PROGRESSIO

The electronic media usage patterns of Unisa communication science students: An exploratory survey

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ABSTRACT

The main aims of this study were to gather information on the use/non-use of new technologies, such as computers and the Internet, to guide lecturers in the Department of Communication Science are in the future development of communication courses. A total of 8 750 questionnaires was sent to all students registered for Communication in 2000. The response rate was about 28 per cent, that is, 2 452 students returned the questionnaires. Electronic media usage patterns include the use of cell phones, computers and the Internet. Approximately 80 per cent of students indicated that they used cell phones, while about 60 per cent and 38 per cent had access to computers and the Internet respectively.

INTRODUCTION

For the past few decades the distribution and traffic of information in the world has been radically transformed by information and communication technologies (ICTs), mostly in developed countries such as North America, Western Europe, Australasia and South and East Asia (Davison, Vogel, Harris and Jones 2000). In these countries ICTs have had a great impact on economic prosperity, entertainment and education. Furthermore, ICTs have revolutionised the way people communicate with one another by means of e-mail and the Internet.

However, ICT information structures are, to a great extent, limited to developed countries. According to Davison et al. (2000), the participation of the majority of

developing countries in the global information society remains insignificant because of perceived incompatibility between technologies and cultures, and (most important) economic constraints. Therefore, developing countries are lagging behind in becoming part of the information super highway or global village. As far as Internet users in Africa are concerned, nearly 70 per cent – that is, more than 1.8 million people – can be found in South Africa alone (Davison et al. 2000). This represents about 6 per cent of the total South African population who access the Internet whether at home, in libraries, at the workplace, in Internet cafés and so on. (*Beeld* 2000, 17)). The consequences of the invisibility of developing countries in an electronic world could be disastrous, because the possibility of their being marginalised from the mainstream economic (and information) growth of the world is increased.

As a developing country, South Africa faces the question of what the situation is as far as ICT education is concerned. The results of the Department of Education investigation (2001) reveal that more than 70 per cent of schools do not have even one computer or the Internet. Furthermore, the Internet is accessed mainly in major cities, thus sidelining over 70 per cent of people in rural areas. This issue is further complicated by the shortage of telephone lines: in 1996 more than 60 per cent of all schools nationwide had no telephones. Owing to the increased use of cellular telephones, (cell phones), however, the situation has improved and in 2000 only slightly more than 35 per cent of schools had no form of telecommunications (Department of Education 2001) (See the discussion of cell phones later).

According to James (2001, 92), the South African Technology for Enhanced Learning Initiative (TELI) provides a framework in which some provincial ICT-enhanced learning initiatives have taken place. However, the educational technology policy procedures have concentrated mainly on schools with little initiative in tertiary education. With this in mind one looks at the situation at the University of South Africa (Unisa).

Unisa is the largest distance education university in South Africa with a population of approximately 200 000 registered students. The ideal would be that all Unisa students should have access to ICTs to enable them to use computers and computer-based multimedia. Given the Third World status of many of Unisa students, electronic-based course material cannot adequately be developed without knowing the extent to which students have access to computers and the Internet and whether they are sufficiently skilled to make full use of these technologies.

To start investigating Unisa students' access to ICTs, an exploratory survey of Communication Science students' electronic media usage patterns was conducted with the aim of developing a measuring instrument that could be used for the whole student population at Unisa in future. In July 2000 the electronic media usage patterns of Communication Science students were investigated by means of a postal survey. The survey had the following aims:

- to provide the Department of Communication Science with information on the use/non-use of technologies such as computers and the Internet in order to guide lecturers in the future development of communication courses

- to use the results of the research to negotiate with the Unisa library, the Department of Education, and the South African Post Office's Transformation and Development Division (and other important role players) to make more computers, Internet-related services and training available to students of the department
- to establish a data bank of Communication Science students' electronic media usage patterns which would be updated every four years. (In other words, the same study would be repeated to determine possible future growth of students' access to ICTs. Such information would enable the department to make projections for future course development.)

An additional aim was to determine the cell phone use by Communication Science students. The cell phone, an extension of the traditional mobile talking instrument, has been transformed into a multi-purpose communication medium that enables cell phone users to access e-mail and the Internet, and to transmit and disseminate voice, graphics, data and text (Leung and Wei 2000, 310–311). The traditional telephone and, by implication the cell phone as well, is one of the neglected areas in mass communication research. Therefore, including a section on the use of cell phones, this problem area is being addressed.

THEORETICAL FRAMEWORK

The underlying theory of this study is the *uses and gratifications theory*, an audience-centred approach. The assumptions applicable to this study are that the interactive nature of electronic media enables media users to actively select specific media content to gratify certain needs. For example, electronic media – the computer, Internet and cell phone – can effectively be used to seek the satisfaction of needs related to information, entertainment, surveillance and diversion (Perse and Dunn 1998, 435–456).

The uses and gratifications theory, furthermore, provides a theoretical explanation for changes in media usage patterns following the adoption of new communication media. Perse and Dunn (1998, 437) maintain that this theory also helps to explain the displacement of functional alternatives – that is, existing or outdated media channels can be replaced with new alternatives to fulfil similar needs. For example, written messages – letters, notices, announcements – can be replaced with electronic mail because they satisfy similar needs. The same applies to the use of cell phones where, for example, short message server (SMS) messages replace the use of Christmas and birthday cards.

RESEARCH DESIGN

The data for this study were collected from a traditional postal questionnaire involving all registered Communication Science students, that is, all undergraduate and post-graduate students and students registered for diploma and certificate courses with the Department of Communication Science. The number of communication science students for the 2000 academic year was 8 750. Because all the Communication students (population) were involved in the study, it was not necessary to draw a sample. Of the

8 750 mailed questionnaires, 2 452 were returned by the end of September 2000, providing a response rate of about 28 per cent.

The questionnaire consisted of a combination of structured and unstructured questions. The structured questions related to activities to measure common patterns of information technology use, while the unstructured questions were aimed at drawing out further information from the respondents. The questionnaire collected data in three main areas: the use of the cell phone, the computer and the Internet. Descriptive statistics were used to analyse the data. In the next section are some of the results of the postal survey.

RESULTS AND DISCUSSION

Cell phones

The cell phone has hit the world by storm: with an ever-increasing number of people buying and using these phones in shopping malls, shops, queues, restaurants and whilst driving vehicles. In China, for example, some 20 per cent of the adult population has access to cell phones (Davison et al. 2000). The advent of the cell phone in China has led to the replacement of old land lines. As indicated in the introduction, this is also happening in South Africa where, in some rural areas, land lines do not exist.

To determine Communication Science students' use of cell phones, the questionnaire consisted of questions dealing with how many respondents used a cell phone, how often they used it, ownership and the needs being satisfied by the cell phone. The survey found that slightly more than 80 per cent of the students used cell phones and nearly three quarters (74.4%) used their cell phones daily. As regards ownership, the results indicated that more than three quarters (76.7%) of the students were the owners of cell phones, while 12.5 per cent used cell phones belonging to their parents. About the same percentage of respondents – 1.0 per cent and 10.5 per cent respectively – used their spouse's cell phone and/or the cell phone of a friend. Furthermore, the cell phone was used frequently – almost 75 per cent of the respondents used their cell phones daily. (See the summary and conclusion of this article for more recent research results regarding Unisa students' use of cell phones.)

The cell phone and needs gratification

The needs being satisfied by using a cell phone were identified by means of closed and open-ended questions. The closed questions provided two response options (Yes/No) to certain statements where the respondents had to fill in which use of the cell phone was the most important to them.

In terms of these results, it can be deduced that almost all the respondents used cell phones to converse with family members (98.3%) and friends (96.7%) and for emergency purposes (96.7%). Approximately half of the respondents used the cell phone to contact Unisa lecturers (50.1%) and Unisa administration (49.0%).

Research findings regarding uses and gratification studies of the household telephone (Dimmick, Sikand and Patterson 1994; O'Keefe and Sulanowski 1995), pager use

(Leung and Wei 1998) and the cell phone (Leung and Wei 2000), indicate that the most important needs gratification identified were sociability, instrumentality, relaxation, mobility and reassurance. These needs were also addressed in this study. For example, sociability included talking with friends and family, while instrumentality consisted of using a cell phone to contact Unisa administration departments. Reassurance and safety needs were determined by the statement 'I use a cell phone for dealing with emergencies.'

According to the results of the open-ended question, where students had to select the most important needs fulfilled by the cell phone, the majority said that they used their phones for emergencies (reassurance). This was followed by conversations with family members (24.5%), making business arrangements (15.4%), conversations with friends (13.3%), while contact with Unisa lecturers was limited to an insignificant 5.1 per cent and an even lower 1.7 per cent for contact with Unisa administration departments.

The importance of emergency needs (reassurance) to the respondents may, perhaps, be attributed to the high rate of crime in South Africa, or to use of the cell phone during crisis situations such as accidents, death, or any other personal crisis. The findings about reassurance for Unisa students differ from those reported by Leung and Wei (2000, 313) who found in their study that instrumentality, as reflected in the use of the cell phone for emergency, was the least important of the clusters of needs gratification. The most important needs were those related to the use of the cell phone as a status symbol and because it is fashionable.

Computer use: venues and computer facilities

Computer use and venue

In order to determine their computer use patterns, Communication Science students were asked whether they had access to computers, where they used computers (venue), and what facilities were the most frequently used. The results are reflected in the tables below.

Table 1: Computer venues

Ranking	Venue	Percentage and *N*
1	Work	43.2 (N = 560)
2	Home	35.2 (N = 451)
3	Unisa library	8.9 (N = 116)
4	Friend's home	3.6 (N = 48)
5	Family member's home	2.5 (N = 32)
6	Internet café	1.9 (N = 25)
7	Science laboratory at Unisa	1.7 (N = 22)
8	Private colleges	1.5 (N = 20)
9	Satellite campuses	1.0 (N =13)
10	Telecentres	0.5 (N = 7)
Missing frequencies = 84		

The results indicate that nearly six out of ten respondents used computers. As regards the venues (Table 1), the workplace is without doubt the venue where the majority of respondents (43.2%) accessed computers, with the home environment (35.2%) in second place. In total, more than 78 per cent of the respondents who used computers used these two venues most frequently. Third on the ranking scale was the Unisa library and, when the number (percentage) of students using this venue is combined with the number using Unisa satellite campuses, the Faculty of Science Laboratory (on the main campus at Unisa), the total indicates that about 12 per cent of the respondents used Unisa-related venues. The insignificance of telecentre use is discussed in the section dealing with Internet use.

In a subsequent study conducted in 2004 by Unisa Council's Multilingual Task Team (Finlayson 2004), it was found that 70.38 per cent of respondents indicated access to a computer. These results may give an indication of an increase in computer access over a four-year period – 2000 to 2005 (60% and 70% respectively).

Computer facilities

In the 2000 study, a total of the 1 297 respondents who used computers replied to the open-ended question where they had to write down the computer facility they used most often (see Table 1). By far the most frequently used facility was word processing: nearly two thirds (65.5%) of the respondents indicated that they utilised this facility most often. Far behind, in second place, was data base (9.1%), followed by computer games (7.2%), (CD ROM) (4.8%), spreadsheets (4.8%) and e-mail (2%).

In terms of the uses and gratifications theory, the overwhelming preference for word processing may be interpreted as the use of this facility as a functional alternative to the traditional typewriter. The uses and gratifications theory also makes a distinction between the satisfying of instrumental and social functions/needs by the media. In terms of this study, it seems that the computer has instrumental value as far as scanning, spreadsheets, and data bases are concerned. However, at this stage it is difficult to make clear-cut deductions about whether word processing fulfils instrumental and/or social needs because it can be used to fulfil social needs such as communicating with friends and family members. At the same time though, it can also be used for instrumental purposes such as business arrangements.

It is interesting to note that at the time this study was conducted, the majority of assignments and portfolios received in the Department of Communication Science were still handwritten. In other words, students did not use word processing to present their work in typed form. The reason may be that students were not allowed to use computers at work for study purposes. Although they indicated the use of other venues such as the Unisa library and Unisa satellite campuses, students said they were only allowed to work on computers for a limited time and they had to book in advance. At other venues such as Internet cafes, they had to pay per hour which made it very expensive to type a portfolio consisting of 100 pages, especially when one considers that students are often not able to use word processing efficiently due to a lack of training.

Internet

The use of the Internet was determined by means of questions and statements dealing with access to the Internet, the venues where respondents used the Internet (Table 2), frequency of Internet use and Internet facilities (Tables 2 and 3), students' competency in the use of the Internet and Internet-related problems they might have experienced.

Table 2: Which Internet venue do you use most often?

Ranking	Venue	Percentage and *N*
1	Work	38.6 (N = 343)
2	Home	37.8 (N = 337)
3	Unisa library	9.8 (N = 87)
4	Internet café	5.2 (N = 46)
5	Friend's home	3.8 (N = 34)
6	Family member's home	1.8 (N = 16)
7	Satellite campuses	1.0 (N = 9)
8	Science laboratory	0.8 (N = 7)
9	Telecentres	0.6 (N = 5)
	Other	0.6 (N = 5)

Table 3: How often do you use the following Internet facilities?

Ranking	Service	Frequently (%)	Sometimes (%)	Never (%)
1	e-mail	66.0	23.4	10.6
2	Access to WWW	51.5	42.1	6.4
3	myUnisa	34.3	32.9	32.8
4	Unisa's home page	30.2	43.3	26.5
5	Information to supplement studies	22.9	44.8	32.3
6	Newspaper reading	21.2	33.4	33.4
7	Accessing on-line entertainment	15.3	45.1	39.6

Table 4: Least often used facilities

List of Internet facilities never used	
Network with other students	79.5
Listen to live radio broadcast	76.0
Access Oasis library catalogue	75.1
Watch live broadcast events	72.9
Access on-line banking	71.1
Interactive learning sites	69.7
On-line shopping	68.9
On-line training courses	68.6
Network with businesses	67.8
Participate with chat groups	66.8
Access department's web page	65.3
Listen to live music	63.7
On-line sport	62.7

Table 5: How often do you experience any of the following problems when using the Internet?

Response	Frequently (%)	Sometimes (%)	Never (%)
Slow speed	45.1	49.2	5.7
Difficult to find relevant info.	21.6	63.7	14.7
Content of websites difficult to understand	9.4	48	42.7
Broken lines	10.4	49.9	40.1
Websites often not available	19.9	61.9	18.3

Only 936 respondents (out of the total of 2 452 students) indicated that they had access to the Internet. This shows that only 38 per cent (936) of all the respondents who completed the questionnaire were connected to the Internet. This finding has serious implications for developing internet-related tasks in the Department of Communication Science. However, the situation is improving. In the study conducted by Unisa Council's Multilingual Task Team (Finlayson 2004), 54.4 per cent of students were reported to have access to the Internet. This figure is 16 per cent higher than for this study conducted in 2000.

According to Table 2, the most popular venues for accessing the Internet were the workplace (38.6%) and the home (37.8%), then follows the Unisa library (9.8%), Internet cafés (5.2%) and the homes of family members (1.8%). Last on the list are telecentres: a mere five respondents (less than 1%) indicated visiting these venues to access the Internet. Given the importance placed on telecentres as a vehicle for the development of disadvantaged groups in South Africa, these findings came as a surprise. Various possible reasons for the under-utilisation of telecentres are discussed in the conclusion.

To determine the availability of Internet facilities and the extent to which respondents used these services, a list of 27 services/facilities was provided and the respondents had to indicate whether they used a service 'frequently, sometimes, never'. The results in Table 3 reveal that the single most used Internet service was e-mail: more than two thirds of the respondents reported using e-mail frequently. If the responses 'frequently' and 'sometimes' were to be combined, it could be deduced that more than 90 per cent of the respondents used e-mail at one or other time. However, it is difficult to make clear-cut deductions about whether e-mail fulfils instrumental and/or social needs because it can be used to fulfil social needs such as communicating with friends and family members. At the same time though, it can also be used for instrumental purposes such as the making of business arrangements.

Other popular Internet facilities are the World Wide Web (WWW), Unisa's Students-online service (SOL, now 'myUnisa'), Unisa's home page, information concerning supplemental studies, reading newspapers and accessing on-line entertainment.

In terms of the needs being gratified by the Internet, one can assume that e-mail and the WWW may satisfy social, instrumental and entertainment needs. It may also be inferred that the majority of the other services satisfy instrumental needs. For example, the students' online service (SOL/myUnisa) tends to provide respondents with information regarding student affairs (registering online for courses, information about examinations and assignment marks). The same arguments apply to accessing the Internet for information to supplement studies and also to reading newspapers for information. The Pew Research Center (1998) in the United States of America also found that nearly half of all Internet users use the Internet for issues relating to information (e.g., work, or details about current events). However, the Internet also satisfied needs to relax – almost 45 per cent of the respondents indicated that they sometimes accessed online entertainment, while 15.3 per cent did so frequently. As regards functional alternatives, it could be reasoned that e-mail replaces the use of land mail, telephones and faxes which are not only quite expensive, but are also often inaccessible – especially to those students living in remote villages. Information obtained from the WWW can be seen not as replacing, but rather as supplementing the use of libraries.

The results of the enquiry about least often used facilities came as a surprise: nearly eight out of ten respondents said that they never networked with other students (79.5%), while more than 75.1 per cent never used the oasis library catalogue (Table 4). Furthermore, nearly two thirds of the respondents had never bought products online (68.9%), participated in chat groups (66.8%), or visited the Department of Communication Science's web page (65.3%).

Among those who accessed the Internet, about 45 per cent did so daily, while one third (33.6%) went online weekly. In other words, more than seven out of ten respondents went online at least once a week. Regarding the respondents' competency at using the Internet, the majority rated themselves as competent users (57%), while 34 per cent indicated that they were beginners. A mere 9 per cent regarded themselves as experts.

Getting information on the Internet is not always easy. Most of the Communication Science respondents who accessed the Internet said that they sometimes (49.3%) or frequently (45.1%) experienced problems with slow speed. Furthermore, more than six out of ten students said that they sometimes experienced problems with finding relevant information, poor connections to websites and unavailability of websites. Half (50%) the respondents reported that they sometimes encountered broken lines (Table 5).

SUMMARY AND CONCLUSION

The results of this study provide information of an exploratory nature about the electronic usage patterns of the Communication Science students who completed the questionnaire in 2000. A total of 8 750 questionnaires was sent out and 2 452 students returned the questionnaire, which provides a response rate of 28 per cent. Approximately 80 per cent of these students indicated that they used cell phones, while 59 per cent and 38 per cent had access to computers and the Internet respectively. The particulars of students in the Department of Communication Science can be accessed via the

staff online (myUnisa) website. According to this data base, in March 2003, between 34 per cent and 39 per cent students indicated access to e-mails. If it is assumed that the use of e-mail presupposes access to the Internet, then the situation regarding Internet access (38%) had not changed over a three-year period (from 2000 to 2003). Although 38 per cent of Communication Science students (of whom the majority are from disadvantages communities) have access to the Internet, it does not reflect the situation in the country as a whole. In the introduction to this article it was mentioned that only 6 per cent of the total population in South Africa had access to the Internet in 2000. What these results indicate though, is that those students with access to the Internet probably form part of a young and well-educated population rather than the South African population at large.

One of the disadvantages of a postal questionnaire is the problem of a low response rate which may compromise the representativeness of the sample. Another problem associated with postal surveys stems from missing values (or frequencies) which arise when the respondents have not completed all the questions and statements.

The uses and gratifications theory was used as a framework for understanding and explaining some of the needs being satisfied by electronic media, for example, sociability included talking with friends and family, while instrumentality consisted of using a cell phone to contact lecturers and Unisa administration. Reassurance and safety needs were satisfied by the use of the cell phone to deal with emergencies. This theory also helps to explain changes in media usage patterns following the adoption of new communication media. In other words, the uses and gratifications theory gives a partial explanation of functional alternatives.

The study's findings are furthermore limited by its methods. This study is to a large extent, empirical and quantitative, therefore, the subjective experiences of the respondents and their cultural, economic and social circumstances were not studied in depth. Such a quantitative survey should be followed up with qualitative investigations such as focus group interviews and/or ethnographic research.

Clearly, it would be important to conduct this survey on a regular basis to enable the Department of Communication Science to establish how electronic media usage patterns change over time. For example, this study showed that in 2000 38 per cent of respondents had access to the Internet. The question is, what does the picture look like now, after five years? Only additional empirical studies will shed more light on this question. In terms of the diffusion of innovations, a longitudinal study (e.g., a panel design) should be conducted over a period of time, for example every two years, in order to monitor students' electronic media usage patterns, with the emphasis on Internet use. In order to understand the impact of adopting the Internet, it is necessary to understand and examine why users believe it is useful (Perse and Dunn 1998, 451).

The insignificant use of telecentres is cause for concern. However, it should be remembered that not all telecentres – especially those in rural areas – are equipped with computers and modems to access the Internet. Telecentres situated in urban areas (e.g., Mamelodi) and semi-urban areas are operating successfully. It seems as if telecentres in rural areas will only be viable if (and only if) they meet the needs of local communities (Benjamin 2000, 44–46).

The questionnaire used in this study was designed to gain understanding of how

Communication Science students used cell phones, electronic mail, computers and the Internet. The postal questionnaire, based on the results of this study, can be expanded and modified for use by other teaching departments at Unisa, and other tertiary institutions (e.g., universities, technikons and technical colleges) as well as schools with similar needs. This action would help to establish a more complete picture of computer and Internet literacy, and of student access to Web-based tuition. In order to obtain a higher response rate and to reduce missing frequencies, questionnaires could be included with registration forms and students could be requested to fill in the questionnaire after completing their registration forms.

This kind of research is a contribution towards helping to solve the range of problems facing education in South Africa. Access to technologies can play an important role in the delivery of educational resources such as course materials. As James (2001) indicates, technologies can effectively support education in interactive communication between educators and learners, administration and delivery of resources. The primary barrier to the deployment of ICTs, especially in remote areas, is the high cost of telecommunications. James (2001) suggests that urgent steps should be taken to develop a national policy that will help to speed up the introduction of full competition in the telecommunications sector, which could force prices down and improve the deployment of infrastructure in rural areas. There is a strong possibility that ICT research undertaken by tertiary institutions countrywide, especially in traditionally disadvantaged institutions, will reflect the dire need for the availability of and access to ICTs. Such results may convince policy makers to address these issues urgently.

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