in a six-month period. In

addition, the new phase of public wireless Internet access is dawning, which does not require the use of a telephone line in order to access the Internet.

> Satellite dishes are being placed to make use of multi-media technology in isolated areas where phonelines are not available. In rural and remote areas of Australia, where telephone line access is an obstacle to online learning, such technological advances might be embraced if they were not so expensive. Many rural and isolated residents have also low incomes, placing such possibilities beyond their grasp.

As previously noted, only 25% of all Australian households have Internet access in their homes, whilst nearly 50% of the population have computers in their households (ABS 2000, p. 1). 75% of those households were located in capital cities. Examining this Internet access against the Internet user's background, the Lumley Report (Pollard, 2000a) points out that there is a marked discrepancy of Internet use between those who had achieved tertiary qualifications (34%) to those who had achieved secondary or trade qualifications.

Thus there is a discrepancy between those who own personal computers and those who have access to the Internet. Both are basic requirements to participate in distance learning through CMC.

Literacy And CMC

In the technological age, there are two aspects of literacy that are to be considered in examination of CMC as a successful medium for DL. The first is technological literacy, and the second involves the print-based literacy that still forms the basis of much of the technology. The word 'literacy' has historically been understood as the basic ability to read, write and comprehend (Langford, 1998, p 4) in a given language. This orientation on the world of print is now shifting with the rise of many different forms of texts. Texts are defined as organised patterns of visual images or written or spoken language that are constructed for different audiences and for different purposes (adapted from Campbell, et al., 2000, p. 24). In the technological society, texts can include web-pages, e-mails, multimedia applications and visual texts. Groundwater-Smith, et al. (2001, pp. 177 - 178) note that different kinds of literacies are demanded in different

settings and different media. This gives rise to the notion of literacy as a plural phenomena.

Langford (1998, p. 6) concludes that any concept of literacy is dependent on the information needs of a society at a given time. Doyle (1996) defines information literacy as the "...ability to access, evaluate, and use information from a variety of resources, to recognise when information is needed, and to know how to learn." (cited in Langford, 1998, p. 9) However, information literacy should not be simply conceived as purely an educational goal. It should also be understood as a social goal. Literacy is therefore a set of social practices, requiring more than simply coding and decoding messages. Rather, it involves "...the capacity to judge the nature of the social setting so that the reader or writer can recognise the literacy demands where appropriate." (Groundwater-Smith, et al., 2001, p. 178)

In terms of technological literacy, this applies to both the student and the lecturer/tutor. The latter will be discussed in a separate section. Gottschalk (1995c, p. 2) notes that despite the potential usefulness of computer technology in distance education, it is limited due to the widespread computer illiteracy that still exists. This is because technological proficiency equates with successful completion of outcomes in computer-based DL environments.

Lewis, et al. (1995), argue that the special application of these tools for communication also require new sets of skills for learners and instructors. They have suggested that potential barriers to CMC in distance education include the lack of appropriate skills and information necessary to participate. This includes the lack of appropriate skills to use CMC efficiently may include both the technical skills to access and use the system, and also the cognitive and interpersonal skills required to benefit from the extended possibilities. These skills include user competencies in filing, storing, and navigating through the enhanced information provisions. In addition, information is necessary. The need to learn about current network conventions that are designed by "techies" for "techies" rather than for a general user population is essential for understanding.

Technological illiteracy can be the outcome of many causative agents. Whilst most Australian schools now have IT classes as part of their curriculums, older students may not have had such access or experiences. Thus, the emancipatory prospects of CMC are therefore not automatic: they are limited by the ability of the student (and teacher) to become comfortably 'literate' in computer technology as the prime tool of education. The more complex the technology, the more daunting the prospect is to a novice to attempt to use it. Ardagh (2000, p. 6) writes that

> Every advance in computing, made available to the information "haves", necessarily widens the equity gap between the information rich and poor. It requires a vigorous and often costly response for the latter to just restore the status quo ante. If the problem of inequality of access to computer literacy is not urgently remedied by an aggressive intervention…,we are doubling the speed at which we are going backwards in equity / ethical terms.

Lack of technological skill is not only linked to the lack of active involvement education but also in business. Pollard (1999b), cites the KPMG survey of more than 300 top-ranking businesses which had implemented electronic trading (e-trade) over the Internet in the hope of broadening their revenue base to the world of global e-commerce. When asked to reflect on why e-trade had not been embraced as fervently by the general population at the level previously anticipated, these companies expressed their belief that the largest barrier to e-commerce (at 21%) was the customers lack of knowledge in operating the technology.

Fun is made of the technological "have nots" by the technological "haves". In a paper entitled "Computer Illiterates" (source and date unkown) doing the "e-mail rounds" at. the present, we read of the computer company who is considering changing its command of "Press any key" to "Press the return key", simply because of the volume of calls to its technical staff asking where the 'any' key is on the computer keyboard. Then there is the story of the exasperated woman who rang for technical support because she could not control her computer because the "foot pedal" was not working, when in fact the "foot pedal" turned out to be the mouse. Or the confused person who could not print, and although he had turned his computer to face the printer, the note on his computer screen still said read "couldn't find printer". And finally, there is the one

about the client who rang in to complain that his cup-holder had snapped off and because he was in the warranty period, he wanted it repaired. It took the technician quite some time to discover that the caller had been using the load draw of his CD-Rom drive as a "cup holder".

Mirth aside, how can we expect people to innately know about these things, especially if they have none or very limited exposure to computer technology, nor training in information technology? Why do we assume that the fault lies with a simple-minded individual and not our society? And would we be reduced to laughter if we read "Did you hear the one about the computer technician who failed to write in simple terms avoiding jargon so that the majority of people could understand the instructions?"

Mandinach (Mandinach & Cline, 1992) postulates four stages that occur in the mastery of technology. At base level, the "Survival Stage", students struggle against technology. They are besieged by problems, and also have unrealistic expectations. In this stage, learning is teacher-directed. Many students get stuck in this stages if not given the opportunity and guidance, simply surviving as the name suggests. The second stage is that of "Mastery" in which coping strategies are developed, combined with increased coping strategies, increased tolerance and greater engagement with the technology. The third stage is "Impact" in which students become less threatened by technology and learning becomes student-centred. The fourth stage is that of "Innovation" in which a student's competence level can lead to a restructuring of the curriculum and associated learning activies.

Technological skills for novice and developing students can be gained through several avenues: mentoring by friends or through the undertaking of courses, and by trial-and-error. The routes to learning depend on the circumstances of the individual learner. Access to training courses may be provided for some students through the workplace. For other students, accessing similar courses may be prohibitive, in terms of payment of costs. Whilst state councils may provide technology training opportunities for the long-term unemployed, the 'hidden unemployed', for example, women who have been home-based raising children, may not qualify for such programs.

The challenge for lecturers in online learning environments is that distance learners will enter a given subject with a range of technological skills and experiences. Those who do not possess skills initially cannot be expected to complete assessment tasks to the same standard as those who are several levels ahead of them in terms of mastery of technology. Rohfield & Hiemstra (1995, p. 102) suggest a strategy to promote experimentation by novices in the 'survival stage' is to advise students that in relation to the online communication component of their course, mistakes in composition, spelling and grammar will be overlooked so that students do not feel embarrassed, but rather contribute to the online discussions to help create an atmosphere of 'interactive communication'. They also include, on the teachers' part, the skills to create an appropriate learning environment within the new contexts provided.

It is due to rising concerns about technological illiteracy that Spender emphasises that computer-competency is not an option, but a condition of citizenship in an electronic world (Spender, 1995, p. xvi). She argues that in the age of technology, "Competency, not qualifications, becomes the only criterion." (1995, p. 103)

Rohfeld and Hiemstra (1995, p. 93) note the wide variety of student capabilities and prior experiences with technology as a challenge of the electronic classroom. They list Brochet (1986), Eastmond (1992), Florini (1990), and Harasim (1989) as "...among those who describe the necessity for ensuring that learners obtain a certain level of competency in using computers..." (ibid) to be successful in CMC in distance learning situations.

In addition to students having the necessary skills to utilise CMC in their learning, it is also important to note that it remains, in general, heavily reliant on print communication.

> Distance education delivered by CMC is currently heavily based on reading and writing...students are required to express themselves clearly in written language and be able to read what is being presented. CMC is primarily a text-based system with few ways to convey nonverbal messages" (Lewis, et al., 1995, p. 22)

In the Class Page study by Saunders (1998), the defining characteristic of the analysis of this incidence of CMC in Distance Learning was it's dependency on text-based communication. Saunders cites Nipper (1996 in Saunders, 1998, pp. 110 - 111), who argued that

> ...a hidden prerequisite of computer-mediated communication in distance education was that learners must cope with text-based communication processes. That is, learners must express themselves clearly and analytically in writing and track the written cognitive and affective messages of others.

There is a second aspect to using print-based material for computer-mediated communication in distance learning. Unless additional technologies such as video-conferencing are incorporated into the model, there is a marked absence of non-verbal cues that we tend to rely on in traditional face-to-face communication. Rohfeld and Hiemstra (1995, p. 92) noted this phenomenon, arguing that in teaching through 'electronic classrooms', one of the main challenges is that

> Standard Australian English is recognised in Australia as the dominant form of English for public purposes including education (Groundwater-Smith, et al, 2001, p. 179).

Access to information literacy has the opportunity to enhance people's lives: it can empower individuals. As such, information literacy should "...become the key competence for individual and societal development in Australia..." (Langford, 1998, p. 11).

Adequately Trained Teaching Staff In CMC Courses

The change to distance education enabled by CMC in third generation distance learning does not simply involve adding new technology to existing ways of learning and teaching, or to put it succinctly, to "pave over old cow paths" (Berge & Collins, 1995). Lecturers need training in how to utilise the technology, learn how to develop effective programs, foster learning, communicate effectively in an electronic medium and how to

manage their time resources so the distance learners can be supported and encouraged in their learning endeavours.

It has been suggested that whilst lecturers/tutors in online learning situations have access to the necessary technology at their institution of employment, they are often lacking the time to complete all aspects of their job. They are technology-rich, but time-poor. CMC in distance education requires built-in time allowances for staff to be able to deal with the needs of distance learners, which are often at their greatest early in the semester (CEA, 2001g). Additionally, having access to resources does not automatically lead to competency in the medium.

Thus, with the rapid changes and advances in technology, it is necessary for staff to be adequately trained when utilising CMC as it's main component of distance education programs. Lack of adequately trained academics involved in the delivery of distance learning via CMC can be a barrier to successful learning outcomes for DLs. In other words, skills training is fundamental to all: both student and teacher alike. Gottschalk (1995b, p. 2) recommends hands-on training sessions for both teacher and student, and suggests pre-class or pre-subject sessions in which the class meets informally using the delivery technology of instruction, to familiarise themselves with the technology and establish rules and guidelines.

So what constitutes a 'good' teacher in the realm of CMC? Sherry (1996, p. 5) describes the ideal online educator as one who

> Is a caring, concerned teacher who is confident, experienced, at ease with the equipment, uses the media creatively, and maintains a high level of interactivity with the students.

Thack and Murphy (1994, p. 16) identify eight major requirements of distance educators who utilise CMC in distance learning to ensure effective teaching. These areas of knowledge include: being effective and regular in giving communication and feedback to students; being able to promote interaction between and among learners; fostering teamwork and collaboration; providing administrative and support services; conducting learner needs assessments; understanding not only distance learning

technology, but also the impact that these technologies have on learners; understanding the different learning styles of students; and developing a "systems perspective of thinking".

Moreover, staff need to understand that distance learners are not simply a homogenous mass, but they "...are serving the needs and expectations of multiple, often diverse, audiences." (Gottschalk, 1995a, p. 3) They must therefore learn how to deliver information to distance learners in a multiplicity of ways. Gratton (1999, p. 3) argues that the onus is on the online educator to ensure that course material is effective, intersting and makes the best use of the available technology.

Immediacy And CMC

One of the benefits of online learning is that it is neither time nor place dependent (Harasim, 1989, p. 57). The exchange of educational information and communication in CMC can either be in 'real time' (synchronous) where people are communicating at the same time, but most usually in distance learning situations, it is asynchronous, where people communicating are doing so at different times.

The synchronous possibility allows a DL to feel that they are taking part in a 'real' conversation. Whilst this does not usually have a visual component in it, as does face-to-face communication, participants can gain immediate feedback to whatever they have suggested. One disadvantage of CMC is the same as the advantage: that students and teachers are required to be at the computer at the same time (Chapman, 1998, p. 7). Another disadvantage is that some DLs might not feel able to participate, or that one can get a 'word in edge-ways'.

The asynchronous nature of most conferencing discussions has both advantages and disadvantages (Rohfeld & Hiemstra, 1995, p. 100). The disadvantage is often the lengthy delay before feedback can be received. To the distance learner, such delays may add to feelings of frustration or apathy. On the other hand, Ebbelink (1998) suggests that the advantages of the system include being able to send messages at one's convenience, and there is less pressure on the part of the respondent to respond. CMC provides a learning environment which operates 24 hours a day, and all year round.

One solution to asynchronous participation that had some of the benefits of synchronous communication that Rohfeld and Hiemstra (1995) came up with, was to predetermine a time at which all participants would be active on-line, for example, one or two hours. In this way, all distance learners involved would be active in the learning environment at the same time, allowing messages to be posted, read, and replied to. Thus whilst technically still asynchronous, the time had the feel of synchronous learning.

Harasim (1989, pp. 56 – 59) examined communication patterns which occurred online and found that the amount of communication was heaviest in the late evening, between 10.00pm and 1.00am (double to triple the amount of communications at other times in the day), and that communications were at their lowest on Fridays and Saturdays. From Harasim's findings, one could suggest that optimum times for online group discussions is perhaps a Sunday evening or Monday evening at 10.00pm.

Eastmond and Ziegahn (1995, p. 64) noted that the time quotient is not just a consideration for the students but for their educators as well. They argue that in asynchronous CMC applications, discussion items need to remain open longer on forums, especially if the learning activity calls for a group decision or project outcome, so as to encourage an optimum number of DLs to participate.

CMC and Access to Resources

One of the challenges experienced by students in first- and second-generation distance learning is that they often experienced difficulties in accessing on-campus library services to borrow material. CMC in third-generation distance learning has the potential to overcome these prior challenges by opening the door to a wealth of information previously not accessible to DLs. Green (1997, pp. 1-2) argues that the advantages of being able to research on the Internet is that for the distance learner, it allows information to take place from a single location but which accesses archives around the world. There are online libraries and databases. There are electronic encyclopedias and journals.

There are a number of barriers to researching effectively on the Internet. The first is that a student obviously requires Internet access to research online and for students who do not have the necessary computer hardware, software, modem and Internet connection, access needs to be sort elsewhere. Secondly, going online, downloading information and printing off desired material is expensive. Thirdly, the issue of plagiarizing exists with the 'cut-and-paste' capabilities of word processing from Internet documents (Gottschalk, 1995f, p. 1), and simply because a resource is readily accessible in the public arena does not mean that the rules of copyright do not still apply (Gratton, 1999, p. 23). A fourth barrier which Green (1997, p. 3) suggests is that some sites which require the payment of subscriptions to access the information can lead to unequal access for those who can afford to pay and those who cannot, leading in turn to the promotion of a two-tiered society. A fifth challenge concerns the sheer size of the WWW which is growing exponentially, and which can cause frustrations in locating appropriate resources. This leads to another challenge: what constitutes an appropriate resource, one from reputable sources. On the other hand, these resources may be the only ones available to the distance learner.

CMC has brought with it the opportunity to access on-campus library services, for example, to look up online catalogs, and request loans. However, borrowing periods of only a few weeks length for undergraduate students can course concerns as do postage and overdue loan costs, especially where students are affected by longer delivery of post (rural and isolated students) and the cost of paying for post and loans (students with little disposable income).

CMC And The Technical Evolution

Technology is changing rapidly. Gottschalk (1995c, p. 2) cautions that because computer technology is evolving so quickly, there is the danger of educators changing equipment constantly in an effort to keep pace with the 'latest' advancements in equipment and technology. Existing skills may quickly be outdated, especially if the learner (or facilitator) has not used them regularly. Berge and Collins (1995, p. 1), note that throughout the history of human communication, advances in technology have powered paradigmatic shifts in culture and in education, citing the example of the

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printing press as a case in point. These changes in turn bring about changes to the way in which things are undertaken.

The documentary <u>Visions of Heaven and Hell</u> written for BBC 4 TV in England (Harrison, 1994) examined the way in which technology is evolving silently and swiftly, creating a revolution. It expresses concerns as to what will happen if we get left behind, suggesting a new kind of irreconcilable apartheid between those who keep pace with the technological evolutionary change, and those who don't, between the technological "haves" and "have nots".

Preston (2001, p. 353) reasons that

"If, as is argued by vocational educators, computer knowledge is a necessary precursor to effective participation in society, then this experience differential is a serious problem."

Spender agrees. She suggests that if indeed the computer

...is the site of wealth, power and influence, now and in the future. Women - and Indigenous people, and those with few resources - cannot afford to be marginalised or excluded from this new medium. To do so will be to risk becoming information-poor. It will be to not count; to be locked out of full participation in society in the same way that illiterate people have been disenfranchised in a print world. (1995, p. xvi)

Technical evolution could therefore become the site of technical revolution.

Conclusion

The ability of CMC to provide opportunities for active learning in a distance education context are many. It has the possibility to provide flexible and accessible education for all, including those social groups who have been traditionally disadvantaged in terms of accessing higher educational opportunities.

Technology has the ability to liberate, but it also has the ability to perpetuate the existing ways of society. Its suggested ability to be an agent in the democratisation of distance learning is an oversimplification. For Ania (2000), there has been a 'blurring' of understanding between what computer as a technological tool can do, and what this technology has been assumed to offer distance learners. For example, she argues that computers do not automatically offer people the opportunity to communicate. Rather, it offers the opportunity to connect computers together. Nor does it offer the capacity to gather and store information at will, since both of these aspects are related not only to the capacities of the particular equipment, but also the conditions "around and within" the learner. Ania concludes that:

> While it is true that computers (or other technological tools, like camera or pen) enable us to do more things, or the same things but differently, the purposes to which we utilise technology did not emerge because of the computer but because of the specific cultural demands in which we function. It is therefore most likely that technology will not liberate education or learners toward their general betterment. Rather, it is expected that technology will be used to reinforce the old systems rather than the new paths. (Ania, 2000)

This chapter has explored the learning, communicational and technological apsects of CMC in distance learning. Despite optimism, the real experience of DLs ability to possess or access the knowledge, skills or technology required to participate fully in CMC undermines any attempt to utilise the technology to its suggested potentials. These aspects create barriers to equal participation in higher education for some students but not others. This is significant as without the ability for all to be able to access or possess the knowledge, skills or technological CMC, it can never be constituted as providing a 'level playing field' for all actual or potential distance learners. Indeed, as seen in the review of literature in this chapter, and to continue the use of the sporting analogy, for some it is a long trudge uphill to reach the point of parity before the educational opportunities that are available can be fully utilised and accessed. Thus CMC can be seen to offer a number of advantages to distance learners, provided they can access the technology in the first place.

Skill, knowledge and technology are but part of the equation relating to equity in third-generation distance education. What influence does the socio-cultural background of the distance learner play in accessing CMC in distance education? This theme will be explored in the next chapter.

CHAPTER 3   LITERATURE REVIEW
EQUITY CHALLENGES IN DISTANCE LEARNING:
SOCIETAL FACTORS RELATING TO EQUALITY OF ACCESS
IN DISTANCE LEARNING

Introduction

Chapter 2 has explored the learning, communicational and technological aspects of being able to participate equally and successfully with computer-mediated learning in tertiary distance education. Aside from these factors, the social, cultural and economic background of the distance learner, in addition to their physical and psychological well-being, can also affect equality of access in third-generation distance learning. The experience of tertiary education via distance learning, and the subsequent construction of meaning, is dependent on the interplay between the personal aspects of the learner and his or her environment. It is these themes which will be explored in greater depth within this chapter.

Distance Education And Individual Emancipation

Distance education (DE) provides the opportunity for previously disadvantaged groups in our society to access higher education. With CMC, rural and isolated learners, learner's with disabilities, or learner's who are home-based, such as mothers of children, can enrol in and complete degrees. The technology-based DE of the present phase also provides access for those in the full-time labour market to enhance their skills without leaving the labour market, providing opportunities for employment security or promotion. Thus it is a vehicle for personal or group empowerment. DE has the ability to "contribute to the democratic ideology of educational opportunity" (Moran, 1990, p.55), as long as the "playing field is level" (Ardagh, 2001, p. 1).

Equality and Equity In The Age Of Technology

The words 'equity', 'equality' and 'equal opportunity' sometimes raise confusion. Clarification is essential. Secada (1989) argued that it is helpful, for example, to think of equality as a quantitative term that relates to parity amongst groups on a dimension, such as access to the Internet. Equity, on the other hand, is a qualitative term. It concerns itself with issues of justice, and for justice to take place, equity may demand inequality. Quantitative measurements such as those provided by the Australian Bureau of Statistics (ABS) proved measures of how many people are accessing what and when.

Equal opportunity in education describes the political and ethical right of individuals to participate in access to various aspects of the educational process. Equal educational opportunity is protected by legislation such as the Commonwealth's Equal Opportunity Act (1986) making it unlawful to discriminate against a person on the grounds of gender, race, having a disability in relation to participation in education. Equitable access, for example in relation to the Internet, necessitates equal amounts computer use, regardless of the presence of any equity membership or previous educational standard. It also means the development and inclusion of "appropriate activities for each special population" (Sharp & Crist-Whitzel, 1985, p. 1), rather than a mass education.

Do all people have equal access to the information and the technology? In some circles, to talk about equality would be considered political utopia. Yet that is what is to be considered in this day and age when we are on the brink of global mass education through the Internet. Equality in this context is defined as equal opportunity to participate in education utilising the modern technologies, by having access to skills and the necessary tools.

Spender (1995) points out that the "virtual reality" of the new communication medium has fallen a long way short of ideals and hopes for a true equitable forum. Ardagh (2000, p. 1) argues that the goal of computer education should be equality of empowerment. He writes

If the inequality of access to computer literacy problem is not urgently remedied, then given the simple fact that every trumpeted technical advance made to the information "haves", necessarily widens the equity gap between information rich and poor, even by standing still in resource allocation, we are really going backwards in equity/ethical terms.

The question then is how to make education using the medium of technology accessible to all? Saunders (1998, p. 163) examined student responses to CMC in a multimedia distance learning environment. Based on the results of her research, she concluded that:

Accessibility is an issue requiring consideration by distance education providers. Distance education has been touted as accessible to all learners. In the current study, issues of Internet access distracted and frustrated students. How accessible are distance courses that include a computer component? How can access challenges be mediated? How can emerging instructional technologies be effectively included in distance course design without severely limiting learner access?

Biddiss reminds us of a crucial point when he writes "...equal political rights do not necessarily imply identical shares in wealth, and equality of opportunity scarcely ends in equality of condition." (Bullock and Stallybrass, 1977, p. 210) In other words, solutions to equal opportunity are not simply about the allotment of basic rights, but also the equal distribution of basic needs.

Feminists are not the only groups raising concern over equity access issues, and hence subsequent disenfranchisement. The disabled and those concerned with racial divisions also need to be examined.

Spender (1995, p. 3) argues that there exists a two-class system of information haves and have-nots. She believes that every Australian needs a computer for citizenship in Australia's digital society. She writes

Computers should not be just for the privileged. Equal opportunity - a phrase we hear little of, anymore - should mean equal opportunity to become a knowledge worker. And this is why we should be thinking of computers as a matter of national policy. (1998, p. 10)

Equity from a Theoretical Perspective

Theories of social inequality align themselves with the conflict and critical theories, which believe that significant differences of interest exist between the class groups in modern capitalist societies. They examine the relations that exist in the broad social structure of society. As such, they have their roots in Marxist philosophy. For Marx, one of the 'founding trinity' of sociology (Hughes, 1980, p. 1), there existed a duality of class in capitalist society. The smaller group were the bourgeoisie (owners of the means of production) who conspired to keep the larger group of the proletariat (the workers) in an oppressed state in order to maintain both power and economic advantage. Marx's vision was for a communist state where power and resources were equally distributed amongst all people. Communist 'experiments' have not yielded the results that Marx had hoped for. An explanation for this was later offered by Marx and Engels in their theories of class and ideology. This is the notion of hegemony in which it is argued that the ruling class ideology is infused in the fabric of societal culture, ideology and social institutions (superstructure) and accepted as the mainstream ideology for all classes. The superstructure has two aspects: the legal and institutional aspects of the society and secondly, the ideological aspects of the society. Ideological institutions serve to validate the society's structure, especially in relation to equal access to resources. (Bullock and Stallybrass, 1977, p. 613)

Whilst Marx did not specifically comment on the educational institutions of society, educational theorists such as Bourdieu (1973) and Giroux (1981, 1983) have applied his theory to educational settings. Conflict theorists speak of life chances and argue that social groups have differing access to life chances such as education. According to Conflict theorists, factors such as social class, gender, race, ethnicity and age affect this access to life chances. This unequal access leads to social inequality and therefore, social conflict,

between the advantaged and the disadvantaged. Conflict theorists, following on from Marx's theorising, believe that change for equal access to power and resources can take place through conflict. This does not necessarily have to be through revolution, but could be through reform processes of the educational system, for example. This conflict takes place however, when subordinate groups who do not have access to resources, challenge the dominant group for equal access to these.

Bourdieu (1973) developed cultural deprivation theory which is based upon the understanding that cultural deprivation in one's home life affects the ability to perform well in an educational setting. In most societies there is a dominant culture which is promoted over other possible cultures. Students who are unfamiliar with the culture of the dominant class lack the cultural capital to help them accessing equal opportunity and outcomes in educational settings such as tertiary education.. Other examples of cultural capital that have become evident in the case studies included studying off-campus and not possessing the right 'speak' of a university student. The result is that these students feel alienated within the educational setting.

Aligned with the notion of cultural capital is that of social capital which refers to the resources available to individuals. There is a correlation between high levels of social capital and positive outcomes in education (ABS, 2003, p. 1). The inverse can be said: that there can be a link between students who have a low level of social capital and positive educational outcomes. When a student does not have access to the necessary resources which would enable them to succeed well in their education, which for the purposes of this study would include for example computer hardware and software, Internet access or the necessary text books and other course requirements, they lack social capital. However, whilst a student, for example, might not have a great deal of social capital, these can be accumulated when they gather together with other individuals. Distance learners who do not have facilities for interaction are less likely to have the social capital to successfully complete their studies, than those distance learners who can gather share their resources. Social capital can thus be accumulated through mutual support and the building of trust (ibid).

Giroux (1981, 1983), argued that in addition to the overt curriculum, a covert or 'hidden curriculum' coexists in educational settings. The hidden curriculum may preclude some students on the basis of it being foreign to their cultural experience. The use of 'high' forms of English, the language of societal elites, such as Standard Australian English on educational websites is but one example of this theme. Students from different class backgrounds or those who do not have English as their first language, can be ostracised just as with print media.

Equity Groups

Equity policies have been developed by Federal and State governments in Australia to improve access to higher education by all sectors of the community. Initially improvements were made through part-time and first-generation distance education, and indeed, rates in growth of distance education courses in Australia were one of the highest in OECD countries in the period from 1983 to 1996 (DETYA, 1999). However, since 1990 the Commonwealth has identified 6 marginalised groups of people for particular attention, claiming that to achieve true equity, growth in enrolments alone is not sufficient.

The six groups identified for monitoring were people from Aboriginal and Torres Strait Islander descent; female students (especially in non-traditional areas); people with disabilities; people from rural and isolated backgrounds; people from non-English-speaking backgrounds who had arrived in Australia within the previous ten years; and people from socio-economically disadvantaged backgrounds. The Commonwealth's Department of Education, Science and Training provides funding for universities to improve the access (the number of commencing students in each equity group compared to the entire student population), participation (the ration of each equity group compared to the ration of these groups in the entire population), success (the number of passed units compared to the number of enrolled units), and retention (the proportion of students enrolled in the previous year less those who have completed) of students in equity groups at a tertiary level. Individual institutions have had to take responsibility for improving the participation in

higher education of these six groups of people, which the Commonwealth monitors. These policies are sector specific, and in terms of higher education, are implemented by individual universities.

National statistical information on the representation of equity groupings in distance education students are difficult to source. In 2003, commencing domestic students by equity group is as follows, although mode of enrolment is not specified.

Equity Group	Student Numbers	% of total domestic student enrolments (n = 829,499)
Indigenous students	3,787	0.45%
Rural students	45,399	5.47%
Isolated students	3,748	0.45%
Students with a disability	7,469	0.9%
Students from NESB	9,744	1.17%
Students with a low SES	37,104	4.47%
Females students in non-traditional areas of study	46,371	5.59%
Total domestic tertiary students from equity groups	153,622	18.52%

Table 1 : Commencing Domestic tertiary students, 2003 by Equity group (DEST, 2003c)

It should be noted that data varies according to differing sources.

Indigenous Distance Learners

Indigenous peoples of Australia (Aboriginals and Torres Strait Islanders) currently account for approximately 2.3% of Australian population. According to the national census in 2001,

there were 460,140 Indigenous people in Australia, whilst the total population at that time was 19.5 million (ABS, 2003a). In contrast to the general Australian population, of which 90% inhabits 2.2% of the continent (predominantly along the eat and south-west coasts), 90% of Indigenous Australians live in areas which cover 23% of the continent (ibid).

Under the principles of equity, it would be expected that Indigenous enrolments in higher education (access, participation and successful completion) would have parity with other Australians, however this is not the case. There were negligible enrolments of Aboriginal and Torres Strait Islanders (ATSI) in higher education in the late 1960s (JCFAISER & WAEC, 1997, p. 1), but by 1997 this had risen to 7,460: an enrolment rate still however far less than that for other Australians (ATSIC, 2003). Only 1.2% of the Australian tertiary student population are Indigenous Australians, and of even greater concern is that this group of students only accounted for 0.7% of successful completions in 1998, reflecting a non-completion rate of two-thirds of Indigenous students who enroll in tertiary education (Bourke, 2000, pp. 1 – 2).

In terms of the educational background of Indigenous people, the year 10 certificate is the highest educational qualification achieved for 30% of Indigenous people, and only one in six Indigenous people have obtained a qualification after leaving school (ATSIC, 1999, p. 10). Of those Indigenous students who do enrol in higher education, their student profiles are different other student populations. On the whole, they are older, there are more Indigenous female than Indigenous male enrolments, and these enrolments are concentrated in sectors such as health, welfare and education. Many are enrolled as part-time, external students. Additionally, Aboriginal students are over-represented in diploma level courses (JCFAISER & WAEC, 1997, p. 3).

In terms of the social, political and economic development of Indigenous Australians, the provision of tertiary education for Aboriginals and Torres Strait Islanders, and more importantly, their retention in, and successful completion of, higher education (JCFAISER & WAEC, 1997, p. 2), should be a major concern for governments and tertiary institutions

alike, as poor or inadequate education contributes directly to poor employment outcomes for Indigenous people (ATSIC, 1999, p. 10).

In November 1999, the Aboriginal and Torres Strait Islander Commission (ATSIC) made a submission into the Inquiry into Rural and Remote Education in Australia being conducted by the Human Rights and Equal Opportunity Commission (HEREOC). It pointed to culturally inappropriate education and a lack of resources as two major issues preventing better educational outcomes for Indigenous students.

> In many places, the education system is seen as irrelevant to Indigenous needs, culture, knowledge and experience. It is perceived as failing Indigenous students by not adequately addressing discrimination at educational institutions and not involving parents and communities in the education system. (ATSIC, 1999, p. 35)

In addition to the relevance of education offered, the ATSIC submission to HEREOC also listed ten other areas which were potential barriers to the successful completion of tertiary studies by ATSI. These included such issues as racism and discrimination in tertiary settings, the issue of bi-lingual education for some students, the lack of support or involvement that some Indigenous students experience from their families or communities, family mobility, low socio-economic factors, health problems and access to technology.

The technological advances in third-generation distance learning can overcome many of the challenges faced by Aboriginal and Torres Strait Islanders in higher education, provided that they can access technology and resources. Online study allows Indigenous people the opportunity for collaboration both with peers and lecturers/tutors whilst still having the support of their home community (JCFAISER & WAEC, 1997, p.6).

In a study of racial division in Internet usage, Novak and Hoffman (1998, p. 1, p. 12) note that whilst the World Wide Web is one of the most important communication innovations in history, providing the possibility for "social dividends" in democratic communication, the reality is that there exists barriers to racial groups in accessing this potentially democratic medium. They found that where students have access to a home computer, the

issue of race division is not present. They argue that to ensure participation, then access to the technology has to be guaranteed, and that students need to be able to use this technology at multiple points of access, such as libraries, community centres.

CMC in distance education has the additional benefit of enhancing the quality of life in Indigenous communities by bringing with it the spread of technological "know-how". Indeed, there is evidence that

> Indigenous students have an outstanding capacity for technological pedagogy and other communications-oriented subjects. This is particularly evident where students teach and learn from each other in Indigenous learning environments. The impact of information and communications technology on Aboriginal communities and its prospects for future pedagogical applications, is probably one of the most promising areas for Indigenous educational research. (ibid, p. 3)

Recognising that CMC can promote flexible learning options for Indigenous students, irrespective of their geographical location, the Warrit Ngulu (meaning 'far voice' in the Woiwurrung language) Indigenous Distance Education are developing culturally specific programs for Indigenous people, through a cross-institutional on-line learning initiative. The aim of these subjects and courses is to serve both the cultural and educational needs of Indigenous people that have not been met by the programs which have been traditionally offered by white, mainstream institutions (Bourke, 2000, p.6).

However, as with all isolated distance learners, Indigenous peoples living in remote areas can have challenges in accessing IT infrastructure. Basic problems exist with the availability of telecommunications in more remote locations in terms of cost and availability. Similarly, rurally-located Indigenous students face the challenges of overcoming power and telephone failures as do other students in the same areas. Whilst IT infrastructure is said to be available, the infrastructure in remote and rural areas is not necessarily effective (Powerhouse Museum, 2003).

Rural and Isolated Distance Learners

Distance learning was originally established to cater primarily for the needs of rural and isolated populations. In previous generations of distance learning, the greatest challenge has been in overcoming the distance of distance learning: finding ways to help distance learners who are geographical isolates feel less isolated or remote from the lecturer and institution of higher education. Saunders (1998, p. 19) cites Moore:

> It is the physical separation that leads to a psychological and communications gap, a space of potential misunderstandings between inputs of instructor and those of the learner, and this is the transactional distance. (Moore, 1991, pp. 2 - 3)

One of the hopes for CMC is that it will diminish or even end the difficulties associated with distance learning for those who live in rural or isolated settings. With the rise of the new computer technologies, hopes for a more united world can be found embedded in terms such as 'global village'. For those who can access them, modern telecommunications can provide the means for transcending even the greatest geographical divide. On the Internet, we can be linked with the stroke of a key. For geographical isolates, visiting the University library is a possibility without leaving home. For social planners, the 'virtual' office or classroom would reverse the trend of wide-spread emigration to cities, and also would reduce the necessity for people to be physically transported around.

Writing for the International Telecommunication Union, Ernberg (1998) had the task of analysing the needs for telecommunications and information technology in developing countries - particularly in rural and remote areas - in order to identify obstacles and examine the ways and means of accelerating development. Of particular interest is Ernberg's comment that the "...distinction between 'developing' and 'developed' countries hides the fact that virtually all countries have similar problems..." (1998, p. 2) He argues further that

...geographically and socially isolated and impoverished groups, which exist also in *industrialised* nations usually neither communicate with, nor meet with anyone outside their immediate neighbourhood. The problems for providing education...for such isolated groups are universal, even if their magnitude varies greatly among different countries." (ibid, p. 3)

Verification of such comments can be found in the Lumley Report on Australian Economic Trends (Pollard, 2000a), wherein it is cited that 25.7% of city homes had Internet access compared with 17% of the rest of the country. Farm access was reported at 19.6%. From the same document, it is estimated that of the 1.7 million households in Australia with Internet access at that time, 75% (1.3 million) were located in capital cities.

One of Ernberg's (1998) main points is that rural and remote areas need services that match those offered in the cities in order to compensate for the geographical and cultural isolation. For those who cannot personally afford equipment and access costs to the Internet, regional library services do offer 'free' Internet access for borrowers. However, unlike their city counterparts, rural residents may face travelling large distances to access these sites.

Distance Learners Who Have Disabilities

Distance learners who have disabilities form a broad group which includes :

- A total or partial loss of the person's bodily or mental functions, eg being paraplegic, having epilepsy;
- Total or partial loss of a part of the body, eg amputation;
- The presence in the body of organisms capable of causing disease, eg being HIV positive but not having full-blown AIDS;
- The malfunction, malformation or disfigurement of a part of the person's body, eg having a club foot;
- A disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction, eg being dyslexic;

♦ A disorder, illness or disease that affects a person's thought processes, perceptions of reality, emotions or judgement or that results in disturbed behaviour, eg having schizophrenia, having a psychiatric condition (UTAS, 2003).

Moreover, the disability may be pre-existing or may be current. Through the Ministry of Women's Equality (MWE, 1998) the Government of British Columbia commissioned a study in 1998 to identify the unique access problems and barriers faced by people with disabilities in accessing the Internet. This study defined people with disabilities as those who

a) have a significant and persistent mobility, sensory, learning, or other physical or mental health impairment which may be permanent or temporary in nature; and

b) experience functional restrictions or limitations of their ability to perform the range of life's abilities; and

c) may experience attitudinal and/or environmental barriers which hamper their full and self-directed participation. (1998, pp. 6 - 7)

Substantiating the suggestion in this research that a magnifying effect of barriers preventing Internet access can occur to individuals belonging to minority groups in society, the British Columbia study noted that

As people with disabilities are often also members of the other equity groups, special consideration was also given to barriers which confront women, aboriginal peoples and visible minority people. (1998, p. 2)

What advantages can CMC offer such a broad group of individuals? Coombs (1989, p. 180) suggests that CMC can provide a "barrier-free" learning environment for all students with disabilities. Due to the lack of face-to-face contact in CMC, the student's disability can be 'invisible' to others, whereas on-campus, it can be a focal point to others (ibid, p. 184). CMC also makes tertiary education a possibility for students who are "shut-ins" for various reasons, where on-campus participation is not a possibility.

With such a broad group, what factors, if any, have been found to limit participation in CMC? In 1995, the Government of British Columbia (MWE, 1998, p. 8) undertook a study to examine Internet access for people with disabilities, and agreed that gaining access to the basic equipment (such as hardware and software) was the single biggest limiting factor in the disabled community. Other barriers that the respondents noted in the MWE study correlate to barriers suggested in this thesis. These included:

- access to the adaptive equipment which makes it possible for people with disabilities to use computer systems;
- financial constraints;
- travelling costs;
- lack of appropriate and accessible training;
- attitudinal barriers;
- language; and
- the rapid pace of change on the web (ibid)

In addition to these general barriers, other impediments were noted for specific disabled groups. As examples:

- for the visually impaired: additionally require a screen reader which reads aloud the written text. Difficulties are experienced with the increasing reliance of the Internet on graphical user interface (GUI) rather than text-based HTML (Hypertext Mark-up Language) to access associated sites.
- for the hard of hearing/deaf: additionally require text captioning for translation of audio output or sound tracks.
- for those with learning disabilities: learn best when they have instant feedback. Slower computer speeds can also cause problems in maintaining focus. Some are less effective readers on the computer than they do with paper.
- for those who have mobility impairments/ physical disabilities: require consideration in relation to building access and table access (especially for those

in wheelchairs). For those who have a hand or finger impairment, adaptive keyboard equipment or voice recognition programs are necessary (ibid)

These findings are supported by other research in the area. Banerjee (2002, p. 34) suggests for those students with learning disabilities (LD), successful distance learning with CMC needs to include such extra considerations

- alternative media for course content (printed copy, floppy disc, CD, audio- or video-tape) in addition to online delivery;
- opportunities to take part in pre-course training sessions for the use of CMC in distance learning;
- additional contact with on-site technicians for help;
- contact with faculty members via telephone, not just e-mail; and
- reduction in any "environment duress" factors at remote sites of learning.

Such suggestions, whilst looking at enhancing possibilities specifically for distance learners with learning disabilities, would have benefits for the majority of distance learners.

Distance Learners From Non-English Speaking Backgrounds

Linguistic barriers can often be an overlooked challenge in the successful completion of distance learning. For example, the often unspoken need to complete assessment tasks in 'high' English might be a considerable barrier to students who come from a non-English speaking background (NESB). Students in this category include not only International students enrolled with distance education providers, but also students who are residents of our country, but come from a non-English speaking background (NESB). Some communities of Indigenous Australians fall into the NESB equity group, where English is their second language.

The ABS notes that due to modern Australia's multicultural make-up, that whilst Australian English is our national language, there are over 200 different languages spoken in our

community. Figures from the 2001 national census revealed that 16% of Australia's population (2.8 million people) spoke a language other than English at home. 51,000 people spoke an Australian Indigenous language. This figure represents 0.3% of the total Australian population and 12% of all Indigenous Australians. In the Northern Territory and South Australia, the percentage of Indigenous persons speaking a language other than English (LOTE) is significantly higher than the national average. The three most-spoken languages in terms of native speakers are Kriol (an Australian Creole), Pitjantjatjara and Warlpiri (ABS, 2003c).

Figures from the same census indicate that in 2001 the five most commonly spoken LOTE were Italian (353,600 people, or 2% of the population), Greek (263,700 people, or 1.5% of the population), Cantonese (225,300 people, or 1.3% of the population), Arabic (including Lebanese) (209,400 people, or 1.2% of the population) and Vietnamese(174,200 people, or 1% of the population). The popularity of these languages is associated with the history of immigration in Australia over the last 50 years from countries where these languages are spoken (ibid).

In terms of English proficiency of immigrants, this varied with the age of the speaker and according to whether he or she was born in Australia. 88% of all LOTE speakers under 25 years who were from a NESB at home spoke English well, compared with 60% of those aged 65 years and over. Proficiency also varied between Australian-born people who spoke a language other than English at home were generally more likely to speak English well (91%) than the total population speaking LOTE at home (82%) (ibid).

CMC provides the abilities for speakers of most languages to translate between their own language and other languages. For example, software programmes such as 'Babblefish' allow a student to write in their own language and translate the text. However, in terms of academic stylistic conventions, NESB need more than the availability of translation software in order to successfully complete submissions. Additional tutoring in the use of the 'high' language necessary for academic assessments (as opposed to colloquial everyday

language) might also be of benefit to success, especially where these students do not have daily access to such language use.

Distance Learners With A Low Socio-Economic Status

Many expound the belief in CMC as a technological tool that can transcend traditional status groups. Herring suggests that it offers an opportunity to participate on the same terms as others, as the focus of computer communication is on content rather than the social background of the participant. She relates one on-line conversation in which an academic stated that "One of the greatest strengths of electronic-mail is its ability to break down socio-economic, racial, and other traditional barriers to the sharing and product of knowledge." (1993, p. 2)

However, Herring believes that such expressions may be too idealistic and not indicative of the true situation. Spender elaborates on this point by noting that a woman's economic position is often a barrier to her participation in modern computer technology. She writes that one of the most obvious barriers to their participation

> ...is that it costs money to purchase a computer, training and, for most people, time on the net. Because women have on average less money than men, they can be disadvantaged. When they can't get into this new medium, their disadvantage - and their lower financial rewards - are being compounded. (1995, p. 170)

Open University (OU) in the United Kingdom is taking seriously the thought that some student groups might be disadvantaged when the computer linked to a modem becomes the major delivery system in distance education. For OU, "...the issue of economic disadvantage is now being taken seriously in attempts by the university to get the government to subsidize equipment..." (Kirkup, 1988, p. 310) Whilst such initiatives are to be applauded, it still leaves questions such as operational costs and training for disadvantaged individuals unanswered.

Over recent years in the USA and the UK, platforms for political campaigns have been fought over providing computers in every classroom. In a discussion concerning the information age, Spender (1998, p. 10) argues that it is our governments responsibility to ensure that every citizen be provided with a computer. Rather than seeing this as a huge financial burden by the government of the day,

> ...computers are not a cost to the country. They are an investment in the future - in the creation of wealth and jobs. And the fabric of a fair and stable society. (ibid)

The Lumley Report (Pollard, 2000a) notes access to the Internet in Australia varies greatly according to household income. 66.4% of households with an income of over $150,000 per year have access to the Internet at home, as compared to 5.7% of households with incomes falling in the $0 - $20,000 per annum bracket. These statistics are amplified when one realises that the bottom 20% of gross family incomes in Australia fall below $13,000 pa, whilst the average gross family income in Australia is $34,000pa.

An important point to make is that low socio-economic status is defined as where the postcode of the home location falls within the lowest financial quartile of the population. Yet this use of postcodes as an indicator of low-SES does not adequately address students in need of equity assistance (Watson & Pope, 2000, p. 7). For mature-aged students studying off-campus, disposable income, and the number of dependents supported on that income, would be better indicators of low-SES.

Finally, it should be noted that the association of low socio-economic status with any other equity group has been associated with poor educational outcomes within those target groups. (ibid, p. 1) Low socio-economic status decreases the opportunity to purchase or attain support systems for distance learners, such as the acquisition of the necessary technology. Spender (1995, p. 180) argues therefore that

> It is no coincidence that the computer is becoming a significant site of inequality, for it is at the centre of the future web of wealth and power.

Distance Learners Who Are Female And Enrolled In Non-Traditional Or Post-Graduate Areas Of Study

When one looks into the realm of gender and CMC, three names are prominent in the growing bank of literature and research: Herring (1993), Spender (1995), and Turkle (1984, 1995). They all argue that gender differences exist in the way women access the Internet, in terms of the amount of time they use, their communication styles, and their confidence in using the technology. Such claims are indeed backed up by independent web demographics, which will be examined in light of the claims of these writers and the data gathered in this case study.

Instead, argues Spender (1995, p. 171),

> There is ample evidence that women are being further and further marginalised - and this has grave implications for their future status and wealth. It is perfectly possible that in the next century, the verdict will be that women were worse off after the electronic revolution than they were before it, unless drastic changes are made very quickly to ensure access and equity for women in relation to the electronic medium.

More recent studies add weight to such arguments. Blocher (1997) found that there is a significant difference in the way in which males and females engage with CMC, regardless of similar prior experience or comfort with computer technologies.

Naert (1997) found that in a study consisting of an equal ratio of male to female students, the male population had more experience with on-line technologies. His findings suggest that women, older students, and those who are socio-economically disadvantaged may suffer potentially adverse consequences regarding acquisition of technological skills.

Another consideration is that as childcare is still largely a female domain, the costs of childcare that must be met so that women can return to study might decrease their ability to direct household finances to the purchase of equipment and on-line charges, thereby making access difficult.

Spender (1995, p. 176) cites the study by Cole et. al. (1994) on computers in the classroom. The study presented statistics which they felt revealed women's decreased participation in computer culture, and the authors also tried to provide some possible explanations for this situation, arguing that the starting point for their study is that, when it comes to computers in the classroom, males are dominant.

The Australian Bureau of Statistics found in a study of Internet use in Australia (2000a) that a discrepancy currently exists between adult males and females participating in electronic communication. It found that 48% of adult males (3.3 million) accessed the Internet, compared with 39% of adult females (2.3 million); a ration of 6:5. However this ratio male access to female access has slightly decreased from the previous year when the figures were 34% of adult males (2.3 million) compared to 28% of adult females (1.9 million). In the same study, the ABS examined comparative figures by gender of where on-line access took place. Of those who accessed the Internet, 88% of adult males at home did so once a week or more, compared to 78% adult females. In the workplace, 78% of adult males accessed the Internet once a week or more, compared with 76% of adult females. The third category of sites other than at home or work (which would include access through enterprises such as Internet Cafes, or community services including libraries), 27% of adult males accessed the Internet once a week or more, compared to 23% of adult females. These figures suggest male and female access is more equal at the workplace, where employers would provide the hardware, software and access.

However in a recent study of CMC use by tertiary students at Charles Sturt University, Burr (2003) found that 61% of participants in discussion groups were females as compared to 39% of males. Findings such as these figures suggest that females are using discussion forums at a greater rate than might have been previously considered. However, caution is

needed in rushing to a conclusion that the issue of women's use of the Internet in online learning is now not an issue for continued concern.

Distance Learners Who Are Over 55 Years Of Age

The world is changing, as is the pace of the electronic evolution. Libraries, for example have metamorphosised from quiet book-centred havens into noisier centres of technological activities, which require certain computer knowledge in order to conduct a book search (Spender, 1995, p. xxiii). Many distance learners, have not grown up with computer technology. For older students of distance education, the challenge in learning how to access CMC may be far greater than their younger counterparts, simply because it hasn't been a major part of their life up to this point. Spender, marvelling at how a 4-year-old can easily learn to operate a computer, suggests that it is not because the child is more intelligent or technologically-gifted that it's parents, but because

> Computers are not technology to them; they are just the way the world works. Computers just happen to be there when they were born; for the rest of us, technology is what wasn't invented when we came into the world. (1995, p. xvii. Author's emphasis)

Added to this is the cultural belief that older people cannot learn new knowledge as colloquialisms such as "You can't teach a dog new tricks" attest. The point is that learning is possible, given the right conditions and opportunity to implement the new knowledge.

The Australian Bureau of Statistics (2000a), in its study of Internet use in 1999, found that youth were the highest proportion of Internet users compared to other age groups. 73% of youth aged 18 – 24 year olds accessed the Internet, as compared to 56% of 25 – 39 year-olds, 44% of 40 – 54 year-olds, and 16% for the 55 and over age group. As with other equity groups, given opportunity and tuition, most of the over-55's will successfully adapt to and master the medium, especially as they learn more about its potential uses.

<u>Sub-categories within Equity Groups</u>

Not all members of each equity group are equally disadvantaged. Indeed, there are sub-groups within each equity group. The effect of falling into a sub-category of an equity group in itself compounds the successful participation in tertiary education, particularly when the person is a distance education student. Watson and Pope (2000, p.7) suggest on the basis of research, that in addition to the major equity groups, there are three identifiable sub-categories which are associated with low educational outcomes in all equity groups. These are:

1. low socio-economic status (an equity group in its own right);
2. low level of educational attainment (low skills); and
3. unemployment.

Unlike people who belong to the above-mentioned sub-categories of equity groups, those representatives of equity groups who have little difficulty in succeeding in the education system, argue Watson and Pope (ibid, p. 6), are those who come from higher socio-economic backgrounds or possess higher than average academic abilities to overcome the many barriers (economic, social and cultural) which disadvantage other members of their equity group.

In addition to the three sub-groups suggested, I suggest that a further selection can be added to the list. These are:

4. chronic illness or ill health (which may not be categorised as a 'disability');
5. students who are 'shut-ins' and social isolates (reduced opportunities and possibilities for any face-to-face adult communication);
6. students with low self-esteem (students with high self-confidence will have less difficulties tackling new tasks than those with a low self-perception); and
7. students who are the primary care-givers to other individuals (such as young children or aged parents, who are totally at the mercy of the needs of others, thus reducing opportunities to successfully study) .

For the purposes of higher education, these sub-groups could be targeted in terms of the provision of equity services.

Compounding Effects Of Belonging To Multiple Equity Groups

Despite optimism in the possibilities of the new computer and Internet technologies levelling the playing field, so to speak, for distance learners in relation to their on-campus counterparts, studies show that there are numerous obstacles which prevent true equity in relation to CMC, affecting the success of any learning possibilities which might be anticipated. Any obstacle which prevents equity in CMC needs to be identified by providers of higher education and examined in order to produce quality Computer-mediated eduction for their learners (hereafter CME).

Whilst income and education are often cited as the most important variables for access to computer and Internet technologies, there are other equally as important constraints operating. A layering effect of these can occur with, I suggest, the greater number of obstacles to surmount, the higher the likelihood of non-participation.

Chambers and Clarke (1987) reported a cumulative effect for learners in disadvantaged groups, defining 'disadvantage' in terms of socio-economic level, ethnic background, school ability and gender. Similarly, Watson and Cope (2000, p. 1) found that members of the various equity groups remain disadvantaged in Australian education. They noted that an individual's membership in more than one equity target group has been shown to compound the educational disadvantages faced by individuals.

Thus a distance learner, who fits the criteria of multiple equity groups in addition to one or more of the equity subcategories, is in a far greater position of risk of successful completion of tertiary studies than is a person who is categorised as being in only one equity group. The latter in turn is of greater ability to bridge the cultural divide.

Summary Of Research Directions

From an examination of the aspects of equity challenges in distance education, from factors relating to learning, communication and technology to those relating to societal influences, this case study examines the lived realities of distance learners both in terms of their distance learner profiles and their experiences with CMC as the medium of distance learning in higher education.

Conclusion

There is no doubt then that barriers do exist to the use of CMC and distance education. Some, such as Spender (1998, p.1), argue for the benefits to national economies if a greater number of people – especially those from disadvantaged communities – wired.

There is a strong negative correlation between being identified as belonging to an equity group and the successful access, participation, success and retention in higher education. Add distance learning, and the stakes are greater. Compound the effects with additional equity group or subgroup memberships, and the resultant effect is infinitely more challenging.

To use the playing field analogy, some distance learners commence their 'game' of tertiary education simply by taking to the field. A small few may gain help along the way, making the likelihood of them completing the game greater. Once on the pitch, some discover at ground-level that there are huge pot-holes to fall into. Other 'players' are still in the dressing room preparing for the game long after it begins. Some don't have the right 'equipment' to play the game and miss the start whilst chasing the missing items. Others may have the items but don't know how to use them. Others have never seen the game before, and stand on the sidelines. Others have to scale the cliff-face to get to the plateau on which the level playing field is simply to get to the game, and risk falling off to do so.

For greater numbers of identified disadvantaged groups to get connected and prevent being marginalised, access issues need to be addressed for changes to be made. Simply providing

the playing field and setting the parameters and rules of the game is not enough. The success of each participant is important to our society at large, and therefore we need to work out ways to help facilitate this. It is right to be optimistic about the potentials of CMC in distance education as a medium which can provide greater opportunities for marginalised groups, but it is also right that we recognise that without concerted effort and mentoring, these opportunities are unlikely to be fully realised.

Figure 3 : The Target analogy: the compounding effects of multiple equity groups and sub-groups in overcoming barriers to distance learning through CMC.

CHAPTER 4   METHODOLOGY

Introduction

This chapter outlines the methods of data collection employed to research this study. Research is conducted in order to discover something about the world. The process of conducting research may appear self-evident. However, no technique or method of investigation is 'self-validating'. Rather, it is dependent on philosophical justification and as such, research methods cannot be divorced from theory. As Hughes notes, "…as research tools they operate only within a given set of assumptions about the nature of society, the nature of [people], the relationship between the two and how they may be known." (1980, p. 13) As a cyclical process, theories inform practice, which in turn informs theories. Theory and practice are therefore interactive, resulting in praxis (Allen, 2001, p.5).

Social theories attempt to explain the world in which we live. The theories which inform our way of seeing are varied and hold differing base assumptions. These perspectives are shared views or understandings of the world. They not only explain the lived reality of the participants in this research, but also guide the type of research tools and analysis utilised throughout. This chapter explains in detail the methods of data collection and explores the relationship between theory and research.

The Role Of Theory In Educational Research

Reeves (1996) argues that in educational research there are four major paradigms, each stemming from different perspectives. These paradigms are the 'Analytic-Empirical-Positivist-Quantitative Paradigm', the 'Constructivist-Hermeneutic-Interpretivist-Qualitative Paradigm', the 'Critical Theory-Neomarxist-Postmodern-Praxis Paradigm' and

the 'Eclectic-Mixed Methods-Pragmatic Paradigm'. The paradigm guiding this study is the eclectic mixed-methods paradigm, and this will be discussed in greater detail.

Methodology

In a narrow sense, methodology describes the procedures undertaken during the research process, and the methods of data collection utilised in this study will be summarised in this chapter. In a more broader sense however, methodology is the key link between the theoretical underpinnings of a given phenomenon and the process of studying it.

The nature of this research and the theoretical viewpoints upon which it rests, indicated a qualitative approach to the study, a choice which would best reflect the presumed multiple realities of participants. As a result, case study methodology was chosen to investigate the relationship between distance education students and equitable access to CMC. The case study "...is an intensive description and analysis of a phenomenon or social unit such as an individual, group, institution, or community." (Merriam and Simpson, 1995, p. 108) The 'case' then is the phenomenon under study. In this instance, the case in question is the subjective experiences of tertiary students with CMC in third-generation distance education.

Burns (1997, pp. 365 - 366) articulates the six major purposes of the case study method. A case study:

1. can be a valuable preliminary study to major investigations;
2. can help provide information as to whether the 'case' is generalisable;
3. can provide anecdotes to support generalisations;
4. can refute a universal generalisation;
5. is the preferred method when relevant behaviours cannot be manipulated; and finally,
6. it may be valuable in its own right as a unique case.

The main advantage of the case study in relation to organisations which provide distance tertiary education is that

> ...it allows the researcher to concentrate on a specific instance or situation and to...attempt to identify...the various interactive processes at work. These processes may remain hidden in a large-scale survey but may be crucial to the success or failure of systems or organisations. (Bell, 1993, p. 8)

Disadvantages with the case study method

Disadvantages to the case study method are many, and had to be addressed by the researcher from the outset. An obvious concern is that of subjective bias on the part of the researcher. (Burns, 1997, p. 380). In addition, Merriam and Simpson (1995, p. 111) add four further points which need to be considered and anticipated in conducting case study research. These are the cost of case study research (financial and time), training of the researcher, the lengthy documentation of case studies and the generalisability of the research findings. Attempts were taken to address each of these areas of concern.

Firstly, as the researcher is a member of the group under study, care had to be taken in collecting and examining the data. This was extremely important as objections over subjective bias on the part of the researcher could be levelled, thus creating concerns with regard to the internal validity of the research. All attempts were made to circumvent bias. All but one participant completed the Questionnaire on their own, in their own time, completed the form in their own writing, and without the presence of the researcher. The exception was a participant who was aged over 65 years and who had osteo-arthritis of her hands. Her form was completed by another person upon her directions. For those participants who were subsequently interviewed, an Interview Schedule was compiled (see Appendix 3) so that all respondents were asked the same questions. These were completed during the interviews, which mainly took place via telephone conversations (again due to the complex nature of the subject and the circumstances of the individual participants). One off-shore participant completed and submitted via e-mail.

The second disadvantage noted is that case studies can be expensive and time-consuming, both of which were born out by the experiences of the researcher in this case. From the initial phases of the research, through the pilot study phase and then finally the research itself, a period of six years was encompassed. Costs incurred by the researcher included stationary costs such as paper and envelopes, Internet access, postage and long-distance telephone calls. Two university post-graduate research grants totalling $AUD500.00 were received over the period of the study. The rest was self-funded as funds allowed.

In relation to the third potential disadvantage of the case study method, the researcher had existing competence in interview techniques. However, she had to devise ways of scribing respondent's answers to the Interview schedule. One successful method was to repeat back to the participant the answer that they had given, in order to check what had been written down was indeed the answer that they had given. This gave an opportunity to the researcher for extra time to complete writing down the answer, and often an opportunity for the respondent to add more information, including examples from their own experience. A change in equipment from a standard phone to a hands-free phone with speaker attachment was a valuable purchase along the way. A neck injury was sustained by the researcher trying to scribe and hold the phone between her shoulder and neck in the first 15 telephone interviews.

Fourthly, as case study narratives tend to be lengthy documents which policy makers may not have the time to read, the researcher attempted to minimise huge volumes of paper. Each respondent was allocated a number and their responses stored and filed should they need examining. Obviously, not all that was included in the Interview could be included. Thus data was collated, condensed and summarised for the purposes of this paper.

And finally, the findings of case studies cannot be generalised in the way that quantitative methods are, but rather generalisability is related to what the researcher is trying to learn from the study. However, as the researcher did believe that generalisation may be possible, a process of triangulation was incorporated into the research.

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Triangulation

To assist in the external validity of the case study, methodological triangulation was incorporated into the design. Triangulation is defined by Cohen and Manion (1994, p. 233) as "...the use of two or more methods of data collection in the study of some aspect of human behaviour." They argue that by utilising triangulation – also known as the 'multi-method approach' – two major disadvantages of research (researcher bias and method boundedness) are overcome. Firstly, it can help circumvent possible distortion or bias on the part of the researcher when only one method is used exclusively. Secondly, as some methodologies have limited use, triangulation can overcome any 'method boundedness' (ibid, pp. 233 - 234). Shipman (1981, p. 147) argues that for case studies, the use of triangulation is especially important as it helps overcome the view of the case as a 'one-dimensional snapshot' that may be the case when only one method of data gathering is used.

This combination of methods provided multiple ways of collecting evidence and for interpreting the data. Data gathered from naturalistic (qualitative) approaches can thus provide an important validity check on data that has been gathered statistically, and similarly, scientific (quantitative) data can provide a valuable corrective to the interpretations made about the subjective experience of the group under study. (Abbott-Chapman, 1993, pp. 58 - 59)

Within this particular case study, in order to cross-validate the qualitative data gleaned in answer to the open-ended questions, quantitative data was gathered by inclusion of a combination of multiple-choice questions, ranked responses to questions and statements

using a Likert scale in the survey questionnaire. The main benefits of the questionnaire as research method include that all respondents are asked the same questions which makes data analysis relatively easy. As Bell (1993, p. 11) notes, the main emphasis of the survey "...is on fact-finding, and if a survey is well-structured and piloted, it can be a relatively cheap and quick way of obtaining information." In contrast to the qualitative questions in the survey, and in addition to the findings of other research in this filed of research, the quantitative questions were posed to gain statistical data for comparison. Existing quantitative data on CMC in distance education, such as university statistics, may not fully tell the experiences of students, especially those who fall into one or more of the equity groups.

The qualitative questions in the questionnaire were built further upon in the interviews. The open-ended questions of the Interview Schedule (Appendix 3) framed and guided the initial conversations, providing the catalyst for unstructured monologues regarding the participant's experiences. Many respondents felt the process cathartic to some extent as it not only provided a forum in which they could openly and honestly express their thoughts or discuss their experiences, but also because they felt validated, not simply "...a faceless candidate number in a remote institution" to quote one respondent.

The Pilot Study

A pilot study comprising of a draft survey questionnaire and follow-up interview was conducted in 1998 on three mature-aged distance education respondents. All three lived in rural Victoria but were studying at universities located in different states. In addition to all three falling into the same equity group (rural and isolated students), two participants of this pilot study fell into a second equity grouping: one of the males had a low socio-economic status, and the female was completing undergraduate study in a non-traditional area.

The Survey Questionnaire

On the basis of feedback from these three participants, both in their responses to the draft survey questionnaire and to the subsequent in-person interviews, the questions in the pilot questionnaire were slightly refined and developed into the three part questionnaire used in the remainder of the data collection. The survey questionnaire contained 31 questions (some closed-answer, some multiple choice, and some open-ended) which were spaced over a double-sided sheet of A4 paper (see Appendix 2). This was a deliberate choice as the respondents in the pilot study had indicated that they would be reticent to complete any questionnaire that was longer than two pages.

A box was added to the top right hand corner of the first page of the questionnaire to allow for the sequential numbering of every new respondent, aiding identification and cross-checking by the researcher, yet at the same time maintaining respondent confidentiality and anonymity.

An additional section was added to the bottom of the second page for respondents to complete should they wish to participate in a further interview as part of the case study research. This information included the respondent's telephone number.

It was estimated that it would take respondents 10 minutes to complete the survey questionnaire. Again, this was to assist in the possible completion by the respondents. Whilst there were open-ended questions, there were also questions in which respondents simply had to circle answers.

The Letter of Introduction

In addition to the survey questionnaire, a Letter of Introduction was compiled (see Appendix 1) to give participants information about the study itself. The letter provided

details about the research focus, contact details, information about the two phases of the research, and a discussion with regards to anonymity and the fate of collected data.

The Interview Schedule

Finally, the Interview Schedule (see Appendix 3) was compiled. On a separate double-sided sheet of paper, it posed 11 open-ended questions that were related to the questions in the survey questionnaire. The added benefit was that they provided a framework with which to conduct the telephone interviews. This ensured that consenting participants were given the same opportunities for responses. As with the Questionnaire, the Interview Schedule had a box on the top right corner of page one, to allow for numbering of each participant. Spaces were left between each question for the researcher to note responses during the course of the telephone interview.

Data Collection

As with any field research, this study had the potential to amass large volumes of material. Each respondent generated a minimum of three sheets of paper, but in most cases, more. An expandable filing organisation system had to be established from the outset, one which would allow for security of data, and for the addition of data per participant as it was received by post or e-mail, or was recorded from the interview. The following system was adhered to.

A spread-sheet containing numbered rows was set up as a master list of respondents and was placed at the front of a large, loose-leaf ring folder. As each respondent would contact the researcher requesting to take part in the case study research, which was anticipated would be primarily by e-mail, they were to be allocated a number. Their name would be written next to the allocated number, and their given contact details.

A print-out of any initial correspondence, for example e-mails, were made and assigned the participant's numerical symbol. These would be placed in a plastic pocket in the folder. As participants completed and returned the survey questionnaire, these too were placed in a plastic pocket and filed numerically according to their previously allocated number. Any additional correspondence such as letters would also have the participant's allocated number recorded on them, and again filed numerically, as too were the subsequent interview responses. To allow ease of finding a certain participant's responses amidst the volume of paperwork, a double-sided section divider was created per participant to encapsulate all their data.

Data were then stored in a lockable filing cabinet in accordance of privacy considerations for each participant, and in compliance with information detailed in the Letter of Introduction.

Participant Selection

Whilst the researcher was personally acquainted with the three respondents in the initial pilot study (they all lived in the same rural township although were enrolled at tertiary distance education providers in different states of Australia), attracting distance education students to participate in the research became a large and lengthy hurdle in the successful completion of this research. This was in part due to the situation of the researcher living some 1,400 km removed from the supervising university (University of New England, hereafter referred to as UNE). It was also partly due to the nature of the study, the circumstances of the subjects, and in part due to structural barriers in the institution itself.

In the initial phases of planning the research, it was anticipated that all respondents would be distance learners at UNE. This was at a time when CMC was still a relatively new phenomenon, and on-line learning was starting to evolve on campus. An approach was made to have contact details for all distance learners so that a random sample could be made, and the selected distance learners approached with a request to participate in the

research. However, this request was declined due to privacy laws protecting students' personal information.

In the researcher's only opportunity to visit to UNE during 2000, various on-campus organisations for distance learners, along with support services for the various equity groups represented on-campus, were approached for assistance in locating suitable respondents for the study. Again, due to privacy laws, these requests were declined. However, some services passed on student representative details. Sadly none of these referrals bore responses. As the on-campus visit coincided with several residential schools for distance learners taking place, a number of hand-written notes were placed on bulletin boards around campus detailing the research, in the hope of attracting respondents, but again this avenue yielded no outcomes in terms of participation. The Ooralla Aboriginal Centre at UNE offered to run print-based "advertisements" in their member's newsletter. These "ads" contained information on the research and the researcher's contact details. Despite the process being repeated over a period of one year, no feedback was gained.

The researcher's brief on-campus visit did have a positive outcome in terms of gaining data, however. Over coffee in a bar on campus, a stranger hearing the woes of a frustrated researcher, commented that she was a distance learner visiting on-campus and said that she would be happy to participate in the research. She asked for a copy of the survey questionnaire, completed and returned it, and was subsequently interviewed. Her data was recorded as respondent 1. Apart from the three pilot study respondents and despite the many attempts to attract other participants to the study, respondent 1 remained the only case study for almost one year.

As a result of the difficulty in attracting respondents at UNE as outlined, combined with the utilisation of CMC as a medium of distance education at other Australian universities, the researcher decided that for the purposes of completion of the research study to broaden the scope of the study. This was achieved by approaching distance learners enrolled at other providers of tertiary education, and this turn of events became a rich blessing in disguise. In

On the completion and printing of the materials, packs were made up to post to participants. These included a copy of the Letter of Introduction, the survey questionnaire and a stamped, self-addressed envelope to return their completed questionnaire to the researcher. Participants who rang or e-mailed the researcher were asked for their postal address. This information was entered onto the master spreadsheet, with each respondent being allocated a participant number in the sequence. The corresponding number was placed in the box on the top right hand corner of the questionnaire. The pack was then posted to the respondent. As completed questionnaires were returned, each was read, then filed in a plastic pocket in numerical order.

Of the thirty-five questionnaires posted, thirty-one were returned completed – a 88.57% success rate. One of the questionnaires not returned was indeed a Masters research student at another university, which initially caused angst. All thirty-one of these respondents indicated in the consent section of the form that they would be interested in participating in the interview component of the research. All but one respondent used the stamped envelope provided, and took anywhere from a week to 6 months to return their responses on the questionnaire. The remaining respondent requested the survey questionnaire be transmitted on-line. She returned it completed by e-mail the same day.

All but one of the respondents had their own e-mail address. To those participants, a brief e-mail was sent to thank them on the receipt of the completed questionnaire, and for offering to take part in the subsequent interview, with a comment added that the researcher would contact them at their earliest convenience.

The thirty-one respondents then shared their stories as distance learners through extended interviews. These occurred anywhere from one day to over a year from the completion of the questionnaire, due to the complexities of contacting distance learners, especially mobile ones. The reason behind this was not pre-meditated. Indeed, it was originally planned to follow-up each respondent upon the receipt and reading of the answers to their completed survey questionnaire. However due to a series of personal incidents, the interviews were

conducted over a lengthy period and on an ad-hoc basis as opportunity and finances permitted. What could have been detrimental proved to be beneficial to the outcome of the study as it provided in some cases a longitudinal research opportunity, and monitored a progression of change over time. Some respondents provided further information over time by e-mailing the researcher personal updates on their studies and their progress in using CMC in their learning.

The interviews ranged in length from a one-off interview spanning anywhere from 30 minutes to 90 minutes, to those which took place over several weeks episodically, again due to the circumstances of the individual respondent. In addition to the three respondents of the pilot study, five case study respondents were interviewed in person, where circumstances allowed. The responses to the set of open-ended questions were transcribed throughout the conversations. All participants were thanked at the commencement of the phone call for the completion of the research questionnaire and for their offer to be case studies for the research. They were then asked if they were still willing to be participants and were also reminded that they did not have to answer any questions that they did not feel comfortable with, and could discontinue their involvement at any time.

Along with the three respondents of the pilot study and the thirty-one subsequent respondents, the researcher's own lived reality as a distance learner was also recorded.

Ethical-Legal Considerations

In accordance with the ethical guidelines established by UNE, permission was sought from the Human Research Ethics Committee at UNE to conduct this research, which was granted on 23rd May, 2000(HEOO/0128) and then subsequently renewed in 2003 due to the length of time taken to collect data.

Specific instances of ethical considerations within this research include:

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Specific instances of ethical considerations within this research include:

1. Care was taken with the construction of the questionnaire so that the questions did not contain derogatory, racist, or sexist language.
2. The researcher was aware that in conducting this research, she represented not only UNE, but also the Faculty of Education, Health and Professional Studies at UNE.
3. Responses to the study were kept in a folder with the researcher at all times when in use, or were locked in a filing cabinet when not in use.
4. Feedback from each respondent was not discussed with anyone other than that respondent.
5. The questionnaires were numbered numerically for cross-referencing purposes in later interviews. Only the researcher knew the actual identity of each respondent.
6. Every effort was made to protect the identity of the informants. When discussed, data are presented either numerically, or in cases of dialogue, under a pseudonym.

7. It was not envisaged that any physical harm would befall participants, and to ensure that there would be no emotional harm, the precautionary measure was taken of instructing them not to answer any question that they did not feel comfortable with, and to remind participants that they had the option of withdrawing from the study at any time.

8. Both the Oorala Centre at UNE and subsequently the Wammara Centre at Charles Sturt University (Bathurst Campus) were contacted in writing to gain their support before requesting research participants from their Indigenous communities. Both centres were supportive of the research, and both placed "advertisements" in their newsletters that this researcher sought Indigenous representation in this study.

Summary

The nature of the research problem has guided the choice of research methodology utilised in this study. In order to assess the relationship between distance learner's aspirations for positive educational outcomes in higher education, their subjective experiences with CMC in distance education, combined with the ramifications on this experience of belonging to a recognised educationally-disadvantaged group, qualitative data was the prime method of data collection. From such a background, the predominant research tools for gathering qualitative data were the initial survey questionnaire, and the subsequent extended interview. The choice of two qualitative instruments of data collection allowed for cross-validation of responses. Additionally, in contrast to the quantitative/qualitative divide that can exist between differing paradigms, this research has taken an eclectic approach to methodology by incorporating quantitative analysis in terms of statistical data on closed questions in the survey questionnaire.

The following three chapters examine the data collected from these sources. The first of these will examine the responses from the closed- and open-questions in the survey questionnaire, providing a combination of quantitative and qualitative responses.

CHAPTER 5   SURVEY FINDINGS

Introduction

The survey questionnaire was the first instrument of data collection in this research. It gathered information across three broad areas. The first section (Section 1) was devised to gain an overview of the respondent's distance learner profile. From this background, the respondent could be assessed as to whether they fit the profile of one or more of the recognised socially disadvantaged groups in higher education. Section 2 examined the background to the participant's choice of distance learning in their pursuit of higher education. The final area of investigation (Section 3) examined the respondent's experiences with CMC in distance education.

The collection and collation of data from the survey questionnaire will be examined in detail in this chapter. In addition to the pilot study and participation rate, each of the three major sections of the survey will be examined in light of participant responses.

Pilot Study

Following the development of a draft survey questionnaire, three distance learners (DLs) took part in the initial pilot study, by completing responses to the questions. Following return of the draft questionnaire, the three participated in face-to-face interviews, which provided them the opportunity to discuss not only their experiences as DLs in higher education, but also to give feedback on the construction of the survey questionnaire. This feedback guided the slight modification of the data collection instrument into its final format.

Participation Rate

During the four-year period from 2000 to 2003, an additional 35 DLs contacted the researcher indicating their interest in taking part in the research. Of these 35 respondents, 31 completed and returned the survey questionnaire (many using the stamped and addressed envelope provided, although one did return on-line). Quite a number of respondents attached letters or lengthy notes to further elaborate on their given responses to the questions.

In relation to the 4 potential participants who did not complete the survey questionnaire posted to them, all were invited to still participate by sending them two e-mail requests during 2003. Of these, 3 did not return either e-mails, and subsequently, a 'thank you' for their initial interest in the research was sent. According to information sent to the researcher in their initial e-mails of interest, their profiles are as follows. Two were rural students. The first student was a male. The second DL indicated that in addition to living on a grazing property, she had a disability, and was also a female student enrolled in a non-traditional area of study. The third DL was city-based, having enrolled via external studies to fit around work and family commitments, and was a female student enrolled in a non-traditional area of study.

In contrast, to the non-responses of the first 3 potential respondents, the fourth potential respondent replied to the e-mails. She stated that her experiences as a DL had been so awful that she did not want to sway the findings of the study. In response to this statement, a further e-mail of encouragement was sent to her expressing that in case study research, all experiences are valid and important, and again she was invited to participate. However, the DL declined. Her response was that DL "has been the most upsetting, degrading, worthless and waste of money experience" of her life (direct quote). By her profile in initial communications, she was an isolated student who also had a disability.

Of the 31 DLs who went on to complete the survey questionnaire, all indicated a desire to be interviewed. However, due to many factors, completing the interviews required in some

instances, a great number of follow-ups. This was not due to disinterest, but due rather to the circumstances of both the student and the researcher. The length of the interview lasted anywhere between 15 minutes to over 1 hour, depending on the circumstances of the participant and what they wanted to share.

As a distance learner, the researcher also completed the questionnaire.

Findings of the Survey Questionnaire

In total 35 DLs completed the survey questionnaire. They were then assessed according to the number of equity groups into which they fell. Category 1 students were enrolled as DLs but did not fall into any equity groups. Category 2 students fell into one equity group category. Category 3 students fell into two equity groups. Category 4 students were those who fitted the characteristics of three or more equity groups.

Table 2 (below) represents the distribution of equity categories of the respondents. The equity groups listed were Indigenous students, Rural and Isolated students, students who have disabilities, students from non-English speaking backgrounds, students who have a low socio-economic background, women enrolled in non-traditional areas of study or post-graduate studies, and students over 55 years of age. Please note that gaps in the numbering of respondents indicate respondents who did not complete and return their survey questionnaires.

Case Study Respondent		Rural and isolated students	Students with Disabilities	Students from NESB	Students with low SES		Students over 55 years of age	Equity Group Category
Pilot 1					■			Category 3
Pilot 2		■				■		Category 3
Pilot 3		■						Category 2
1			■				■	Category 3
2		■				■		Category 3
3		■			■			Category 3
4		■				■		Category 3
5						■		Category 2
6		■	■					Category 4
7		■				■		Category 3
8			■		■	■		Category 4
9		■	■		■			Category 4
10		■			■			Category 3
12								Category 1
14		■				■		Category 3
15		■	■			■		Category 4
16		■						Category 2
17		■		■				Category 3
19	■	■			■			Category 4
20		■		■				Category 3
21								Category 1
22					■			Category 2
23			■					Category 2
24		■						Category 2
25		■						Category 2
26						■	■	Category 3
27		■	■		■			Category 4
28		■			■	■		Category 4
29		■						Category 2
30				■				Category 2
31		■				■		Category 3
32		■	■		■	■		Category 4
33		■			■			Category 3
35	■							Category 2
Researcher		■	■		■	■		Category 4

Table 2 : Distribution of equity groupings across case study

Percentage of representatives of each equity group from sample

The distribution of equity groupings was then analysed for the percentage of respondents from each equity group represented in the study, and is summarised in Table 3, below. Whilst the majority of students (71.43%) in this sample were from rural and isolated backgrounds, the typical profile of distance learners is first-generation distance learning. It is of interest to note that all equity groups were represented in the study, giving support to the estimation that the technology-rich platform of third-generation distance learning would enable distance learning options for all students, irrespective of their socio-cultural backgrounds. Female students enrolled in non-traditional or post-graduate programs were the next most populous group (40.00 % of sample), followed closely by students from low socio-economic backgrounds (37.14 %). However, two respondents did not fit any of the nominated equity categories in this research.

Equity groups	Indigenous Students	Rural and Isolated Students	Students with Dis-abilities	Students from NESB	Students with low SES	Female students (non-traditional / post-grad)	Students over 55 years of age
Number of Case Study Respond-ents	2	25	9	3	13	14	2
% of Total Research Sample n = 35	5.71 %	71.43 %	25.71 %	8.57 %	37.14 %	40.00 %	5.71 %

Table 3 : Percentage of respondents in each equity groupings.

The data of each group of DLs (Groups 1 to 4) was then examined to assess trends within each.

Category 1 Respondents

Category 1 respondents were those who by their distance learner profiles did not fit any of the listed equity group descriptions. The two respondents in this research that fell into the first category were both city-based learners. They were not Indigenous, did not have any disabilities, were not from a non-English speaking background, did not come from financially-compromised backgrounds, and were not over 55 years of age. Whilst both respondents were female, they were not undertaking study in a non-traditional area of study (see Table 4).

Number of Case Study Respon-dents	% of Total Research Sample n = 35	Indigenous Students	Rural and Isolated Students	Students with Dis-abilities	Students from NESB	Students with low SES	Female students (non-traditional / post-grad)	Students over 55 years of age
2	5.71 %	0	0	0	0	0	0	0
	% of Category 2 respondents	0 %	0 %	0 %	0 %	0 %	0 %	0 %

Table 4 : Analysis of Category 1 Respondents.

The remaining 33 respondents of the research fitted the profile of at least one equity group.

Category 2 Respondents

On the basis of their distance learner profiles, ten respondents fell into one equity group. These respondents formed the Category 2 respondents. Of these, as outlined in Table 5 (below), Rural and Isolated students were the group with the greatest representation of students. The remaining five students represented Indigenous students, students with disabilities, students from NESB, students from a low SES, and females in non-traditional or post-graduate areas of study.

Number of Case Study Respondents	% of Total Research Sample n = 35	Indigenous Students	Rural and Isolated Students	Students with Disabilities	Students from NESB	Students with low SES	Female students (nontraditional / postgrad)	Students over 55 years of age
10	28.57 %	1	5	1	1	1	1	0
	% of Category 2 respondents	10.00 %	50.00 %	10.00 %	10.00 %	10.00 %	10.00 %	0 %

Table 5 : Analysis of Category 2 Respondents.

Category 3 Respondents

Fourteen of the respondents of the study fell into two equity groups, on the basis of their DL profiles, and these formed the Category 3 respondents. The breakdown of this membership is represented in Table 6 (below).

Number of Case Study Respondents	% of Total Research Sample n = 35	Indigenous Students	Rural and Isolated Students	Students with Disabilities	Students from NESB	Students with low SES	Female students (nontraditional / postgrad)	Students over 55 years of age
14	40.00 %	0	12	1	2	4	7	2
	% of Category 3 respondents	0 %	85.71 %	7.14 %	14.28 %	28.57 %	50.00 %	14.28 %

Table 6 : Analysis of Category 3 Respondents.

If this category of respondents, it is interesting to note the combination of equity groupings. These are summarised in Table 7 (below).

Equity group A	Equity group B	Total n = 14	% of Group 3 respondents
Rural and Isolated students	Students from NESB	2	14.28 %
Rural and Isolated students	Students with a low SES	4	28.57 %
Rural and Isolated students	Female students in non-traditional or post-graduate study	6	42.86 %
Female students in non-traditional or post-graduate study	Students over 55 years of age	1	7.14 %
Students with disabilities	Students over 55 years of age	1	7.14 %

Table 7 : Combination of equity groups represented in Category 3 respondents.

The highest proportions of respondents falling into Group 2 were Rural and Isolated students combined with another equity group (Female students enrolled in non-traditional or post-graduate programs, low SES, and students with a NESB). These accounted for 85.71% of respondents.

Category 4 Respondents

The remaining nine respondents of the study fell into three or more equity groups, according to their distance learner profiles. This cohort formed Category 4 respondents, and represented over one-quarter (25.71 %) of the total number of respondents in this research, which is significant.

The analysis of this category of students in relation to membership of the various equity groupings is represented in Table 8 (below).

Number of Case Study Respond -ents	% of Total Research Sample n = 35	Indigenous Students	Rural and Isolated Students	Students with Dis- abilities	Student s from NESB	Students with low SES	Female students (non- traditional / post-grad)	Students over 55 years of age
9	25.71 %	1	7	6	0	7	6	0
	% of Category 4 respondents	11.11 %	77.77 %	66.66 %	0 %	77.77 %	66.66 %	0 %

Table 8 : Analysis of Category 4 Respondents.

Of this group of respondents, it is interesting to note the combination of equity groupings which are summarised in Table 9 (below).

Equity group A	Equity group B	Equity group C	Equity group D	Total n = 9	% of Group 4 respondents
Indigenous students	Rural and Isolated students	Students with a low SES	-	1	11.11 %
Rural and Isolated students	Students with disabilities	Female students in non-traditional or post-graduate study	-	1	11.11 %
Rural and Isolated students	Students with disabilities	Students with a low SES	-	2	22.22 %
Students with disabilities	Students with a low SES	Female students in non-traditional or post-graduate study	-	2	22.22 %
Rural and Isolated students	Students with disabilities	Students with a low SES	Female students in non-traditional or post-graduate study	3	33.33 %

Table 9 : Combination of equity groups represented in Category 4 respondents.

Further, one-third of Category 4 respondents had membership in 4 equity groups, and the combination of these was the same for all three. These were all female DLs enrolled in non-traditional or post-graduate areas of study, lived in Rural or Isolated settings, had a disability or multiple disabilities, and had a low socio-economic background.

Analysis of data in Survey Questionnaires : Section 1 : Distance learner profile

The completed responses from the survey questionnaires were analysed and summarised into table format (Table 10) as below (n = 35).

Question 1	Gender	Male	5	14.29%
		Female	30	85.71%

Question 2	Age	< 18	0	0%
		18 - 24	3	8.57%
		25 - 39	17	48.57%
		40 - 54	13	37.14%
		55+	2	5.71%

Question 3	Ethnicity	Indigenous Australian	2	5.71%
		Anglo-Celtic Australian	26	74.29%
		Other - Asian	1	2.86%
		Other - New Zealand	1	2.86%
		Other - American	1	2.86%
		Other - European	4	11.43%

Question 4	Country of Residency	Australia	34	97.14%
		Elsewhere	1	2.86%

Question 5	Geographical Location	Capital City	5	14.28%
		Regional City	5	14.28%
		Rural	18	51.43%
		Isolated	6	17.14%
		Other: Mobile	1	2.86%

Question 6	Main Language	English	32	91.43%
		Other - Asian	1	2.86%
		Other - European	2	5.71%

Question 7	Marital Status	Single	9	25.71%
		Married / Defacto	22	62.86%
		Separated	4	11.43%

Question 8	Employment	Paid F/T	8	22.86%
		Paid P/T	11	31.43%
		Retired	1	2.86%
		Unemployed	2	5.71%
		Home Duties	5	14.28%
		F/T Student	4	11.43%
		Voluntary Worker	2	5.71%
		Self-Employed	1	2.86%
		Disaiblity Pension	1	2.86%

Question 9	Household Income p.a. ($,000)	0 - 20	6	17.14%
		20 - 35	7	20.00%
		35 - 50	7	20.00%
		50 - 75	6	17.14%
		75 - 100	7	20.00%
		100+	1	2.86%

Question 10	Number of dependents supported on income	No	16	45.71%
		Yes	19	54.29%
		1	4	11.43%
		2	7	20.00%
		3	5	14.28%
		4	2	5.71%
		Other: Foster Children	1	2.86%

Question 11	Disabilities	No	22	62.86%
	(NB. Of the 13 participants who report to have disabilities, three have listed	Yes	13	37.14%
	multiple disabilities)	Visually - impaired	4	11.43%
		Hearing - impaired	1	2.86%
		Mobility - impaired	3	8.57%
		Psychiatric disability	4	11.43%
		Other disability	4	11.43%

Question 12	Own Transport	Yes	28	80.00%
		Share	6	17.14%
		Public Transport	1	2.86%

Table 10 : Analysis of Section 1 (Distance Learner profile)

of Survey Questionnaire (Questions 1 to 12).

Commentary on Section 1 of Survey Questionnaire – Distance Learner Profile

The ratio of respondents in this study is 6 females to 1 male. Of the male respondents, three are in full-time paid employment, one is self-employed and one is unemployed, generally reflecting our society's workforce participation. Of the women, five were in paid full-time employment; ten were in part-time employment; five listed home duties; one was retired; one was unemployed; four listed being full-time students (having government assistance); and one was on a disability pension. Just over half the respondents live rurally. 91.43% spoke English as their first language. 62.86% of respondents are in married or defacto relationships.

The majority of respondents (74.39%) are Australian citizens who come from an Anglo-Celtic background. The biggest age grouping of the respondents is the 25 – 39 year age group. Of this grouping, seven respondents have two or more dependent children. Five of these participants also have a disability. Moreover, twelve of this group are Rural or Isolated dwellers. The financial profile of this group of learners is very broad. Of those in this age-group, eight of the 17 are enrolled in post-graduate study; eight are enrolled in

undergraduate study; and one is enrolled in both an undergraduate and a post-graduate course simultaneously. All the undergraduate students are female, whilst all the male respondents in this study were enrolled in post-graduate study. The next highest group of participants in the study is the 40 - 54 age group.

Full-time workers comprised 31.43% of the sample. 31.43% of participants had part-time employment. One respondent was self-employed. The remaining respondents were on pensions (2.86%), were unemployed (5.71%), were a voluntary worker (5.71%), were gaining government funding as full-time students (11.43%), or listed home duties (14.28%). 19 respondents (54.29%) supported dependents on their income. The household income base is broad, with almost equal representation of incomes across the 5 groups ranging from 0 to AUD 100,000. In the most common participant group (25 – 39 year-olds) the most likely household income is between AUD 20 – 35,000.

37.14% of participants indicated that they suffered from a disability. Of these, three had multiple disabilities. Four participants suffered from a visual impairment; four indicated a psychiatric disability; three had a mobility impairment; one student was hearing-impaired; and four students listed "other" as their disability.

80.00% of respondents had their own transport. The remaining 20.00% either shared transport or used public transport. Whilst access to transport did not seem to be a major barrier in distance education from responses to the survey questionnaire, responses to the Interview schedule suggest having to travel large distances to access support and resources for rural and isolated students, plus the additional costs of fuel, was a contributing factor.

The most common profile of the students survey would be an Anglo-Celtic female aged 25 to 39 who lives rurally, and has either two or more children or a disability. She would more likely to be completing undergraduate than post-graduate study. Her income is most likely to be between AUD 20 to 35, with an even chance that she has dependent children. Distance education providers would do well to take notice of this statistical phenomenon to target resources to facilitate the success of this participant grouping.

Section 2 : Choice of distance education for higher education

In Section 2 of the survey questionnaire, respondents were asked to discuss the reasons behind choosing DL in their pursuit of higher education. Their responses are as follows.

Question 13	Student Status	Undergraduate	13	37.14%
		Postgraduate	22	62.86%

Question 14	Field of Study	Arts	6	17.14%
		Science	7	20.00%
		Education	15	42.86%
		Business/Economics	2	5.71%
		I.T.	4	11.43%
		Other	3	8.57%

Question 15 a	Factors Motivating Choice of Distance Education	Family Responsibilities	15	42.86%
		Disability	6	17.14%
		Distance from Institution	24	68.57%
		Work Responsibilities	13	37.14%
		Finances	1	2.86%
		Couldn't Get in to Local Uni	1	2.86%
		Flexibility	4	11.43%
		Course of Choice	4	11.43%
		Other - mobile family	1	2.86%

Question 15 b	Most important motivating factor in choice	Distance	11	31.43%
		Family	3	8.57%
		Work	7	20.00%
		Course/Subject Availability	3	8.57%
		Disability	4	11.43%
		Family + Distance	4	11.43%
		Family + Financial	1	2.86%
		Family+ Financial+ Distance	2	5.71%

Question 16	Challenges to Successful Completion of DL Number of responses per listed category. (NB. More than one response per respondent)	Work	21	60.00%
		Family	23	65.71%
		Geographical Isolation	15	42.86%
		Finances	22	62.86%
		Access to Library	20	57.14%
		Support from University	18	51.43%
		Research Skills	15	42.86%
		Access to Internet	15	42.86%
		Computer Equipment	15	42.86%
		Computer Skills	12	34.29%
		Health / Disability	11	31.43%
		Writing Skills	14	40.00%
		Time Availability	4	11.43%
		Resources	1	2.86%
		Social Isolation	1	2.86%
		Computer Virus' from WWW	1	2.86%
		Ability to Attend Exams	1	2.86%

Question 16 - Challenges To The Successful Completion Of Tertiary Study Via D.E.
            (Rating of Responses)

Students were asked to rate their perceived challenges to the successful completion of their studies as DLs, with "1" representing their greatest challenge and "12" representing their least challenge.

Greatest Challenge ——————————————▶ **Least Challenge**

	1	2	3	4	5	6	7	8	9	10	11	12
Work	11	4	1	2	3	-	-	1	-	-	-	-
Family	7	8	6	1	-	-	1	-	-	1	-	-
Geographical Isolation	2	5	1	-	1	2	3	-	2	-	1	-
Finances	2	10	5	2	1	1	-	1	-	-	1	1
Access to Library	3	3	4	3	2	2	2	1	-	-	-	-
Support from University	3	3	2	6	1	1	-	1	-	-	1	-
Research Skills	-	2	4	4	1	1	-	3	-	-	-	-
Access to Internet	2	-	-	1	5	1	2	1	1	2	-	1
Computer Equipment	2	1	4	-	3	-	2	-	3	1	-	1
Computer Sills	-	1	3	1	-	1	-	2	2	1	2	-
Health / Disability	5	1	1	1	1	1	-	-	1	1	-	1
Writing Skills	3	2	1	2	1	2	2	-	-	2	-	-
Time Availability	1	-	-	1	-	-	-	-	-	-	-	-
Resources	-	-	-	-	-	-	-	-	-	-	-	-
Social Isolation	-	-	-	-	-	-	-	-	-	-	-	-
Computer Virus' from WWW	-	-	-	-	1	-	-	-	-	-	-	-
Ability to Attend Exams	-	-	-	1	-	-	-	-	-	-	-	-
Distance from Uni	-	2	-	-	-	-	-	-	-	-	-	-
Not able to attend in person	1	-	-	-	-	-	-	-	-	-	-	-
	1	2	3	4	5	6	7	8	9	10	11	12

Greatest Challenge ——————————————▶ **Least Challenge**

Question 17a	Contact with University coordinator/tutor/students	Daily	3	8.57%
		Regular	9	25.71%
		Irregular	23	65.71%

Question 17 b	Usual form of this communication (NB. More than one response per respondent)	Letter	1	2.86%
		Phone call	11	31.43%
		Fax	2	5.71%
		E-mail	27	77.14%
		Online forum / newsgroups	19	54.29%
		In-person (Residential School)	2	5.71%
		Assignment Submission	1	2.86%

Question 18	Most important Skill as a DL (NB. Open-ended question)	self-confidence	2	5.71%
		literacy skills	2	5.71%
		computer skills	1	2.86%
		organisational skills	8	22.86%
		self-disciplined / motivated	21	60.00%
		hard workers	1	2.86%
		prepared to ask questions	1	2.86%
		time management	12	34.29%
		realistic expectations of self	1	2.86%
		patience / perseverence	2	5.71%
		info processing / analysing skills	3	8.57%
		locating resources	5	14.29%
		Internet access	2	5.71%

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Question 19	Skills to enhance completion of studies (NB. Open-ended question)	time management	5	14.29%
		communication/literacy skills	3	8.57%
		LOTE support for essays	2	5.71%
		computer skills	1	2.86%
		organisational skills	7	20.00%
		self-motivation/determination	2	5.71%
		prepared to ask questions	1	2.86%
		info processing / analysing skills	2	5.71%
		insomnia !	1	2.86%
	Equipment to enhance completion of studies	speech dictation software	2	5.71%
		laptop	5	14.29%
		printer	2	5.71%
		second phone line	1	2.86%
		broadband	1	2.86%
		wireless modem connection	1	2.86%
	Resources to enhance completion of studies	locating resources	7	20.00%
		online tutorials / lectures	2	5.71%
		greater contact with lecturers	3	8.57%
		prompt feedback	3	8.57%
		online practical support	2	5.71%
		access to contact details	7	20.00%
		minimal/no-cost post (library)	3	8.57%
		access to better resources	5	14.29%
		attractive coursework materials	1	2.86%
		financial assistance	2	5.71%
		older child-care at Res. Schools	1	2.86%
		local-call Internet access	2	5.71%
		more Residential schools	2	5.71%

Table 11 : Analysis of Section 2 (Choice of Distance Education for Higher education)

of Survey Questionnaire.

Commentary on Section 2 of Survey Questionnaire – Choice of Distance Education

For distance learners in this sample, education was the most represented faculty (42.86%), with distance from institution being the most common motivating factor (68.57%). Second was family responsibilities (42.86%), whilst work responsibilities was third at 37.14%. These are distance learner factors which are outside the sphere of influence or control of the institution (that is external from the university).

The most significant challenge to the completion of distance learning is family (65.71%). However, the most significant factor within the control of the university is contact from the lecturer/tutor to the student. 65.71% of respondents stated that contact with them was irregular, being less than once per month. This is substantiated by the participant's responses in the Interview schedule. E-mail was listed as the most common form of communication by participants (77.14%), indicating a preference for maintaining one-to-one contact by students with their lecturer/tutor despite the one-to-many and many-to-many capabilities of CMC. This is verified by feedback in the interviews. Contact with lecturer/tutor on online forums accounted for 54.29% of communication. The most important skill as a DL was listed as self-discipline/ motivation at 60.00%

In order to successfully complete distance studies, organisational skills (20.00%), locating resources (20.00%) and access to contact details of other students (20.00%) were the highest suggested skills overall. From the responses solely in the survey questionnaire, this clearly suggests that computer skills are not a major obstacle to the completion of distance learning by CMC. Accessing resources and social communication with peers are key components by DLs as a broad category. In contrast to IT skills, per se, it seems to be access to computer hardware and software, plus reliable Internet access which are creating more of a barrier to distance learners as a broad group. There are 17 listings relating to hardware/connection challenges to 1 relating to skills.

Section 3 : Distance learners and computer technology

The final section of the survey questionnaire asked respondents to discuss their use of, and attitudes towards, CMC in distance education. Their response are categorised per question and listed in the table below.

Question 20	Personal Level of Computer Experiences	Novice	0	0%
		Some	4	11.43%
		Average	16	45.71%
		Experienced	13	37.14%
		Expert	2	5.71%

Question 21	Personal Comfort Level Using Computers	Uncomfortable	1	2.86%
		Comfortable	28	80.00%
		Neutral	6	17.14%

Question 22	Own Computer	Yes	33	94.29%
		No	0	0%
		Other - Friend/ Relative	2	5.71%

Question 23	Modem	Yes	33	94.29%
		No	2	5.71%

Question 24	Access to a Computer and Modem Elsewhere	Yes	13	37.14%
		No	9	25.71%
		Sometimes	13	37.14%

Question 25	Location of Computer Access Outside Home (NB. Multiple responses given by some respondents)	Work	17	48.57%
		Library	10	28.57%
		Internet Café	1	2.86%
		Friend / Relative's House	3	8.57%

Question 26	Gaining of Computer Skills (NB. Multiple responses given by some respondents)	Course	14	40.00%
		Trial-and-error	27	77.14%
		Working in Info Tech field	2	5.71%
		Computer Magazines	1	2.86%
		Secondary School training	3	8.57%
		Mentoring by others	5	14.29%

Question 27	Access and Previous Use of Internet	Daily	13	37.14%
		Regularly	18	51.43%
		Occasionally	4	11.43%
		Not Yet	0	0%

Question 28	Purpose of Internet Usage (NB. Multiple response question)	Messages/Communication	28	80.00%
		Information	30	85.71%
		Games	6	17.14%
		Education	30	85.71%
		Work	2	5.71%
		Research / Library	9	25.71%
		Banking/Bill Payments	4	11.43%

Question 29	Changes Necessary if Internet was Major Mode in DL (NB. Multiple response question)	Buy Computer	8	22.86%
		Buy Software	12	34.29%
		Buy Modem	6	17.14%
		Connect to Internet	4	11.43%
		Take Training Courses	5	14.29%
		Broadband	4	11.43%
		2nd Phone line	4	11.43%
		Finances	2	5.71%
		Allow more time	1	2.86%
		Better Training manuals	1	2.86%
		Voice Recognition software	2	5.71%
		Build study for computer	1	2.86%
		Better Computer Security	1	2.86%
		No Changes necessary	10	28.57%

Question 30	Compulsory Online DL Made Easier (NB. Open-ended Question)	Speed up access / downloads	4	11.43%
		Virtual Classrooms	2	5.71%
		Financial Assistance		
		Better phone lines	8	22.86%
		Overcome power failures	8	22.86%
		Guaranteed server function (University)	3	8.57%
		Better online support (technical staff)	1	2.86%
		Better online support (lecturers)	2	5.71%
		Better online support (library)	2	5.71%
		Better student training in CMC	2	5.71%
		Understanding needs of Equity Groups	2	5.71%
		Better course information online	2	5.71%
		Better manuals	1	2.86%
		Upgrading of PC	2	5.71%
		Prompt replies to questions of DLs	2	5.71%
		Confirmation of received work	1	2.86%
		More guided use of forums	4	11.43%
		All material to be received early	1	2.86%
		Need hard copy of materials too	4	11.43%
		Minimal/no-cost post (library)	3	8.57%
		Access to better resources	5	14.29%
		Financial assistance	2	5.71%
		Older child-care at Res. Schools	1	2.86%
		Local-call Internet access	2	5.71%
		Would prefer not 100% CMC in DL	1	2.86%
		Virus protection from Uni	1	2.86%
		No Idea	1	2.86%

Question 31	Additional Comments (NB. Open-ended question)		
	Positive comments by participants on the use of CMC in DL		
*	"Asynchronous learning can overcome time differences in communications between students and their lecturers."	2	5.71%
*	"Online delivery of course-work is a cheaper way of supplying the needs of distance learners by universities."	2	5.71%
*	"I learnt to use computers at school, so I have no problems with CMC."	3	8.57%
*	"People who are shy are more likely to use e-mail than telephone their lecturers."	1	2.86%
*	"CMC made distance learning possible for me."	1	2.86%
*	"The online forum made me feel less isolated. I also have a medium to ask other students questions."	2	5.71%
*	"I feel very comfortable with using computers, so online units are great."	1	2.86%
*	"DL is testing my aptitude for study before making a commitment to study on-campus"	1	2.86%
*	"With a chronic disability, online learning made a tertiary education possible for me."	1	2.86%
	Negative comments by participants on the use of CMC in DL		
*	"I don't know enough about computers."	1	2.86%
*	"Computers are a great tool, but cannot replace human contact."	3	8.57%
*	"Due to my disability and associated bad memory, I need extra help from lecturers to help me learn."	2	5.71%
*	"DL remains challenging. There are so many obstacles despite the technology."	1	2.86%
*	"CMC increases the costs of higher education by distance learners. For example, increased Internet costs in downloading materials; increased electricity, printer, ink and paper costs in printing out on-line materials; and the increased cost in time and labour to download and print, puts the costs back onto already disadvantaged learners."	1	2.86%
*	" With the rapid changes in computer technology, there is a need to constantly up-grade skills and equipment, which is challenging financially."	1	2.86%
*	"Universities don't understand that it takes months of saving to afford every piece of new materials or equipment. They should tell students up-front if a subject requires any additional materials and equipment. In some subjects, you don't know these additional requirements until well into a subject and past the withdrawal date. It is worse if the subject is a compulsory one for your degree. There is the assumption that you can just go out and buy it or have access to it. With little income and living rurally, how can you do that?"	5	14.29%
*	"There are health problems associated with sitting in front of a computer for too long: posture problems, eye-strain, radiation..."	3	8.57%
*	"Tutors and lecturers make me feel incompetent because I don't have existing skills. I am not stupid, I just have not had exposure to this before. They make assumptions about my intelligence. When I learn the skills, I'll do better."	3	8.57%
*	"I cannot read off a computer screen. I need a hard copy of the work in addition to it being made available online."	3	8.57%

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*	"The forums are great, but I still feel like I am struggling on my own - isolated."	1	2.86%
*	"Distance Learners need lots of additional support as they are not on-campus to receive all the extra information and support that students enrolled in the same course receive there. So it is important that we receive regular encouragement and commun-ication from our lecturers, and that their feedback to our questions is prompt, so that we don't feel like we're drowning."	1	2.86%
*	"Living rurally has many challenges as a distance learner. Power failure and phone-lines being out affect Internet access. We get lots of black-outs (or brown-outs) here. Sometimes it takes weeks on end for the phone-line to be restored. Sometimes lecturers just don't understand. Some are good, though. We need extra assistance so as to be able to participate without being disadvantaged."	5	14.29%
*	"I feel that I (the student) am the only one making an effort for communication."	2	5.71%
*	"Good communication would help to encourage further study and motivate DLs."	4	11.43%
*	"The whole process is a rush: I never have time to learn to use the technology properly, despite following instructions."	2	5.71%
*	"I've been a student for a few years now, and I still don't know how to use the on-line facilities other than the basics."	3	8.57%
*	"Being home-based, I already felt entrapped. Now that I am studying externally, I feel even more trapped, because if people come to visit and I'm studying, I have to ignore the bell, or tell them to go away. But I really need social contact."	2	5.71%
*	"Lack of access to library and resources is related to geographical isolation."	1	2.86%
*	"Isolation from other students and lecturers seems amplified with online learning."	1	2.86%
*	"Forums are great, but they need to be used more effectively and have greater input from the lecturers or tutors."	1	2.86%
*	Forums are great, but they don't provide the same benefits as being in a classroom."	1	2.86%
*	Forums are great, but I don't have time to wade through all the bits of information to get all the information I need."	2	5.71%
*	"I was not told of what additional resources I could access on-line. If I knew up-front, it would have made study so much easier."	1	2.86%
*	"I found that the shift to an online course involved more of my time, not less. The suggested time for study was much greater in actuality."	1	2.86%
*	"I need to see some 'humanness' about the web-site. Having photos of the lecturers along with their names would help me feel more a part of a community. This could be extended to other students in the course."	1	2.86%
*	"The privacy laws which prevent the University giving out names of local DL students has disadvantaged me. I know that there are some in this area, and being a stay-at- home Mum, I'd love to meet them, but I'm not allowed to find their names. If I was on-campus, there would be no problem."	3	8.57%

Table 12 : Analysis of Section 3 (Distance Learners and Computer Technology in distance learning) of Survey Questionnaire (Questions 20 to 31).

Commentary on Section 3 of Survey Questionnaire – CMC in Distance Learning

88.57% of respondents listed that they had average to expert skills in computer experience. Only one respondent stated that they were "uncomfortable" using computer technology. 77.14% of participants listed trial-and-error as the key method of gaining computer skills. Whilst not specifically asked, quite a number of these respondents indicated that they would have preferred the opportunity to take part in organised training programs so as to make the most of their subsequent learning online.

Whilst 94.29% listed that they had their own computer and modem access, many expressed major difficulties with capabilities of their existing equipment and more particularly, their Internet access. This is particularly so for rural and isolated students. 45.71% of all case study respondents listed phone and electricity services as a major problem for CMC to be made easier in distance learning. This would suggest the need for distance education providers in becoming more actively involved in procuring broadband connections for their distance learners, or alternatively, providing hard-copy or CD-Roms for all students as an alternative. Additionally, with Internet and power interruptions accounting for such a large percentage of respondents' concerns, care should be exercised in penalising especially rural and isolated students from time constraints and deadlines, giving them the opportunity for greater flexibility in participation and assessments.

Of note is that 62.86% of respondents in this study have little or no access to a computer or modem elsewhere. This is quite significant, owing to the assumption by many who plan CMC in online learning, that if something should occur to a student's ability or opportunity to access computer and Internet in their own home, then it is relatively easy to access elsewhere. Unlike on-campus students who have ready access to computer laboratories in a variety of venues, DLs do not. Moreover, on-campus computers generally have current technology which is maintained and supported by trained professionals, and technical assistance is at hand. This should be heeded.

The responses gathered relating to what changes would students require if the Internet was the major deliverer of their distance educational material, indicate that most respondents

would require computer hardware, software and communications technology improvements to be successful. Of interest is the statistic 28.57% of respondents who believed that they would not need to update their equipment. Of these respondents, nine dwelt in capital or regional cities. The only rural and isolated students responding "no change necessary" was an IT specialist.

Previously, it was stated that to ensure greater ease of online learning, students require more reliable computing hardware and Internet connectability. With the exception of requests for financial assistance, the remainder of requested solutions for enhancement for DLs are almost all related to university services. These include such suggestions as support from lecturers, library, IT staff, and general administration staff; the cost and provision of study materials (for example, hard-copy materials rather than the sole reliance of online materials); the structure and use of online forums, including a more active and regular presence by lecturers/tutors; and better access to resources (for example, the provision of minimal or no-cost library services).

The responses to Question 31 are quite profound. With the anticipation that CMC would be the great emancipator for those previously disadvantaged in distance-learning contexts, there are fourteen positive responses listed in questionnaire, compared to fifty-five negative responses from distance learners currently using CMC for their distance learning. This is almost a four to one ratio of negatives to positives.

Conclusion

The responses to the survey questionnaire indicate that whilst there are positive aspects of CMC, and the perception by many that it has enhanced their distance learning experiences, there is also the belief that it still does not overcome existing barriers in distance learning. Indeed, for some groups of distance learners it seems to have widened the gap between potential success and failure. The necessity of technological skills and requirements in order to take part in third generation distance learning can push participation in, and successful completion of, tertiary education (and with it, the possibility of a student to

improve their socio-economic status by increasing their potential for employment in well-paid jobs) seemingly just beyond the grasp of groups of distance learners. Identified disadvantaged learners will require assistance in order to participate to their fullest potential in higher education, and who better to guide reforms in this area than the affected students themselves.

The following two chapters recount the story of each respondent, based on their feedback in the survey questionnaire, combined with their responses in the interview process. During the interviews, respondents had the opportunity to elaborate on answers that they had recorded on their completed questionnaires, in addition to adding further thoughts. Each story becomes a snapshot in the life of a distance learner: a socio-historical artefact which, if read carefully, can guide institutions and faculties in the construction of online learning. Chapter 6 recounts experiences of distance learners who fall into two equity groups or less, which accounts for 74.29% of participants in this study. Chapter 7 examines the experiences of 25.71% of the study who fall into three or more equity categories.