THE COMMONWEALTH OF LEARNING

Identifying Barriers Encountered by Women in the Use of Information and Communications Technologies (ICTs) for Open and Distance Learning in the South Pacific

Sponsored by
The Commonwealth of Learning and
The New Zealand Official Development Assistance of the
Development Cooperation Division – Ministry of Foreign Affairs and Trade

May 7 - 11, 2001
Wellington, New Zealand

Country Presentations

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Organised by:	***The Commonwealth of Learning***
Local Host:	***The Open Polytechnic of New Zealand***
Supported by:	***The New Zealand Official Development Assistance of the Development Cooperation Division - Ministry of Foreign Affairs and Trade and The Commonwealth of Learning***

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Foreword

Education and training opportunities provided through distance and open learning are one of the few educational areas in which women in the developing world are well represented. Flexible delivery methods help to overcome some of the challenges that women and girls face when the only other opportunities for education are provided through conventional means. However, with the increased use of the new information and communications technologies (ICTs) to deliver open and distance learning, it is feared that this trend may be reversed and that women may become marginalised in opportunities for open and distance learning due to issues related to access and ability to use the new technologies.

Further, the influx of the new technologies may have an impact on the staff employed to work in distance teaching environments. If women are disadvantaged in accessing and using the new technologies, they may be limited in the types of positions for which they are employed. In order to further explore these concerns, The Commonwealth of Learning (COL) contracted with a consultant to carry out an environmental scan on the research and information available on issues pertaining to women and their access to information and communications technologies, with particular regard to open and distance learning. The consultant found little research in this area, although some sources acknowledged that women might face barriers when accessing information and communications technologies, especially in parts of the developing world.

In view of this, The Commonwealth of Learning took the initiative to support regional symposia through which information and research data would be provided which would assist institutions when delivering education and training through distance modes, organisations and agencies concerned with women's access to information and communications technologies, government agencies, and others working in the field, in order to help ensure equal access regardless of the gender of the potential users.

Preface

In May 2001, The Commonwealth of Learning organised a symposium of persons from the South Pacific involved in women's issues, open and distance learning, the use of information and communications technologies, or a combination of the three. The symposium, which was supported by the New Zealand Official Development Assistance (NZODA) of the Development Cooperation Division, Ministry of Foreign Affairs and Trade (MFAT) and hosted locally by The Open Polytechnic New Zealand, focused on the identification of barriers to the use of information and communications technologies in open and distance learning encountered by women. Participants from the Commonwealth countries in the South Pacific, in addition to staff from selected educational institutions in the South Pacific, Australia and New Zealand, were invited to attend and a representative from each country presented a paper for discussion.

The country reports identified the extent of open and distance learning provision, the barriers to women's participation, possible strategies that could be employed to overcome the barriers and the perceived influence and affect of communications policies on women's participation in the use of information and communications technologies. It was anticipated that the meeting would provide a valuable forum for consultation and interaction among educators involved in open and distance learning in the region, as well as provide opportunities for strategies and recommendations to be put forward, and potential projects to be developed for implementation.

Acknowledgements

The Commonwealth of Learning is grateful for the assistance and support provided by the organisations and individuals who contributed to the success of this meeting. Specifically, COL would like to acknowledge:

- The New Zealand Official Development Assistance (NZODA) of the Development Cooperation Division, Ministry of Foreign Affairs and Trade (MFAT) for providing the funds to support the convening of the symposium.

- The Chief Executive Officer and staff at The Open Polytechnic New Zealand for the support provided in the lead-up to and during the symposium.

- The meeting participants, who gave their time to attend and provide insightful and interesting contributions to the proceedings.

- Ms. Ann Devoy of Whitireia Polytechnic New Zealand, who assisted in facilitation and summarised the meeting's proceedings and country papers for the final report; and Ms. Heather Thompson, of Whitireia Polytechnic, who facilitated the meeting.

- Ms. Nidhi Tandon, the consultant who completed the environmental scan.

The Open Polytechnic of New Zealand is a specialist provider of open and distance learning at the tertiary level. The institution aims to provide flexible, customised products and services to a diverse range of students and commercial clients, both in New Zealand and overseas. It currently offers programmes and courses, ranging from technical and vocational training to higher professional and continuing education. (Web site: www.topnz.ac.nz)

Whitireia Community Polytechnic, based in Porirua City is a New Zealand provider of applied vocational education and training. It is a multicultural institution, working with Pacific communities both within New Zealand and in the Pacific region. It is moving increasingly into flexible mixed mode delivery, and has for several years been using the Internet for the delivery of distance programmes. (Web site: www.whitireia.ac.nz)

The Pacific is the area of New Zealand's ODA emphasis; history, geography and immigration have given New Zealand close links with the region. The key objective of all Pacific Island Countries, as well as New Zealand, is that of a better quality of life for those who live in the region. That means safety and security, a preservation of personal and societal identity, and appropriate economic development to achieve freedom from hunger, adequate shelter, education and the opportunity to develop the human potential of all, including the marginalised. NZODA works through partnerships with NGOs, institutions, local agencies, and so on, to achieve these freedoms for the peoples of the Pacific region, through economic and social development programmes and initiatives. (Web site: www.mfat.govt.nz)

The Commonwealth of Learning is an intergovernmental organisation established by Commonwealth governments in September 1988, following the Heads of Government Meeting held in Vancouver in 1987. It encourages the development and sharing of open learning and distance education knowledge, resources and technologies. COL is headquartered in Vancouver and is the only Commonwealth intergovernmental organisation located outside of Britain.
(Web site: www.col.org)

Crossing Borders:
Women and Information and Communications Technologies in Open and Distance Learning in the South Pacific

Esther Batiri Williams

Summary

The purpose of this paper is to identify and analyse the barriers to the use by women of information and communication technologies for open and distance learning in the South Pacific region, and to examine possible ways and means of overcoming them. Specifically, the paper attempts to focus on four key areas: the impact of these new technologies on distance learning, taking a gendered approach; women's access to information and communication technologies for education purposes; the need for training and capacity building; and the need to include women in any public policy on information and communication technologies and open and distance learning. The overall aim is to critically assess the position of women of the South Pacific within the world of information and communication technologies, and their use of these technologies to advance their own education and learning. Based on a questionnaire and personal interviews, the paper reports on some specific and general findings and categorises barriers into three groups: those experienced by students, those experienced by academic staff, and those that can be considered administrative and caused by infrastructure weaknesses.

From the findings of the study conducted, the paper concludes that there is no one single mode of delivering open and distance learning that proves to be popular with the students. What seemed clear was that students preferred face-to-face full-time study. Some of the reasons given included the view that students learned more and it was enjoyable meeting with fellow students and lecturers. A culture of exchange and learning was necessary. In addition, there was a rush to complete a programme of studies, and the distance mode "took forever." A degree was seen as a "passport" to greener pastures abroad and the economic, political and unstable situation in the region only made the need to move more urgent for many students. A few had enrolled in online courses with external providers, thinking that this would help them. But faced with difficulties of work, family, scarcity of time and poor technology access, a more mixed mode of learning was desirable. This mixed mode includes face-to-face teaching, online and distance with a fair degree of openness. It is not difficult to expect that this will be the way forward, as it was clear that information and communication technologies, where accessible and available, made positive impacts on the welfare of women and the community at large. They also impacted on the education of women in a real and positive way. Where such technologies were not readily available, other appropriate technology, appropriately used, together with the traditional communication mode, could provide a workable alternative.

CONTENTS OF CROSSING BORDERS: WOMEN AND INFORMATION AND COMMUNICATIONS TECHNOLOGIES IN OPEN AND DISTANCE LEARNING IN THE SOUTH PACIFIC

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Introduction

The Pacific is a very large geographical region with many small islands scattered over 30 million square kilometres of ocean. The total population of this region is about 6 million people and of this, over 4 million people reside in one country, Papua New Guinea. Women make up about half the total population of the region, yet they control, hold and determine far less than 50% of the total assets and economies of the countries. The range of literacy and education of women is also great. Even within one country, and within one locality, the difference in the skills of the people in information and communications technologies and the ability to access the technologies—particularly computers—is extensive. Therefore, when we talk about information and communications technologies, women, and open and distance learning in the region, we are addressing and discussing issues that may impact all women: those who have access and those who do not.

The objective of this paper is to address the problems that women encounter in using information and communications technologies, and, more importantly, to find the ways and means that barriers to access faced by many women in using these technologies can be overcome.

Definitions

For the purpose of this paper, *information and communications technology* includes various forms of technology, mainly electronic, used in collecting, storing, processing and transmitting information in the form of voice, data or image. Despite some differences in defining these technologies, there is general agreement that they provide a means for transmission (such as telephone lines, cable and optical fibres, satellites) and a media (telephone, radio, video, facsimile, CD-ROM, Internet, television, audio, DVD). Open and distance learning has rapidly moved into using a combination of print, audio and video. New information and communications technologies function inter-dependently and are converging.

Other definitions must also be made clear, such as the meaning of *distance, open and flexible learning.* There are various definitions of these terms, but for the purpose of this paper distance learning refers to a method of studying in which lectures are broadcast or conducted and communicated through letter, e-mail, telephone, computers, television or other forms of media. The student is separated from the lecturer geographically and does not attend face-to-face classes in a classroom. According to Race (1998), the term is "usually applied to open learning which takes place at a distance from the provider of the learning materials." *Open and flexible learning* is learning based on independent study or initiative rather than formal classroom practice. This is normally taken to mean the provision for learners where they have some control regarding how they learn, where they learn, when they learn and the pace at which they learn (Race, 1998). In some cases, it also means that learners have some control of and input in what they learn and how their learning will be assessed (Race, 1998: 7–8). *Online learning* is learning using the Internet and it can be open as well and flexible. *Flexible learning* is a term that includes the different types of learning involved in open and distance learning, but in addition it relates to other learning pathways available in the traditional university, college or school. Here learners have control of the time, pace, place and how they learn particular parts of a course. This requires greater management on the part of the institution.

But how flexible is flexible learning? This is a question and a concern that has been raised by students in this study. They prefer greater flexibility it seems, and a mixed mode in their learning pathways. This will be discussed later.

Regarding regional coverage, this paper will focus on the largest provider of open and distance learning courses in the region, the University of the South Pacific. It offers courses from preliminary and foundation to degree level. In 2000, a total of 250 courses were offered by distance, with a total of 4,204 enrolments (see Table 4). Forty-eight per cent of the total external enrolment comprised women.

Preliminary and foundation courses are offered entirely by the distance mode and are important university programmes. While they supplement national institutions' responsibility for Form 6 and 7 education, the distance mode option has enabled many women to complete their secondary education. In 2000, fifteen preliminary courses were being offered and twenty-one foundation courses.

The university continues to offer courses through distance learning using print, supplementing this with multimedia, satellite tutorials and discussions on its own USPNet. It can be accessed through the university's Web site http://www.usp.ac.fj. Also in the past three years, a few departments have put their courses online. The School of Law is a good example. It offers courses through a combination of face-to-face teaching, distance and online delivery modes.

In the past five years, a host of overseas institutions have opened units in the Pacific for the purpose of providing an education in the region. While many of these are small and offer largely a mixture of face-to-face and online courses, they nevertheless attract students and are providing services that are no doubt needed. A provisional list of institutions operating in the Pacific appears as Appendix 1. Apart from these, it is a known fact that there are students who are currently taking online courses offered on the Internet, but no data is available. There is competition in education in the region. Students are now demanding more professional courses and better services and are surfing the Internet more frequently. Many also believe that a degree from an institution outside the region is better than one from the University of the South Pacific or a national institution. This is the reality. A view of enrolment numbers at the university over the past five years shows a slight decline in external enrolments. There are a number of reasons for this, but definitely the competition that has entered the education market has had an impact.

These overseas institutions provide many women with another option to access a programme of their choice. It is not cheap and the medium has its own problems, but indications show that online courses will grow in popularity largely because of their flexibility and user friendly and personal characteristics.

Methodology

Trying to decide on the best method to adopt for this study was not easy, as the South Pacific is a huge region. For the purpose of this paper, the South Pacific is taken to include the twenty-two island countries that are part of the Pacific community. Because of time limitation (two months), I decided to cover only the University of the South Pacific region, which includes twelve countries.

I first undertook a literature search and was assisted by a student of the university, Maciu Rika. I found that a number of studies[1] on information and communications technologies and open and

[1] Some of these include A. Gillis et al. (2000), "The Learning Needs and Experiences of Women Using Print-Based and CD-ROM Technology in Nursing Distance Education." *Journal of Distance Education* 15(1):1–20; G. Shrestha (1997), "Distance Education in Developing Countries," available at http://www.undp.org/info21/text/public/distance/pb-dis.html ; *Information Technology in Developing Countries*, (1998), a newsletter of IFIP Working Group 9.4 and Commonwealth Network for Information

distance learning had been undertaken for the African, Caribbean, Asian and Latin American countries, but these did not focus on women as such. Nevertheless, these gave me an insight into the most current status of these technologies for open and distance education for these regions of the world, into the many barriers that existed. For the South Pacific, there were a couple of studies done on women and distance education and one in particular, *South Pacific Women in Distance Education: Studies from Countries of the University of the South Pacific* (Bolabola and Wah [editors], 1995), proved very useful. While it did cover barriers faced by women in distance education, including some aspects of communication technology, the study was published in 1995 and included figures for 1990. The important forms of communications such as computers, the Internet, CD-ROM technology and online learning which are now impacting our education systems in many ways were not covered. However, the findings are still very relevant and I will be referring to this document in this paper from time to time.

Another publication that provides useful reference for this paper is *Appropriate Telecommunication and Learning Technology for Distance Education in the South Pacific* by Ruby Vaa (2000). This study focused on telecommunications technology as a means of enhancing distance education. It provides up-to-date technical information and useful reference sources and Web sites.

For this particular study, it was necessary to obtain the most recent information from female students and staff regarding their use of information and communications technologies for open and distance learning. I prepared a questionnaire and sent this out by post as well as electronically. The questionnaire is attached as Appendix 2. I had hoped that students would respond to the questionnaire on the network. This did not prove to be the case. At the time of writing this paper I had received 102 responses. I have based my findings on this number and will continue to accept questionnaires till about October 2001 and then update the findings reported in this paper. Vocational training programmes were not included.

I sent out 110 questionnaires to students: ten each to eleven centres. The response by February was low, 37%. Since then I have received another twenty-one from Tonga, the Marshall Islands and Samoa. For Fiji, I put out a notice calling for interested students and sent out more than fifty forms. At the end of February I received sixty-seven completed questionnaires from Fiji. I have collected an additional ten since then. In addition, I was able to interview a number of students and staff. Because of the holiday period, it was not possible to get a good response.

The poorest response was from staff. I had mailed the questionnaire to twenty staff members—all women—but received only nine responses. I also sent it electronically to five staff members and only one responded.

I also drew on my experiences and background working with information and communications technologies for information and teaching when preparing this paper.

Profiles of Respondents

Tables 1 to 3 provide some characteristics of the 102 respondents. This is the number that responded up to the first week of March. While the numbers are low compared to the total number of external enrolments at the University of the South Pacific, it is sufficient to make some general comments on the findings.

Technology, 8 (2); and Simpson et al. (2000), *Taking Social Infrastructure into Account: Lessons from a Collaborative Australian Project Involving Rural Women and Communication Technologies.*

Table 1 provides the age group of the respondents. It is interesting to note the high percentage of students in the age group, eighteen to twenty-five, who are studying by extension. This reflects the enrolments for 2000 at the University of the South Pacific where the highest enrolments are students between the ages of nineteen and twenty-six. Students twenty-one and twenty-two years of age made up the highest number of students in this age group enrolled in distance education courses.

Table 1. Profile of respondents by age group

Country	18–25 Years	26–32 Years	33–40 Years	41–48 Years	49–55 Years	56+ Years
Cook Islands	1		1	1		
Fiji Islands	18	4	23	10	12	
Kiribati	4			1		
Marshall Islands	2	1				
Nauru	0					
Niue	0					
Samoa	2	2	3	2		
Solomon Islands	3		1			
Tokelau	0					
Tonga	2		1	2		
Tuvalu	1		1			
Vanuatu	1	1		2		
Total	34	8	30	18	12	0

Table 2. Occupation of respondents

Occupation	Number
Student	30
Teacher	20
Information/librarian	26
Computer/technician	5
University lecturer	9
Other	6

Of those completing questionnaires, 18% were not working. All others were working and studying. I had the opportunity to interview twelve students more closely and obtained some qualitative information. Eight students were enrolled with other institutions other than the University of the South Pacific.

Also useful was the information obtained on the level of programmes of the respondents. Many of the students were undertaking degree courses and were self-financed.

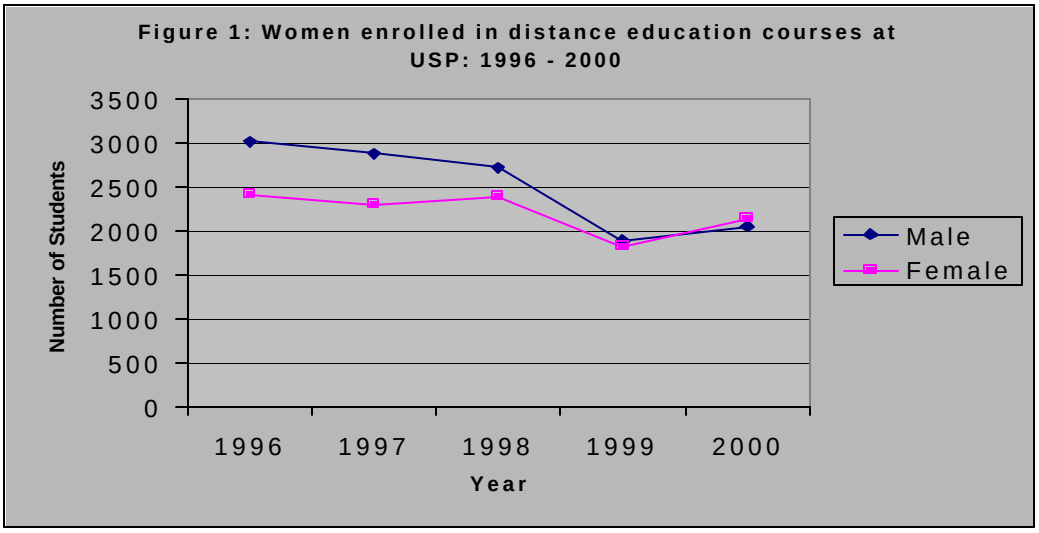
Table 3. Respondents by level of programme enrolled in

Programme	Number
Preliminary	5
Foundation	11
Certificate	18
Diploma	35
Degree	27
Other	6

About 60% of the responses were from students undertaking courses that required the use of technology: information systems, mathematics, computing studies, information/librarianship studies, accounting, and management. The other 40% were enrolled in humanities courses: English and education.

Current Status of Women in Education in the South Pacific Region

The opportunities for distance and open learning in the South Pacific have largely been offered by the University of the South Pacific. The university was the first institution in the region to offer distance education in 1972 in an organised and formal manner. From six courses and 150 students, it has grown to such a big operation where, in 2000, there were 250 courses with over 14,000 individual enrolments, representing about 46% of total enrolments of students at the University of the South Pacific. Of the total enrolments, 48% are women, compared to the 43% of women students studying by distance in 1988.[2] In the past three years, the number of women undertaking studies at a higher level has grown steadily. See Table 4 and Figure 1.



In the qualitative interviews, I was informed that quite a number of women (friends of the women interviewed) were studying and enrolled in other universities abroad. Unfortunately, this data is difficult to obtain. Furthermore, the interviewees added that these students seemed to be required to do much, much more and were visited on a more regular basis for tutorials. In other cases there were local tutors.

[2] Year that gendered statistics were available.

Table 4. Student enrolments in distance education courses at the University of the South Pacific by gender, 1996–2000

Country	'96		'97		'98		'99		'00	
	M	F	M	F	M	F	M	F	M	F
Cook Islands	68	68	45	32	53	43	28	30	29	45
Fiji Islands	1,673	1,388	1,533	1,402	1,461	1,447	1,338	1,351	1,379	1,481
Kiribati	220	230	118	149	180	202	89	82	119	115
Marshall Islands	14	3	15	10	15	4	17	9	25	47
Nauru	16	30	28	38	18	27	10	25	11	27
Niue	5	10	7	25	17	31	-	-	8	26
Samoa	117	200	149	151	58	115	60	96	76	109
Solomon Islands	379	109	427	108	365	88	149	46	123	40
Tokelau	14	18	-	-	-	1	-	-	-	1
Tonga	213	192	198	224	211	210	88	88	130	132
Tuvalu	51	42	37	38	54	58	31	32	32	33
Vanuatu	231	102	309	115	277	151	75	58	123	76
Others	20	21	21	15	13	18	10	17	12	14
TOTAL	3,021	2,413	2,887	2,307	2,722	2,395	1,895	1,834	2,059	2,145

Source: The University of the South Pacific. *USP Statistics 1996–2000.* Suva, Fiji

There is a general awareness among women of the need to be educated. While there has been a concerted effort by many women's organisations and non-government organisations to focus on women and education, the number of women that remain illiterate as well as the number of girls in schools remain lower than the men in the majority of the countries. Table 5 gives some basic facts about women in the region and how well they have moved towards improving their education and skills.

Table 5. Women in the South Pacific: Some basic facts—2000

Country	Pop. of Males	Pop. of Females	Total Pop. (,000)	GDP Per Capita	Literacy Rate (%) Among Males	Literacy Rate (%) Among Females	%. Girls in Sec. Schools	% [a] Women in Tertiary Institutions
Cook Islands	9,787	9,913	19,700	6,995	99	94	59	
Fiji Islands	383,931	381,146	775,077	1,695	95	91	51	25.0
Kiribati	38,478	39,180	80,800	845	80	60	54	
Marshall Islands	22,181	21,199	61,200	1,661	80	79		
Nauru	5,079	4,840	11,500	na	90	85	53	
Niue	1,053	1,035	2,000	na	100	95	49	
Samoa	84,601	76,697	175,000	1,093	99	93	50	21.0
Solomon Islands	147,972	137,204	417,000	845	60	61	38	0.80
Tokelau			1,700				47	
Tonga	49,615	48,165	98,400	1,788	100	98	48	24.0
Tuvalu	4,376	4,667	11,100	1,320	89	60	52	
Vanuatu	73,674	69,270	182,000	1,420	64	65	43	0.91

[a] It has been difficult to get statistics on this. But it would be safe to assume that it is much lower than the males.

Source: *1999 UNESCO Statistical Yearbook*, Paris: UNESCO Publishing; and *Statistical Yearbook for Asia and the Pacific* (2000), ESCAP, Bangkok.

From the above, a profile of the average female student studying by the distance mode can be drawn up as follows. She is between twenty and forty-four years of age; is married with children; has had six years of secondary education; is working; is from the urban area; has low use of information and communications technologies; has a high preference for the use of these technologies; has limited time; knows the value of an education; and wishes to have a degree soon.

Unfortunately, statistics are not available by gender on the completion rates of study at the University of the South Pacific. However, statistics of completion by all students in the different programmes over the past ten years show a general improvement (see Table 6).

Table 6. Completion of programmes at the University of the South Pacific

Prog.	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Certificate	140	112	117	94	106	151	107	87	124	114
Diploma	27	107	98	100	139	167	156	114	126	154
Degree	289	317	363	390	454	527	546	673	793	909
Post-grad Certificate	-	-	-	-	-	3	1	-	4	7
Post-graduate Diploma	20	21	21	42	34	69	39	52	138	154
Master's	7	4	3	8	7	18	33	49	38	62
Ph.D.	-	1	1	2	-	1	-	3	1	1
Total Awards	548	562	603	636	740	936	882	978	1,224	1,401

Current Status of Information and Communications Technologies in the South Pacific Region

In 1997, the worldwide market for information and communications technologies was US$1.8 trillion, about 6% of the world GDP, 40% greater than in 1992.[3] In addition, the number of Internet users and personal computers has been growing rapidly. In November 2000, the estimated number of Internet users worldwide, according to Nua Surveys, was 407.1 million compared to 120 million in 1997.[4] The Internet has also penetrated the South Pacific region and Table 7 gives some indication of this. The number of personal computers relative to population has also seen a great increase.[5] Many countries in the regions of the world are investing heavily in information and communications technologies and telecommunications, as these are seen as viable and good investment areas.

[3] World Information Technology and Services Alliance/International Data Corporation (1998), *Digital Planet: The Global Information Economy*, Volume 1 (October 1998), p. 1.

[4] ESCAP (1999), *Asia and the Pacific into the Twenty-first Century: Information Technology, Globalisation, Economic Security and Development*, pp. 141–146.

[5] Ibid.

Table 7. Number of people on Internet in the South Pacific[6]

Country	Date	Number	%Population
Australia (for comparison)	November 2000	8.42 million	43.94
Cook Islands			
Fiji Islands	July 2000	7,500	0.90
Kiribati	July 2000	1,000	1.09
Marshall Islands	July 2000	500	0.73
Nauru			
New Zealand (for comparison)	November 2000	1.49 million	39.03
Niue			
Samoa	July 2000	500	0.28
Solomon Islands	July 2000	3,000	0.64
Tokelau			
Tonga	July 2000	1,000	0.98
Tuvalu			
Vanuatu	July 2000	3,000	1.58

While use of information and communications technologies has grown exponentially, many countries in the developing world do not have access to computers and the Internet. Many do not have electricity. So, while developments in these new technologies have moved ahead, many developing countries are still lagging behind technically and in terms of human resources and skills. This "digital divide"[7] has had some negative as well as positive impacts on developing countries. With the rapid development in Internet technology, some are arguing that the Internet will bridge this divide. Despite this hope, it would seem that any bridging will have to be addressed by governments who should use their political will to support and provide the people with easy access to information and communications technologies and cheaper computers. But to get some action, small island nations and other developing countries would have to lobby for the improvement of the capacity of their workforces, improvement of Internet access, reduction in telecommunication costs, greater equity in the distribution and use of information and communications technologies, particularly targeting the women, and the harnessing of the Internet not only as a tool but also as a resource in its own right.

For the South Pacific region, while some of the new technologies are penetrating the region and being adopted for use for various purposes, many sections of the community—women, the rural populations and the urban poor in particular—do not and cannot have access to computers and other forms of information and communications technologies because they do not have electricity. In some areas, there are no phone lines. In others, there are no roads. In these situations, the development priorities would seem to be in developing the basic necessities of life. Information and communications technologies and their use become a low priority in this competition.

[6] Obtained from Nua Internet Surveys (http://www.nua.net/surveys/how_many_online/asia.html). Includes only countries for which figures can be obtained.
There are no separate statistical tables for women on the Internet.

[7] "Digital divide" refers to the gap between those without access to information and communications technologies, such as the technologies used to access the Internet and engage in e-commerce. The digital divide could also be said to exist between different countries because of the ability of individuals to take advantage of the Internet. After Paltridge (March 2000), *Local Access Pricing and the International Digital Divide,* available at: http://www.isoc.org/oti/articles/1000/paltridge.html

As for the University of the South Pacific, some non-governmen nt organisations, and other institutions, the use of information and communications technologies is being promoted and some plans put in place to ensure that people are made aware of these new technologies so as to be able to use them more efficiently.

The university has a wholly owned telecommunications system operating at a speed of 256 kbps and capable of voice, data and video transmission. This system is being used by students and staff to deliver distance education courses. In the Pacific, there are a number of telecommunication systems being used for different purposes. For example, USPNet is used for education, and so too is the PEACESAT satellite network. INTELSAT links countries for telephony and television services. IMMARSAT and Asiasat satellite footprints cover New Zealand, Australia and Papua New Guinea.[8]

What this brief account suggests is that the South Pacific region is well served with technology. The technology is available for open and distance learning. The issue is to ensure that information and communications technologies are available in the region and can be accessed by women for education and development. This would also mean that to make more effective use of the technologies, students must be computer literate and have skills in using them. In the study, it was found that many students and staff used the computer mainly for word processing, including e-mail (see Table 8). Many taught themselves how to use the computer, with some attendance at training activities in information and computer skills. These were, however, not sufficient. A number of respondents were not competent users of information and communications technologies although many had used and are using the Internet regularly. To overcome this problem, it will be necessary to have training sessions specifically for women.

Table 8. Current information technology skills based on findings[a]

Country	Excellen t Skills	Good Skills	Skills Enough to Teach	Some Skills	No Skills
Use of computers	11	40	5	20	6
Teleconferencing facilities			4	4	11
Word processing	40	30	3	10	4
Technical expertise				5	74
Other technical skills					95
HTML					90
Programming languages		2			85
Internet	12	31	4	21	10

[a] Not all respondents completed this section and some completed parts only.

[8] For more information, consult Vaa (2000), *Appropriate Telecommunication and Learning Technology for Distance Education in the South Pacific,* Report of a Project funded by the NZODA, pp. 57–70.

Barriers: Women, Information and Communications Technologies, and Open, Distant and Flexible Learning

In an earlier study[9] of South Pacific women in distance education, a wide range of issues was covered. The findings concentrated on social, cultural, economic and personal factors affecting the education of women through this mode. The study found that many of the women were more concerned with the perception others had of them and not so much with the fear of failing or the amount of work. Some of the findings:

- The majority of women were aware of the University of the South Pacific and the University Extension Centre.
- Women learn about extension studies at the workplace.
- Many women were not influenced by family to enrol; none of their relatives had enrolled at the university.
- Family commitments were the major reason for not enrolling in extension studies.
- Other reasons: lack of confidence in managing university studies, difficult and unfriendly enrolment procedures, no access to useful information, centre was too far from home.
- Some women felt they were too old or needed their spouse's permission to study; some were not certain about their ability in English.
- Other comments:
    - Poor postal service
    - Lack of interesting courses
    - Difficult administration
    - Lack of access—to information, to services, to facilities and technology
    - Fees not affordable
    - Courses not suited to career
    - Enrolled to obtain a qualification

While the study covered aspects of technology, this was limited to telephone, radio, audio-tapes and use of the University of the South Pacific's satellite system.

Barriers to the Use of Information and Communications Technologies by Women for Open and Distance Learning

As noted above, open and distance learning provides an excellent opportunity for many people, old and young, to access an education. In the region, it is a particularly effective way to reach adult women learners both in urban and rural areas, and both those employed and unemployed. With the great developments taking place in new information and communication technologies, the medium for open and distance learning has changed from print to real-time courses online.

No doubt, the use of information and communication technologies for open and distance learning opens up many more possibilities and greater flexibility to learning and to upgrading or upskilling women, particularly those who continue to face the competing priorities of family, home, cultural obligations, time, school and work. But as this study will show, while new information and communication technologies have emerged and are being used to improve the delivery of education programmes, women face additional barriers to open and distance learning and to the use of the technologies for learning. In fact, these barriers are so significant that a high percentage of respondents stated a preference for a mixed mode of delivery of

[9] Bolabola and Wah (editors; 1995), *South Pacific Women in Distance Education: Studies from Countries of the University of the South Pacific*, Suva: University of the South Pacific and The Commonwealth of Learning.

distance, online and face-to-face teaching than for any one mode. Ultimately, what counts is the flexibility in the delivery systems and openness in the curricular design to allow a student to study whenever suitable, wherever convenient, whatever is relevant and interesting, and however assessment is to be done. Ultimately, too, important considerations for the student, are the efficiency and quality of the service and the ease in accessing an education and other students in the same course.

As the profile tables show, the students now enrolling in courses are very diverse, and the range of needs, skills, experiences and demands reflect this diversity. While many still rely on printed materials for their education, an equally high number prefer and demand to use the new technologies for their education. Distance education is the only option for many women to access an education, and knowing the problems they face with information and communications technologies and overcoming these problems will be crucial to: (a) empowering more women to study, learn and obtain a qualification; (b) ensuring the implementation of more distance education programmes focusing on women and women's interests; (c) ensuring the successful implementation of distance education programmes in the future; (d) ensuring the inclusion of women's needs, particularly training, in national policies related to information and communications technologies; and (e) importing and exporting new courses from abroad to be taught through open and distance learning.

The barriers to the use of information and communications technologies by women for open and distance learning are many. These are focused on the one major provider of distance education in the region, the University of the South Pacific. For the sake of clarity, I have grouped these barriers into three categories: those encountered by students; those encountered by staff; and those faced by academic support services and administration. In order for women to take greater advantage of the use of information and communications technologies for open and distance learning, these barriers to women's use of technologies must be addressed. For the purpose of this report, the impacts are included and considered with the relevant barrier.

Student Barriers to the Use of Information and Communications Technologies for Open and Distance Learning

The findings showed that almost 90% of students would prefer to use new technologies, particularly computers and multimedia for their studies instead of studying through the traditional method of using set packs and course books. They also responded positively to the use of satellite tutorials, discussion groups, use of e-mail, and telephones. This dispelled the view that women might feel uncomfortable using new technology. This was far from the truth. The major barrier according to the study is access. While these technologies are widespread in the region, the study showed that about 85% of the respondents indicated that they could not have access to computers as and when they needed them, and close to 98% do not have access to computers at home. A high 75% of students studying through the University of the South Pacific indicated that it was just too difficult accessing computers, particularly at the centres in the region, and taking part in tutorials was physically inconvenient for them. Transport costs to a centre can be high and many students do not have spare cash.

Apart from the inconvenience and high cost of transportation, access is also made difficult by other factors. For instance, about 50% of the students noted the strict control policy adopted by some centres on the use of computers, and at other times, there is no one to help. "Sometimes you get to the centre and it is closed. No one works after hours it seems. Other times when you make the effort to get to the centre, the staff are using the computers to do their work." The limited number of functioning computers in the centres created access problems also. "But to me, the most critical factor about access is largely caused by policy, inefficiencies and a lack of

commitment. You would not believe that this outpost is part of USP. Why can't it be just as good as Laucala where computers can be accessed day and night?"

A high 78% have access to Internet, but largely through their workplaces and not from home. A similarly high number did not have e-mail addresses, which was surprising. Those students that had e-mail addresses obtained these through their workplaces. Of those students taking courses online, only 5%, had Internet access and e-mail addresses at home and the remainder would gain access from work, relations and friends. However, other access problems emerged. As one student indicated, there is "no problem in enrolling but access is a problem. Last year I enrolled for an online course but had too much difficulty in accessing information via the links outlined in the course. Taking part in weekly online discussions proved futile. There just wasn't enough time to keep up. Downloading one week's tutorial material usually took more than two weeks due to some links being timed out, slow connection time, etc."

The high price of computers and information and communications technologies in general relative to the available resources of institutions involved in delivering open and distance learning courses is a barrier and means that many of these institutions remain critically underdeveloped in terms of the new technologies and networking. In the region, the cost of equipment is still very high despite the suggestion that costs will come down with greater supply, use and availability of "cheap" computers. For instance, the cost of a computer in Tokelau would be close to the annual salary of a female clerk working for the government. The cost of a good laptop in Fiji would be three times more than what you would pay in Thailand, the United States or Australia. Many local suppliers over-price their goods and it becomes very frustrating dealing with them. Indeed, it is time consuming just trying to purchase a computer, as many institutions are required to get three quotes on an item prior to purchase. So the time from order to delivery can be a long wait.

In addition to equipment, the cost of communications (telephone charges for instance) is high in all the Pacific countries. Internet costs are also much higher than they would be in Australia. Some information on telecommunications costs for the region is given in Appendix 3. For the Pacific, the lack of competition in this area allows telecommunications companies to dictate the price. Assistance with the purchase of low cost computers and communications subsidies are possible ways to deal with this barrier.

Associated with access and equipment is the low level of expertise available to take care of maintenance. Often, simple things are required to be fixed but cannot. A common sight when visiting offices in the Pacific is a heap of old computers on the floor in a corner or on tables.

A barrier raised by 80% of the students is the clear lack of computer literacy and training programmes. The University of the South Pacific has pushed for the use of the USPNet and in some areas new information and communications technologies for distance and on-campus teaching and learning. While this has been welcomed, many students were not provided with any computer and information technology literacy programmes to guide and assist them with their use of the technologies for learning. Instead, many were introduced to these new technologies without training. This has far-reaching impacts. For instance, students attend classes not knowing what has changed in the delivery system. There is not much provided to develop a more interactive environment.

Furthermore, students complained of the lack of support of the tutors, lecturers and administrative staff. "We are already isolated and alone studying by this mode, and when we are overlooked and not assisted with the emergence of new technologies for our courses, and

we are adult learners, it kills all motivation. It is a recipe for early dropout." Wood[10] had noted that students who enrol with little or no experience of distance study are at risk of dropping out unless study survival skills and kits are developed and provided to all new open and distance learning students. "I love technology and want to learn, but when I am not confident and not given the opportunity to learn, I question the value of the education I am receiving." There is no doubt that a significant aspect of open and distance learning is the support services provided to the student. It would seem that we are overly concerned with expanding the introduction and use of technology and overlooking the needs of the student. For those students taking courses online, the same complaint was received. It would seem that a prerequisite for taking an online course would be excellent skills in using computers and other information and communications technologies.

An immediately related problem is the lack of skills of the tutor or lecturer. About 60% of the respondents indicated that this was a problem. For some courses, no new technology is used when there is room for this. The suggestion was made that a required criteria for a lecturing position at the university would be excellent computer skills and ability to use new technologies for teaching. Mention was made of a course where the lecturer used multimedia, USPNet, the Internet and face-to-face sessions for teaching and how exciting and productive this was. The teacher provided mainly information and guidance as the students were able to learn on their own at their own pace but also take part in group discussions. It was not surprising that when answering the question "Do you prefer to study by open and distance learning or face-to-face?" these students preferred face-to-face. In fact, the number indicating face-to-face as a preference was high, 45%, with some freedom to alter the pathway of their learning. About 35% preferred open and distance learning and 20% a mixture of modes of delivery and indicated that this should be the new approach. The high preference for face-to-face is reflected in the drop in distance education enrolments in the past four years. In my view, in the future, more and more people would prefer a mixture of modes of learning.

Academic Staff Barriers to the Use of Information and Communications Technologies for Open and Distance Learning

Of the total respondents, nine were academic staff. All enjoyed teaching and using new technologies. They found this "interesting and challenging," but required a great deal of time if one is to use the technology well and to teach effectively. The greatest challenge is that after spending a great deal of time designing and writing distance learning material for the traditional distance education student, the teaching is then transferred to the use of computers, video equipment, communications software, or satellite communications for learning. If support is there to train the staff, then there will be no barrier to using the new technologies. However, if there is no training and support is not forthcoming from other members of the department, the transition may be difficult. Overall, information and communications technologies provided women teachers with "more dynamic and versatile teaching methods, comprehensive knowledge of a wide range of topics, compatibility of women to compete with their male counterparts."

It was also indicated that academic staff generally did not like such a drastic and major change in their responsibilities and teaching methods. A few have a bad attitude towards new technologies and are resistant to change in teaching styles and adopting different methods. But with new courses and new opportunities provided by the new technologies, the role of academics must change. They will be seen as teachers, facilitators and mentors. Since many of the women may be mature, lecturers may need to change their teaching styles. Lecturers

[10] Wood (1996), *Designing Study Materials for Distance Students*. Available at: http://www.csu.edu.au/division/oli/oli-rd/occpap17/design.htm

must also not feel that distance education is a burden and is second-rate education. If this attitude prevails, then there will be little support for expanding distance education opportunities.

Another barrier is the teacher's acceptance of distance learning programmes. There are some sections at the University of the South Pacific that do not offer courses in the distant mode for a number of reasons: time constraints, lack of staff, lack of resources, and lack of facilities.

Some academic staff members also face the access barrier. While they have access to computers and Internet in the office, they do not have computers at home. This is largely because computers are very expensive in the region. Internet charges are also high. The university has assisted staff by allowing them to purchase computers on time payment at the University Bookcentre. Many have taken advantage of this opportunity.

Organisational Barriers to the Use of Information and Communications Technologies for Open and Distance Learning

The organisational barriers are mainly those that have to do with infrastructure, costs and benefits to the institution, and the state of technology in the institution. Providing courses through open and distance learning mode requires a high degree of organisation and commitment. Course preparation, writing, revision and teaching need organisational and administrative support. Many of these barriers are time consuming and can be tedious (for instance, deciding on the technology to use, administering course materials, assignments, support materials and resources, and conducting examinations and results). Other concerns include finding funds to support open and distance learning and information and communications technologies. This is particularly a challenge in the South Pacific, where technology is very expensive and the shipping of equipment from abroad can take a very long time.

Another organisational problem raised earlier is telecommunications costs and inadequate telecommunication facilities. The University of the South Pacific has the advantage of having its own USPNet which is used for distance education mainly. While this has been a tremendous development, demands made by students for the use of the Internet and the transfer of large files to centres outside the university region are posing some logistical and operational difficulties. With the main campus situated in Fiji, the University of the South Pacific is bound by telecommunication charges and policies laid down by the Government of the Fiji Islands (see Table 9). Charges have recently been reduced.[11]

Table 9. Internet charges in Fiji

Lease Line	Old	New	Reduction (%)
9.6 kbps	2,541	2,486	2.18
19.2 kbps	3,916	3,542	9.5
48 kbps	8,008	6,292	21.4
64 kbps	10,285	8,393	18.4

For information on other Pacific Island countries, check http://www.spc.int/picisoc/ and http://www.forumsec.org.fj

Internet charges are generally expensive and therefore are a barrier for those women who wish to access courses online from home. For those women in the rural areas, print packages

[11] Internet charges in Fiji have been high, with individual dial-up costing FJ$22/month and FJ$7.2/hour. See Appendix 3 for Internet fees and tariffs in the South Pacific region.

are still the best mode for learning. Radio delivery methods also provide a viable alternative. However, more appropriate technologies are being encouraged and used to enable women to have equality of access to education, as will be discussed later.

Costing distance education at the University of the South Pacific is also a difficulty. According to the Lockwood Report, there is no adequate information about costs of distance education courses —for administration, writing, production, packaging, etc.—and the report's authors proposed an "activity-based costing approach."[12] The perception that the university's distance education courses are "cost-effective" has no sound basis and its meaning is unclear. If the present methodologies used to arrive at a cost are unsuitable and cannot be taken as a correct cost, it is difficult to compare the costs of the university's distance education courses with the costs of those offered by other institutions in and outside the region. Neither is it suitable to compare these costs to courses offered online.

There is also the perception held by students and the university administration that distance education courses are "cheaper" than doing courses face-to-face. Again, this cannot be ascertained, but it is interesting to note the comments from respondents. They indicated that the fees that many were now paying for a course via the distance mode are too expensive and "not value for money."[13] Many of the women indicated that costs were a great barrier for them as they were not sponsored students.

In the future, furthermore, open and distance learning students will have to be able to access, evaluate and use information for their studies and will rely more and more on libraries and electronic information resources. This infrastructure needs to be funded appropriately and figured into the cost of open and distance learning.

The lack of guidelines in making services and advice more available to students can be a barrier to learning and to the effective use of information and communications technologies. Without such guidelines, problems will arise about who may or may not use computers, who should maintain the computers and where they should be located. Ensuring there are adequate technical skills to keep the system and computers working is also an important administrative consideration.

As noted by the respondents, many institutions in the region are now offering new courses and programmes to people in the Pacific. All do not offer good support of information and communications technologies for teaching and learning. It may be a good idea if these institutions collaborated and worked together regarding the provision of open and distance learning services, library resources, computer laboratories and tutors. Information and communications technologies are expensive and institutions in close locations could consider establishing some maintenance and support agreement for the benefit of the student.

Copyright

Copyright issues are an area of concern in open and distance learning, the increased use of information and communications technologies, and digitised formats. For a region that purchases most of its books, journals and e-journal databases from developed countries (notably, the United States, the United Kingdom and Australia), including required reading

[12] The key to this activity is to cost each activity as accurately as possible. Included are all the related activities such as lecturer, writing, resources, administration, technology, equipment, etc. It is not easy, but is one method of obtaining more accurate results. See Lockwood (2000:109–112).
[13] University of the South Pacific fees are: FJ$230 for a 100 level degree; FJ$280 for 200 and 300 level degree courses.

materials in course books and additional supporting resources for courses offered by distance, copyright clearance is important. Fiji is the only country in the region that has a Copyright Act although Cook Islands and Vanuatu are in the discussion stage. With this Act, it requires all teaching institutions to get clearance for materials requiring over 10% of the original to be copied for study and research. While the issue for print is clear, for digitised formats the law is not so clear. So far, copyright clearance has been obtained on an individual article basis. This proves to be very time-consuming and it can take some time for the approval to be obtained.

Fiji does not have a bureau to manage copyright matters, but a meeting is planned to discuss the possibility of establishing such a unit. There are other options available, including joining in with Australia's Copyright Agencies Limited (CAL). The outcome is of particular interest to the University of the South Pacific because it relies heavily on copying to be able to provide its students and university centres the same resources. And any copying of print-based material to another format—digitised or recorded—is expensive. Given the plans of the university and its library to digitise its own materials and reserve items that are published (if copyright clearance is obtained) and devolve these to the regional centres through its USPNet, the issue of central availability and compliance becomes important.

Apart from this, other questions of plagiarism by students of online materials need to be resolved. These are problems internationally which are still a far way from being resolved.

The questions that will need to be addressed regarding copyright are:

- How do the different modes of transmission affect the use of materials in a distance learning context?

- Who owns, and controls, the intellectual property for a course or material that has been stored in digitised format?

- Who decides what part of a course is to be updated and placed on the World Wide Web?

Pedagogy

Open and distance learning largely use print-based materials and text for teaching and learning in higher education. At the same time, the University of the South Pacific is expanding the education uses of online technology. As the study indicated, many students would prefer a mixed delivery system. But as the university moves towards more digitised formats, it must recognise the diverse needs of the region and the importance of continuing with print alongside the digitised formats.

While there is much support for digitised formats, in a survey of students' preference for digitised or print-based materials conducted in 1999 by the university library, it was found that students still preferred to work from a print version of the digitised text. This meant that there were always heavy print requests by students apart from downloading only. It was in response to this that the university supplied the library with two additional heavy duty printers to allow students to print as required.

Whatever is decided and done, technology has impacted the way students work, study and think, and the way the teachers teach. More demands are made of the teacher who becomes not only a teacher but also someone who guides the student, makes suggestions, provides information and expands knowledge.

Training and Capacity Building

In our study, a high per cent of the respondents agreed that to break down the barriers in the use of information and communications technologies for open and distance learning, more awareness and training programmes need to be put in place or undertaken by the institution. There is a feeling that, within the region, the use of information and communications technologies is revolutionising our own individual communities and families in the way we do things. Nevertheless, developments in some countries and some sections of the community in each country are slow. It is necessary to get those lagging behind to a training programme that will lift their contributions and learning skills.

As to the usefulness of information and communications technologies for women in rural areas, a number of respondents noted the usefulness of technology for religious purposes, women's groups, cultural groups and social groups. The impact of radio was highlighted as being useful in the rural areas and that some institutions used the radio for education. The women seemed highly resourceful.

The impact of training more women at once would likely result in empowering women and making women more aware of their abilities and rights as individuals. About 5% of the respondents felt that information and communications technologies are having an important impact on their lives and are an expense to the family in the sense that the women have put the purchase of computers above their own family needs. But, increasingly, it will be the child who will demand the family purchase a computer for his or her own purposes.

As for the teaching and academic staff generally, students had noted the lack of skills and confidence in their use of the new technology. It was also noted in the Lockwood Report[14] that staff development and training was crucial to the success of distance education at the University of the South Pacific.

An area that has often been overlooked is the cultural change that the use of information and communications technologies will bring about. There will be change in family life and change in priorities as indicated. However, a high percentage of respondents did not seem to think that culture would pose a barrier to using information and communications technologies. They all felt that, given the necessary training, their knowledge would increase and their performance might improve. The technologies were a good thing for them personally and all wanted to get more training on their use and potential. They argued that it would not impose on their culture. Information and communications technologies for open and distance learning cannot be seen in this light. These technologies aid in obtaining greater resources for learning and cannot be considered as only a tool.

Appropriate Information and Communications Technologies and Appropriate Use of Those Technologies for Distance Learning

While telecommunications technology is developing at a very fast pace internationally and in the Pacific region, the wide disparity in distribution and availability of information and communications technologies is problematic. For instance, in a number of Pacific countries, there are limited telephone lines and, as such, the rural areas are without phones. Yet in the same country, the urban areas would be well served by computers, telephones, CD-ROM technology, television and other means of communication. The question of appropriate technology then arises. In the Pacific, according to Vaa (2000), appropriate technology means the latest technology that is presumed to be the best and that is affordable, long lasting,

[14] Lockwood Report (2000, pp. 58–59, 107–108).

requires less maintenance, and reaches the bulk of the people. These would include print, audio-cassettes, radio broadcast, television broadcast, video-cassettes, CD-ROMs in some cases, telephone, audio- and videoconferencing, and computers. With these technologies there are other factors that need to be considered. Cost, application, reliability, ease of use, and possible synchronous and asynchronous delivery. A mix of technologies is often used for delivery.

All countries are unique and what works in one country may not work for another. While it is important to consider the appropriateness of the technology, the appropriateness of use is just as important. In other words, information and communications technologies used will depend on how appropriate they are for the students and for the purpose at hand.

In the case of the University of the South Pacific, it can be argued that the USPNet is appropriate as well as inappropriate for the region. It was set up to link all twelve countries and expand its distance education operation. However, some students, because of their physical location, cannot go to the centre and thus cannot take part in satellite tutorials. There are solutions to this: (1) get the local carriers to link with USPNet, giving students access to an education broadcast through television; (2) set up telecommunications facilities in other areas where students may be able to access them easily; (3) put lectures on video-tapes and audio-tapes and give students a copy; or (4) put courses over the radio for broadcast at specific times. Working with information and communications technologies introduces barriers, but they also can be managed and solutions found.

Public Policy for Women, Information and Communications Technologies, and Open and Distance Learning

For women to be included in all information and communications technologies plans and activities in a country, they must be considered in national policies and their needs integrated to all policy making. Women must be included in discussions and decision-making bodies, otherwise they will easily be overlooked and their needs not considered. Currently, no country in the Pacific has a complete and formally accepted national information and communications technologies policy. In 1989, the Government of Fiji had issued a decree on Posts and Telecommunications regarding a national telecommunication policy for Fiji. In 2001, the Interim Administration set up an Advisory Council to prepare a paper on information technology policy for Fiji, looking to the future, 2005. The paper has been completed but is still to be tabled in Parliament. The paper highlights the commitment to training and the need to get all Fiji citizens in the rural and urban areas to be more computer and information technology literate. Pending its acceptance by Parliament, action is already under way to raise awareness among public servants of the importance of training in the field.

But apart from seeking women's inclusion and recognition in such a policy, it must be noted that the women themselves must be proactive and committed. It is partly their responsibility to want to accept change, to want to be skilled, and to want to be part of the decision-making process. Women must be empowered to effectively contribute to the development of the country and to their own education.

Key Areas of Concern to Be Addressed: Summary

From the study and discussion of the barriers women face in using information and communications technologies for open and distance learning, several key themes emerge and will need to be addressed. These are summarised in Table 10.

Table 10. Information and communications technologies for open and distance learning: barriers and impacts encountered by women

USP – University of the South Pacific; ICT – information and communications technologies; IT – information technology

Barriers and Impacts	**Students**	**Staff**	**Academic Support Services and Administration**
Access and equity	Unequal access. Students far from the centres and USP do not have access to many ICTs used for distance education.	Staff members have good access to computers.	Laucala Campus support services are good but not so in the regional centres. Support in other institutions in the region are little known but, based on the few who responded, access is very poor.
Literacy	Will need to improve literacy and literacy projects to be integrated with literacy education.	Information and computer literacy skills are lacking.	Need to provide training programmes.
Computers	Low level of computerisation in outposts or centres at USP. Three campuses have better numbers.	Available in the office and at home.	At USP, admin support to ensure staff have access to computers is good. Not certain about other institutions.
Costs	Computers are too expensive and not affordable by students. This affects women especially. Local suppliers are over-priced. Many students do not own their own computers.	Staff at USP can access good services from the University Bookcentre.	High price of ICTs means that many institutions offering distance education courses remain underdeveloped in their use of computers and ICTs.
Old and outdated equipment	Centres have some out dated computers and ICTs, and the existing cannot be maintained too well.	Now prefer state-of-the-art equipment.	There are a few, but many have been discarded.

Other ICTs and equipment	Fax and telephone are available in many organisations and institutions; CD-ROM and DVD are not readily available. The USP has these available in selected laboratories.	Good access to fax, phone, DVD and CD-ROM facilities.	Important to have access to fax, phone, cassette, audio-tape.
Internet	Internet is not available in all centres. Many need information literacy skills and experience in working with the Internet. Access is limited. Controlled by local government policies and charges.	Internet access by USP staff is good. Speed can be a little slow at peak times.	Administration provide useful support but will need to continue reviewing its needs and services in Internet usage and online courses.
Funds availability	No major funding available for projects.	Personal computers need to be purchased. Almost all the academic staff who responded to the questionnaire stated high price being a barrier to acquisition.	USP has been able to obtain support from outside, such as Japan, Australia and New Zealand.
Technical support	Lack of technical support is serious.	Lack technical support is a real problem.	Trying to overcome this problem as best as possible. The shortage is regionwide.
Maintenance and upgrading	Poor maintenance.	Poor maintenance.	Poor maintenance.
Low bandwidth	This is a problem when trying to access online courses and information. The USP now has 256 kbps, but the speed to upload and download is very slow and provides huge problems.	Low bandwidth is very frustrating sometimes.	Trying to continue to ensure higher bandwidth in the USP. It is now 256 kbps compared to 64 kbps last year.
Trained personnel	Limited availability.	Limited regionwide.	Training of new IT people is crucial and plans to support this is in place. However, it is not possible to hold on to qualified expertise in IT.

Skills	Limited in-house skills, particularly of lecturers and centre support.	Limited skills, but attempts are being made to overcome this by the lecturer as well as management.	A priority concern. More women need to take up work in this area in the region.
Comfort in using ICTs	Many women are comfortable with using and working with computers.	Not so comfortable. Need skills upgrade and confidence.	No real difficulty, but recognise the need to change attitude of academics.
Cultural factors	Culture has not been a barrier in the use of technology for learning.	Culture has not been a barrier in the use of technology for learning.	Culture has not been a barrier in the use of technology for learning.
Women's time	Women have scarce time to use Internet resources.	Women lecturers have little time to spend on the Internet. Some just love it and use this as their major resource.	Not really applicable.
Policy and planning	Gender balance in ICT policies.	Train more women in IT skills.	Gender balance and encouragement of women to participate in this profession should be made priorities in planning and policy.
Copyright	Difficult issue to resolve, particularly for digitised formats.	A concern and needs to be resolved.	Is a central concern for ODL and learning on the Internet
Information and computer literacy	Required at all levels.	Required for all academics	Will expand and intensify existing programmes.
Reliable database for ICT and open and distance learning	There is a lack of data on women and ICTs, women on the Internet, women studying online, etc., in the region. This should be done, as there is now a proliferation of education providers. Statistics also important for future planning.	Need access to good database for teaching and research in open and distance learning.	USP already has a major database but will need to expand its coverage to include a more gendered approach in more areas. This centralised record on open and distance learning is the only complete one in the region.
Physical space	Lack of good telecommunication facilities.	Not really a concern.	Need to address this administratively and by policy.

Lessons Learned

In 1999, I conducted a survey on the elections in the Fiji Islands. In the same questionnaire, I had separate sections on women's issues, education and the constitution. Over 50% of the respondents were from the rural areas (3,200 questionnaires were completed in total; the questionnaire asked 160 questions). It was interesting to note that the responses to women's issues and development, including education and information awareness, were very high. Many agreed that education was imperative for their advancement and for their children and families. But many also did say that because of family and cultural obligations, they had little opportunity to take on studies. However, if given the opportunity, they would be glad to be a student. The same would be the case for Samoa where we conducted a similar election survey (data still being entered into the system) in the first week of March 2001; and where the majority of the women interviewed did say that education should be universal and linked to the different aspects of living and working.

There is no doubt that those women and girls in the village and rural areas, as well as the urban poor, need to be empowered and assisted in their desire for an education. The women want to be more informed. While they had personal views on issues, they were enthusiastic about adopting new skills, education and learning and to be part of a group learning together. What I found very useful and productive was just talking to people and bonding with them, bearing in mind the importance of the social and cultural factors that play key roles in empowering and educating women. Establishing these social links and trust is important to women in rural areas who may feel inadequate in the initial stages to embark on an education plan.

In this study, the message was clear: there was strong support for the use of information and communications technologies and a combination of delivery methods approach for education. There was also strong support for training in computer skills and information literacy in a group. In addition, people were keen in open learning and discussion and where the student and the teacher are participants in this learning process. What is feasible and interesting is the merging of the traditional and modern communication systems for learning.

In a study[15] of information and communications in Fiji, I had examined the synergy between traditional communication and information systems[16] for political and development purposes. The intention was to use a combination of these systems as a way of reaching the rural and urban poor. The people in these areas have a problem with being informed and as a result are generally left out in national discussions and developments. The two communication systems, traditional and modern, were seen to be more in competition and not complementary. This should not be the case. The modern communication systems should complement, not replace, the traditional. A student should be able to learn using the media of his or her choice. So when a new information and communications technology is introduced, this should not be seen as a threat to the traditional system. For open and distance learning and new technologies, such an approach may need to be taken. In some villages in Fiji, for instance, television is not allowed for cultural reasons. Hence, a course on video-tape may not be practical.

[15] Williams (1998), *The Politics of Information in Fiji: Information, Communication and Democracy in Fiji,* Ph.D Thesis. University of Queensland, St Lucia.

[16] This refers to the traditional systems of communication and discussion in a village or rural setting, for example, the use of group discussion and consensus principles, oratory, stories, song and dance, and art.

Regarding access issues, the collaborative measures suggested could work. This is where government, the private sector and/or other organisations are approached to assist with developing access to computers or providing funds to help with the purchase of computers and other information and communications technologies for students. It would be ideal if some networking and information sharing initiatives were established.

As far as policy is concerned, it will be difficult to effect any change to include women in the new development or to focus on the development of an information society in isolation. It may be more acceptable to work on needs and projects that will improve women's position in this field. But whatever approach is taken, women must be "aggressive" in their request for needs to better their learning conditions and facilities, for policy change, and for greater participation in decision-making.

Below, I have provided a very wide range of what I think can be done and a way forward to overcome some of the barriers in the use of information and communications technologies. Many of these would apply to other regions of the world. I recognise that it is a wide range of activities and it may be necessary to draw on the most urgent issues or group of like issues so that they can be dealt with immediately.

Most important is to try to just get started in the use of information and communications technologies. While it is important to realise that people in the rural areas do not have electricity and telephones, and it can be argued that to provide these new technologies before basic needs is not correct, the fact remains that people cannot wait forever. There should be some positive show of interest and acceptance that information and communications technologies can improve women' education.

Technology-enhanced learning centres are available in some developing countries. They are positive developments that are the outcomes from the processes of discussion and the development of policy. In future it will be possible to provide isolated populations access to information and communications technologies at a telecentre, through an information awareness programme or from a visit to a school or institution.

Conclusion

This paper has identified and assessed a range of barriers to the use of information and communications technologies for open and distance learning. It has also examined ways to harness these technologies to assist with learning, particularly for those women who have difficulty accessing computers and other forms of the technologies. In analysing the state of things in the region, and the extent to which information and communications technologies are used by various institutions and organisations for education and learning, I believe it is clear that for many of the Pacific islands, the potential of these technologies is still largely not realised. Except for the University of the South Pacific which is unique in itself, many of the other organisations do not enjoy some of the better technical facilities for learning. It would not be presumptuous of me to suggest that the way forward would be to take what the university offers to the more rural areas and to those who need training in and knowledge about information and communications technologies. Furthermore, these could be incorporated into the traditional communication systems to ensure some success. It would also be an idea to investigate whether women's organisations can access and use the USPNet for education and training.

Open and distance learning provides many women with the opportunity to access an education and improve their quality of life in the long term. But this access is not universal, as there are still many barriers to accessing an education even with the extended use of information and

communications technologies. These technologies were suppose to improve the system, make education more accessible, and allow more interactive and fast communication and feedback. However, the study responses show that there is no one single mode of delivery that proved to be popular with the students. What was clear is that many students would prefer face-to-face and full-time study, but—with the difficulties of work, family and scarcity of time—a more mixed mode of delivery for learning (face-to-face, online and distance) is more highly desirable. It is difficult to predict what will be the case in the future regarding the use of information and communications technologies for learning and the expansion of online learning, particularly when there are solutions to some of the technical barriers. What is important for us is to ensure that more women have access to these technologies, undertake training, get online, and actively seek to better their education.

Possible Approaches to These Barriers

While more women, no doubt, are accessing and are able to use new technologies for work and study, the issue of basic access is still a concern as this study shows. It is clear that women do not participate and fully use information and communications technologies for education or development. And, if nothing is done now to reverse the situation, women will be marginalised even more since the growth and use of information and communications technologies are moving very fast ahead.

Here are some ways that the barriers can be approached and dealt with. Some of these suggestions apply not only to the University of the South Pacific, but to other institutions as well.

Access issues

- Academic institutions should develop policies and procedures identifying the level of information technology access, levels of information technology and computer skills, levels of information literacy of all women students and staff of University of the South Pacific, whether studying on or off campus.
- Academic institutions should support and provide more computers, Internet links and services to women and make this known to all students and staff.
- Approach governments of the region to formally support a reduced cost of Internet services to the public for open and distance learning.
- Approach the government to provide free Internet access for academic purposes.
- Women should attend literacy training programmes to improve their reading and literacy skills, as information and communications technologies require strong reading ability.
- Develop training programmes, products and services to cater for the specific needs of women.
- Provide financial assistance to women for the purchase of personal computers for the home to allow them to study at their own pace.
- Ensure staff members in the centres are skilled and have a positive attitude towards the use of computers. Then tight regulations should be reviewed to allow the students free access to resources.
- Establish links and cross-institutional collaboration between different institutions specifically to share online courses and resources for open and distance learning.
- Convert centre libraries to telecentres offering one-stop-shop for supporting resources—print, video and digital—for open and distance learning. These should be located in the communities.

- Training in information and communications technologies and courses conducted in the different modes will need to be flexible to fit in to women's schedules of family and work. Ongoing encouragement, communication, networking and empowerment activities should be located in easily accessible facilities.

Economic and development issues

- An infrastructure for open and distance learning should be established and more collaboration and sharing of ideas encouraged. Students should be able to access and use information for their studies and will increasingly rely on libraries and the Internet and other electronic resources.
- Problem-based learning should not provide cost savings, as costs of new approaches and models of taking into account the use of new information and communications technologies, libraries, and telecentres will increase and are not cheap.
- The use of more information and communications technologies will require the university to make significant and additional investments for new computers, maintenance, administration, support, research and training.
- New students now enrolled in open and distance learning courses come to the university and other academic institutions with the expectation of being able to access computers, the Internet, and word processing. Costs of these facilities and services will be significant to any costing estimate of open and distance learning courses.
- The migration from print to digitised formats raises new challenges and copyright and ownership are two that will require attention. Approach existing consortium for their views on the matter.
- Costs of distance courses should be taken into consideration with other costs: copyright costs, software licences, maintenance, leasing equipment, library resources and facilities where appropriate.
- Staff development and training with focus on women applicants.
- Establish a scholarship fund for women students studying through open and distance learning.
- Develop training programmes for women in information technology and computer skills.
- Develop products and services that address specific needs of women.
- The deployment of information and communications technologies should be user-driven. A fundamental problem with information and communications technologies is that their deployment does not take account of the needs of those using it.

Pedagogy

- Staff should be encouraged to adopt new technologies for teaching.
- Encourage staff to trial and offer online teaching in distance and open learning.

Copyright

- A specialist group should be established to look into appropriate procedures and guidelines for digital copyright.
- Guidelines on copyright should be included in courses and students made aware of this.
- Seminar on digital copyright should be organised for library, distance education and teaching staff.

Policy and planning

The University of the South Pacific, as a major provider of distance education, has been reviewed a number of times, most recently in 2000. A meeting to discuss the recommendations of this report and to agree to a strategy and implementation plan was held recently. A number of roundtables have been organised in the past and it would be practical and beneficial if these outcomes were to be integrated and co-ordinated and some priorities drawn up. These discussions would relate directly to university policies and would impact significantly on open and distance learning operations and environment. Many issues of infrastructure, policy and administration have been raised and discussed and it would be advantageous if these were to be dealt with urgently. Some of these actions could be applied to other institutions.

- The University of the South Pacific should further review, develop and refine its distance education policies and procedures, working in collaboration with other national and international institutions with specific focus on standards in online, distance, open and flexible learning.
- The university should consider developing policies to mainstream open and distance learning courses.
- Online links and study online should be created and supported, with standards to be formulated.
- The integration of distance, open and flexible learning should be supported and this mixture of modes of delivery be considered the norm and not the exception. This should be integrated into the university's strategic plan.
- The University of the South Pacific should consider policies on equipment, maintenance, and use of information and communications technologies by students and lecturers.

Cultural and awareness issues

- Establish an electronic database of reliable, accurate, up-to-date and detailed statistics of women using and participating in information and communications technologies. This would help build a better picture of the indicators on women, the technologies, where the women are located, and their achievements and work.
- Develop awareness programmes for women on information and communications technologies.
- Develop culturally appropriate curriculum and culturally appropriate learning styles.
- Develop research programmes of use to women. For instance, gather data on how women use information and communications technologies and how these affect them.
- Develop research interest in open and distance learning focusing on women.
- Be aware of the disparity that exists between women and the impact of information and communications technologies on their education and development.

Possible areas of research that have emerged

- Identify the needs of women for an education: just how much do the majority of women wish to go back to school or university, and which areas of study do they wish to undertake?
- Conduct a qualitative and quantitative research on demographics. Current information is not always available. It is important to gather data, monitor progress, target women who have been excluded, and identify points for policy and implementation.

- Identify how information and communications technologies are distributed throughout the region and the rate of access of women to these technologies.
- Correlate the degree to which penetration and use of information and communications technologies has improved women's quality of life and education.
- Identify and analyse how women use information and communications technologies in the region and how much is used for education and other purposes.
- Identify and assess the best mix of the various technologies for open and distance learning and suggest strategies to move this forward and to maintain this information.
- Assess the pros and cons of open learning and face-to-face learning in the context of rapid use of information and communications technologies.
- Research the potential for use of information and communications technologies for open and distance learning in the South Pacific and identify those that are more popular and easier to use than others that are available on the market.
- Research the information and communications technology needs of women and strategies to encourage women's contributions to them.
- Research the most appropriate, most cost-effective and efficient information and communications technology delivery and access strategies for women in the South Pacific.
- Research ways and means to encourage girls and women to take up courses and professions in information and communications technologies.
- Find out how women can access financial assistance to enable them to purchase information and communications technologies for education and work.

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Appendix 1

External Providers of Open and Distance Learning, Online and/or Face-to-Face Courses in the Pacific Region

Australian Institute of Accountants
Central Queensland University
Civil Aviation of Australia
College of Higher Education Studies (CHES)
Curtin University
Deakin University
Manukau Polytechnic, Auckland
Massey University
Monash Mount Eliza Business School
New Zealand Pacific Training Centre (now has centres in almost all the main towns in Fiji)
Royal College of Science and Technology, Australia
South Pacific Education Council
Southern Cross University
Tele-education, New Brunswick
University of Southern Queensland
Whitireia Community Polytechnic

Note: This is not a complete list. In many of the countries of the University of the South Pacific's region, students and staff working in the different ministries are undertaking courses of various nature from foundation to masters, some by distance and others online. The private sector also has workers who are enrolled in online courses with institutions abroad. External providers usually work with the Ministry of Education in the different countries or directly with the companies. This is the case for Fiji, Tonga, Samoa, the Solomon Islands and the Marshall Islands. The providers are mainly from Australia, the United States and New Zealand. I was not able to get into this part of the study in greater detail, but propose to follow this up.

Appendix 2

Barriers to the Use by Women of Information and Communications Technologies (ICT) for Open and Distance Learning

Questionnaire

The Commonwealth of Learning (COL) is currently working on a Pan-Commonwealth project identifying barriers encountered by women in the use of information and communication technologies (ICTs) for open and distance learning. While many women and girls have taken on the training and education opportunities offered by open learning and distance education, the use of new information and communication technologies to deliver open and distance learning are creating newer and greater challenges and difficulties for women studying in this mode. Some women may feel marginalised as the new technologies limit their access to an education. Others may feel uncomfortable using the new technologies. Yet others may not be able to afford the acquisition and use of such technologies for education. Women, then, generally become disadvantaged and may not be able to access an education of their choice. This may influence the type of job that they can apply for and decrease their chances of being hired for certain positions.

To help identify and address these barriers, find solutions to these problems and formulate strategies taken to bridge the digital divide, it is hoped to use the results of this survey to help determine what action can be taken for the future to ensure that women have equity of access to education. A number of institutions in the region have taken action to assist women in accessing and using the new technologies. Thus we ask your help and thoughtful consideration of the following questions. Please support this survey to ensure that a substantial number of questionnaires are returned. The more responses that are obtained, the better the evaluation and chances for support for assistance to develop appropriately useful strategies which can fulfil the needs expressed.

Please note that completed questionnaires should be sent to:
Dr. Esther Batiri Williams, University Librarian
The University of the South Pacific
P. O. Box 1168
Suva
Fiji Islands

Thank you for your participation and for sharing your experiences and information on open and distance learning with friends, fellow students and colleagues in your country or the region.

Esther Batiri Williams

SECTION A : Personal Background

This section includes questions about yourself and your background.

A1 What is your country?_____

A2 Do you live in a:

1	Village	☐	3	Town	☐
2	Rural Area	☐	4	City	☐

A3 How long have you lived here?_____

A4 Age. Tick the appropriate range

1	18-25	☐	3	33-40	☐	5	49-55 ☐
2	26-32	☐	4	41-48	☐	6	56+ ☐

A5 What is your mother tongue?

_____

A6 Languages you speak?_____

A7 Would it be possible to participate in courses in English?_____

A8 Would it be possible to participate in courses in other languages?_____

A9 Are you employed?_____

A10 What is your profession?

1 student_____
2 school teacher_____
3 information person/librarian_____
4 computer technician_____
5 university lecturer_____
6 other_____

A11 Years of work in your profession?_____

A12 What is your gross annual income before tax or other deductions?

1	Less than 5000	☐	2	5,001-10,000	☐
3	10,001-15,000	☐	4	15,001-20,000	☐
5	20,001-25,000	☐	6	25,001-30,000	☐
7	30,001-35,000	☐	8	35,001-40,000	☐
9	40,001-45,000	☐	10	45,001-50,000	☐
11	50,001-55,000	☐	12	55,001-60,000	☐
13	60,001-65,000	☐	14	65,001-80,000	☐
15	More than 80,000	☐			

A13 What is your current marital status

1 Never married ☐ 2 Now married ☐ 3 De facto ☐
4 Widowed ☐ 5 Divorced/separated ☐

A14 How many children do you have?_____

A15 Is your husband working now?

1 Full-time for pay ☐ 2 Part-time for pay ☐
3 Unemployed ☐ 4 Retired ☐
5 At college or university ☐ 6 Other ☐

SECTION B : Enrolment Information

B1 At what age did you leave school?_____

B2 How many years altogether of tertiary study (after 6th form) did you complete? Give number of years _____

B3 Are you studying by extension?_____

B4 What are you studying by extension at the moment?_____

B5 With which institution are you enrolled with at the moment?_____

B6 How long have you been studying by extension?_____

B7 Have you studied other courses by extension with other institutions?_____

B8 Have you received any form of financial assistance or scholarship for your education?
_____

SECTION C : Information and communication technologies (ICT) accessibility

C1 Do you have access to computers?

1 Yes ☐ 2 No ☐

C2 If yes, where are the computers located?

1 Home ☐ 2 School ☐ 3 University ☐ 4 Office ☐
5 Internet cafe ☐

C3 If no, why is this so?

C4 Do you own a computer?

1 Yes ☐ 2 No ☐

C5 If no, why not?

_____

C6 Do you have access to Internet?

1 Yes ☐ 2 No ☐

C7 If no, why not?_____

C8 If yes, is this free?

1 Yes ☐ 2 No ☐

C9 If no, how much do you have to pay for access per hour?_____

C10 Do you have access to other forms of communications?

1 Video conferencing ☐ 2 Multi-media ☐
3 Audio visual 4 Television
5 Computer mediated communications ☐

C11 Who should have access to ICT?

C12 How often do you use any form of ICT for your education?

SECTION D : Please assess your current IT skills

D1 Use of computers?

1 None ☐ 2 Some ☐
3 Good 4 Excellent
5 Able to teach

D2 Use of teleconferencing facilities?

1 None ☐ 2 Some ☐
3 Good 4 Excellent
5 Able to teach

D3 Use of word processing software

1 None ☐ 2 Some ☐
3 Good 4 Excellent
5 Able to teach

D4 Technical expertise in networking (hardware, software, connections)

1 None ☐ 2 Some ☐
3 Good 4 Excellent
5 Able to teach

D5 Other technical expertise

1 None ☐ 2 Some ☐
3 Good 4 Excellent 5 Able to teach ☐

D6 Do you have competencies in HTML?_____

D7 Do you have competencies in any programming languages?_____

D8 If yes, which are these? (for example: Fortran, Basic, Java, Pascal)

SECTION E : Impact of ICTs on distance learning

E1 Are there any education or training provided through open and distance learning in your country?

1 Yes ☐ 2 No ☐

E2 If yes, at what levels?

1 Foundation ☐ 2 Degree ☐
3 Continuing education ☐ 4 Post graduate ☐
5 Other ☐

E3 Name the institution(s) in your country that provide these courses?

E4 To what extent are these institutions supportive of ODL?

E5 Are these publicly or privately funded?

E6 Are there any priorities with respect to the needs of women?

E7 Are new ICTs used for teaching and learning for ODL?

E8 What are the ICTs being used?

E9 Are you able to keep up with the changes in new information and communication technologies for your studies?

E10 Do you enjoy using the new technologies for learning?

1 Very much ☐ 2 About the same ☐ 3 Not very much ☐

E11 Is ICT a useful tool for your education?

SECTION F : Barriers to the use of ICTs by women for open and distance learning

F1 In your experience, are there barriers encountered by women and girls to the access of ICTs for ODL?

1 Yes ☐ 2. No ☐

F2 If yes, what are these barriers? Please list these. The barriers could be economic, technical, cultural, social, political, etc.

F3 Based on your experience and the institution you are in, what initiatives or strategies, if any, have been put in place to overcome these barriers?

F4 Does the increased availability and use of new ICTs impact on women teachers, tutors and students, etc?

Yes ☐ No ☐

F5 If yes, in what ways?

F6 If you have not had access to ICT, how have you suffered?

SECTION G : Training and capacity building

G1 Are there particular courses and programmes available that train women in the use of ICTs?

Yes ☐ No ☐

G2 In your view, are there particular practices available that can reach out to women in the rural areas and others, particularly the urban poor who have difficulty accessing an education?

1 Yes ☐ 2 No ☐ 3 Don't know ☐

G3 What practices in the use of ICTs have been found to be useful particularly for women in the rural and urban poor areas?

G4 What are the implications with respect to the increased use of ICTs to deliver education and training for women?

G5 Who has been the greatest influence on your use of ICTs?

1 Father ☐ 2 Mother ☐ 3 Spouse ☐ 4 Siblings ☐
5 Friends ☐ 6 Work colleagues ☐ 7 Other ☐

G6 If you are a working woman, has the use of new ICTs improved your learning?

G7 Would you be interested in taking courses offered in open and distance learning

1 Online ☐ 2 In a formal classroom setting ☐ 3 During free time ☐
4. Only if employer paid for the course ☐ 5. As part of a degree programme ☐

G8 If courses were offered online, what difficulties do you see that may prevent you from enrolling in a course?

G9 What would you regard as the motivating factor in studying by open and distance learning and to improve your ICT skills

G10 Would you prefer self-paced courses via the Internet , formal classroom situations. and others?

G11 Have you suffered as a result of not receiving any training?

SECTION H : Public policy for women in open and distance learning

H1 Are there national telecommunication policies in your country?

1 Yes ☐ 2 No ☐

H2 If yes, how do these policies address the issue of ICTs for ODL?

H3 Does the policy address gender differences in the education sector?

H4 Do the policies support women's use of ICTs?

H5 Is there a policy on equity of access for ICTs and education opportunities

H6 Do you prefer studying by open and distance learning or face-to-face?

H7 If your response is open and distance learning, give the reasons why this is the case.

H8 Are you comfortable in using new technology for learning?

H9 If yes, give the reason(s)

H10 Any other comments on any of the above questions

Appendix 3

Telecommunications Organisations in the Pacific: Services and Web sites (where available).

Country	Telecommunications organisation	Services provided	Web site
American Samoa	American Samoa Telecommunications Authority	Telephone, telex, fax, cellular, Internet	www.samoatelco.com
Cook Islands	Telecom Cook Islands Ltd	Telephone, telex, fax, cellular, Internet, paging	www.telecom.co.ck
Federated States of Micronesia	FSM Telecommunications Corporation	Telephone, telex, fax, cellular, Internet, paging	www.fm
Fiji	Fiji International Telecommunications Ltd (FINTEL)	Telephone, telex, fax, cellular, data communications, videoconferencing, Internet, paging, digital data, voice-bank, cards	www.fintel.com.fj
Kiribati	Telecommunication Services Kiribati Ltd	Telephone, telex, fax, cellular, Internet	www.tskl.net.ki
Marshall Islands	National Telecommunications Authority (NTA)	Telephone, telex, fax, cellular, Internet, HF radio	www.ntamar.com
Nauru	Nauru Telecommunications Department	Telephone, telex, fax, cellular, Internet	www.cenpac.net.nr
Niue	Telecom Niue	Telephone, telex, fax, cellular, Internet	
Palau	Palau National Communications Corporation	Telephone, telex, fax, cellular, Internet	www.palaunet.com
Papua New Guinea	Telikom PNG	Telephone, telex, fax, cellular, Internet	www.telikompng.com
Samoa	Samoa Communications Ltd	Telephone, fax, cellular, Internet	Ptd.com.ws
Solomon Islands	Solomon Telekom Company	Telephone, fax, cellular, Internet, paging,	www.solomon.com.sb
Tonga	Tonga Telecommunications Corporation	Telephone, fax, cellular, Internet	www.tongasat.com
Tuvalu	Tuvalu Telecommunications Corporation	Telephone, fax, cellular, Internet, radio link	www.tuvalu.tv
Vanuatu	Telecom Vanuatu Ltd	Telephone, fax, cellular, Internet	www.tvl.net.vu

Source: Vaa. 2000, pp. 61, 121.

Appendix 3

Telecommunications Organisations in the Pacific: Services and Web sites (where available).

Country	Telecommunications organisation	Services provided	Web site
American Samoa	American Samoa Telecommunications Authority	Telephone, telex, fax, cellular, Internet	www.samoatelco.com
Cook Islands	Telecom Cook Islands Ltd	Telephone, telex, fax, cellular, Internet, paging	www.telecom.co.ck
Federated States of Micronesia	FSM Telecommunications Corporation	Telephone, telex, fax, cellular, Internet, paging	www.fm
Fiji	Fiji International Telecommunications Ltd (FINTEL)	Telephone, telex, fax, cellular, data communications, videoconferencing, Internet, paging, digital data, voice-bank, cards	www.fintel.com.fj
Kiribati	Telecommunication Services Kiribati Ltd	Telephone, telex, fax, cellular, Internet	www.tskl.net.ki
Marshall Islands	National Telecommunications Authority (NTA)	Telephone, telex, fax, cellular, Internet, HF radio	www.ntamar.com
Nauru	Nauru Telecommunications Department	Telephone, telex, fax, cellular, Internet	www.cenpac.net.nr
Niue	Telecom Niue	Telephone, telex, fax, cellular, Internet	
Palau	Palau National Communications Corporation	Telephone, telex, fax, cellular, Internet	www.palaunet.com
Papua New Guinea	Telikom PNG	Telephone, telex, fax, cellular, Internet	www.telikompng.com
Samoa	Samoa Communications Ltd	Telephone, fax, cellular, Internet	Ptd.com.ws
Solomon Islands	Solomon Telekom Comp any	Telephone, fax, cellular, Internet, paging,	www.solomon.com.sb
Tonga	Tonga Telecommunications Corporation	Telephone, fax, cellular, Internet	www.tongasat.com
Tuvalu	Tuvalu Telecommunications Corporation	Telephone, fax, cellular, Internet, radio link	www.tuvalu.tv
Vanuatu	Telecom Vanuatu Ltd	Telephone, fax, cellular, Internet	www.tvl.net.vu

Source: Vaa. 2000, pp. 61, 121.

Kiribati

Kateata Binoka and Baneawa Nenebati

Introduction

In this paper, we first take you to the Central Pacific where Kiribati is located. This background is followed by a description of the education system in general for women. Then, we focus on the use of information and communication technologies for open and distance learning, and on the barriers that women confront when using the system. How to overcome these barriers is discussed last, and recommendations are made to improve open and distance learning situations in Kiribati through the use of the new technologies.

Background

We are the "Millennium Islands," the first to see the light of the year 2000. A group of thirty-three islands lying astride the equator, Kiribati (pronounced "Kiri-bas") was formerly known as the Gilbert Islands. Since 1979 an independent republic, Kiribati comprises three main island groups: the Gilberts proper, the Northern and Southern Line Islands, and the Phoenix Islands. The International Date Line crosses through Kiribati, separating the Line and Phoenix Islands (known as the Linnix Group) and the Gilbert Group.

The country has a population of about 81,000, mainly of Micronesian descent. About 30,000 people live in South Tarawa, the capital of Kiribati. The total land mass is 810 square kilometres, with the islands spread over 3 million square kilometres of ocean.

The main export is copra and tuna fish. However, revenues from phosphate deposited in a revenue equalisation reserve fund still constitute an important source of income for the country. We have other resources, too, such as seaweed and sea cucumber; and many people from Kiribati work abroad, such as seamen and others in other parts of the world.

Education in General

Since independence in 1979, the education of women has rapidly increased at the tertiary level. As education is compulsory at the primary level up to the junior secondary level, female students are able to work their way up to senior secondary. Like male students, they have to be academically qualified if they wish to pursue higher qualifications. We are proud to say that the Government of Kiribati recognises women and treats them equally to men. However, because of cost and limited access, only a small number of women are able to take tertiary studies. Most secondary schools provide boarding facilities to enable students from outer islands to attend. Open and distance learning would provide an alternative to enable these students to remain in their own communities.

Our Formal Education system operates under three phases:

1. Basic Education: Childhood education
   Primary level, Class 1–6
   Junior Secondary level, Form 1–3

2. Senior Secondary: Form 4–6
   National Form 7, which is an entry year to the tertiary level, after which students continue in overseas universities or in-country studies through our available tertiary providers

3. Tertiary: Kiribati Teacher College
Tarawa Technical Institute
University of the South Pacific Extension Services

Non-formal education or vocational training is operated by various bodies, including the following:

- Tarawa Technical Institute
- Marine Training Centre
- Fisheries Training Centre
- Women's Clubs, such as Aia Mwaea Ainen Kiribati (AMAK)
- Catholic Women (Te Itoi ni Ngaina)
- Protestant Women (Reitan Aine ni Kamatu)

Opportunities for Using Information and Communication Technologies for Open and Distance Learning

University of the South Pacific Extension Services

The University of the South Pacific Extension Services is publicly owned by the thirteen regional countries in the Pacific. It is one of the most popular institutions for students who are capable of pursuing their studies, to get higher qualifications or satisfy their own interests. Admission to this institute is based on the grades acquired at Form 7 regardless of gender. In 2000, the total number of Kiribati students studying through the University of the South Pacific was 374. Of these, 234 were studying in Kiribati through the University Extension Centre, while the rest attended the main campus in Fiji. Admission to the Extension Centre for 2001 is 56% females and 44% males (personal communication with the Director of the University of the South Pacific Extension Centre, Feb. 25, 2001).

The University Extension Centre is able to provide facilities and equal opportunities for all admitted students on the use of technologies for open and distance learning, but only students who are enrolled in computing programmes relevant to information and communication technologies are regular users of the system. This group consisted of eighteen students in Semester 1, 2001. Other courses available at this institution are Management, Accounting, Education, Science, Economics and Language Studies. The levels of qualification acquired through the extension services are certificates and diplomas.

The Extension Centre is the only institution well facilitated with information and communication technological teaching/learning media for open and distance learning. So far, the Centre has the following information and communications technologies: videoconferencing, computers, satellite, telephone, video and tape recorder. All students who are on the main island have access to the Internet and e-mail, but not those extension students who are studying on the outer islands.

Tarawa Technical Institute

Another tertiary institute is the Tarawa Technical Institute where employees get further training for required skills and knowledge. It also provides training for new students to prepare them for jobs in both the public and private sectors. Unlike the University of the South Pacific Extension Centre, the Tarawa Technical Institute does not provide facilities for the use of information and communications technologies in open and distance learning. The only facilities available (phone and computers) are for the principal and staff for working purposes.

The institute offers a Japanese language course through distance learning. All course materials are provided from Japan, including tape cassettes, video-cassettes, and working guidebooks. A Japanese tutor is hired in Kiribati. This course caters for the Fisheries Training Centre students and those trainees going on Japanese fishing vessels. Only men, of course, enrol in this course.

Radio Broadcasting

Radio is a common and popular form of communication in Kiribati and provides opportunities for formal and non-formal open and distance learning.

The Primary School Radio Broadcast provides programmes for each class, scheduled every day. The school broadcast works for four hours a day. This allows all primary school pupils who cannot attend school to listen to the radio. The subjects aired are English, maths, environmental science and Kiribati language.

The Foundation of the South Pacific People also has a radio programme catering to all kinds of people in the community. This is on trial first on one of the outer islands, Marakei. The programmes, developed by Foundation officials, cover family issues, childcare, local medicine, cooking methods, hygiene, agriculture, and nutrition.

New Technologies

Telecommunication Services in Kiribati (TSKL) opens up its doors to the public to use the computers for e-mail, Internet and other personal interests, but access to these computers costs money. Therefore, only those who can afford it, use the computers there.

A media company known as Nei Taberanikai Video Limited produces video-cassettes which are socially interesting and educational for the community. Nei Taberanikai filmed one drama group performing many related educational stories. This is an expensive way of learning.

Women's Access to ICTS for Education Purposes

In Kiribati, women are treated the same as men with respect to the access to information and communications technologies for open and distance learning. Women have access to all available facilities for the courses that are relevant to their programmes (personal communication with the Director of the University of the South Pacific Extension Centre, Feb. 25, 2001). In 2001, the number of students admitted for computing courses was eighteen, 60% of whom were women.

The government secondary schoolgirls have access to computers. Computing is one of the subjects they take. However, this is an optional subject area for students at the Form 4 level.

Social Barriers

Women are not facing any discrimination in Kiribati, but they still have barriers—such as parental, partnership (husbands) and financial constraints, illiteracy, and lack of facilities and well-trained facilitators:

- Parents are reluctant to send their daughters away to boarding schools. This is more of a cultural tradition that girls have than family prestige in them. It is also important that girls keep themselves from getting pregnant. Mothers do not co-operate in encouraging their daughters to go to schools, but instead keep them at home doing the domestic tasks for the male children at home, such as cooking, washing and cleaning up.

- Husbands and boyfriends do not see any purpose in their wives acquiring further training and education. It is a traditional belief that once girls get married that is the end of their education. Getting married means staying at the husband's home, having children, looking after the children and the husband's family, and doing the home tasks. Women who have to do domestic work find themselves exhausted before they can do any studies.

- Extension studies also cost a lot of money. Many women find it hard to pay their course fees and travelling expenses when, at the same time, the family has many other financial obligations—to their children, to other members of the family, and to the community functions including the church. Even more expensive is accessing new technologies, such as a computer.

- There are many, many women who cannot use information and communications technologies because of illiteracy. Even those who have some literacy skills cannot understand the words or terms used in the technology field. Among the working women, only those who have computers and have undertaken computing courses are able to use information and communications technologies, through computers only. The rural women are the majority who cannot use these new technologies.

Training and Capacity Building

The lack of facilities does not motivate women to use computers. In addition, the lack of well-trained facilitators means that women cannot use information and communications technologies without help. Getting women trained as facilitators in these new technologies can help motivate more women to use them.

Strategies to Overcome the Barriers

We need to look at strategies for overcoming the barriers that women face in using information and communications technologies for open and distance learning. (In some cases, the same barriers apply to men.)

1. Our social attitudes should change. Parents and male partners need to be informed about the new technologies used in open and distance learning. Community meetings could be an effective way of increasing everybody's awareness of the usefulness of these technologies for this learning mode.

2. Educated women should be role models. In this way, other women and conservative parents and male partners can see the good side of open and distance learning.

3. The financial constraints should be tackled through external funding agencies. A project document on information and communications technologies for open and distance learning should be drawn up.

4. The lack of facilities and well-trained facilitators might be addressed by asking rich countries or associations to purchase such facilities and train our women to become facilitators of information and communications technologies.

5. Learning centres should be set up in rural areas to enable girls and women to work and manipulate computers and to generally explore their capabilities. It will give women the feeling of ownership, and their motivation to learn will increase. A well-trained facilitator could teach and train more women who, in turn, can provide further training to other women.

Conclusion

Women and men in Kiribati still compete in gaining accessibility to information and communications technologies for open and distance learning. With the limited facilities, very few will get the most out of them. The more facilities we have in the country, the faster will be the accessibility and learning through the information and communications technologies.

The high cost and misuse and over-use of e-mail and the Internet in government offices led the government to limit user access in its ministries. Only the permanent secretaries and Honourable Ministers in each ministry have access to the Internet system to enable fast communication with the outside world.

Women in the rural areas and on the outer islands are the ones who need greater consideration for information and communications technologies and open and distance learning. Educated women can be role models for the lesser or non-educated women.

Using information and communications technologies in open and distance learning will help:

- show women that they can have access to other forms of training;
- encourage more women to develop their interests and lead them to seek further education;
- create jobs for women.

Information and communications technologies in open and distance learning will be useful in implementing various kinds of educational programmes. Extending education to all and reaching out to people who have fewer opportunities to research and learning—this is what the new technologies offer.

Nauru

Clara Alefaio and Ruby Willis

Introduction

Nauru is a small island state located 60 kilometres south of the equator in the central Pacific. It has a total land area of 21 square kilometres and measures 6 kilometres in length and 4 kilometres in width. Its closest neighbouring island countries include the Republic of Kiribati, about 330 kilometres to the east, the Marshall Islands to the north, and the Solomon Islands to the south.

Nauru has a total population of approximately 11,280, of which 8,280 are indigenous Nauruans and the remaining 3,000 are expatriates recruited to work on the island from the Pacific region and beyond to Asia. It became an independent nation on January 31, 1968, from a United Nations Trusteeship comprised of three partner governments: Australia, New Zealand and Great Britain.

Part One

Nauru has always envisaged that the pathway towards development is to build its human resource capacity with workers who are skilled with the appropriate and necessary qualifications to meet the changing requirements of the job market locally and overseas. Nauru's geographical isolation has made her realise and recognise the importance of open and distance education as the only means to develop the required human resource capacity without people having to leave the country. It is also the only practical way to develop Nauru's human resources in a cost-efficient manner.

The present national priorities in open and distance learning for Nauru include:

- providing post-graduate courses through open and distance learning;
- making available and using satellite tutorials;
- using the Internet to deliver assignments because it is a cost-efficient way of doing so;
- offering more informal courses to cater to those who do not fit in with formal education;
- conducting workshops for women at grassroots level; and
- hiring qualified personnel to run tutorial sessions and conduct workshops and other training programmes.

The full impact of the Internet revolution, which brought about the diversity of information and communication technologies hasn't quite touched the island. It may have started fires on the fringes, but it hasn't completely invaded and changed the way of life of the Nauruan people. This is due to the stagnant nature of the local telecommunications industry, which has not moved with the times to accommodate most information and communications technologies.

However, Nauru believes that changes cannot be achieved instantly, and that through training and awareness campaigns there is hope for improvement and further developments in the area of information and communications technologies.

For the present, the Nauruan people cannot maximise the full benefits of many information and communications technologies except for a privileged few (some workers, a few students). There is a wide gap that separates these technophiles from the technophobes—not just women, but people of both genders. Many old people experience some kind of alienation in this area, which is dominated by young minds.

Only one university, the University of the South Pacific, which is represented by the university's Nauru Extension Centre, offers open and distance learning. The Nauru Extension Centre offers open and distance learning education at the preliminary, foundation, vocational and degree levels and for childhood education.

Open and distance education through the university has improved over the years. It started in the 1980s, with its distance education programmes carried out through radio tutorials. Recently it moved to satellite tutorials and lectures and the use of self-teaching materials drawn up specifically for distance education by the university. Nauru, as a member of the University of the South Pacific, has enjoyed the developments and has also utilised the opportunities that the university has offered and will be offering as a leading education institution in the Pacific.

According to available data from the University of the South Pacific for 2000, students who enrol in the centre are mostly women:

External		**Internal**	
Male	Female	Male	Female
11	**27**	3	**4**

To answer the needs for distance education which the local telecommunication industry cannot fulfil, the University of the South Pacific bridged the gap by providing a state-of-the-art satellite-based telecommunications network, USPNet, to its member countries. Such infrastructure has proven to be very useful and is the pride of the University of the South Pacific in delivering open and distance learning programmes to its member countries.

USPNet

The setting up of the satellite-based telecommunications network is under the University of the South Pacific project called USPNet 2000. USPNet 2000 offers to its entire centre the following:

- All-simultaneous transmission of video, audio and data signal from Laucala Campus (Main) to each member country and from each country to other countries.

- Real time and simultaneous tutorials via audio to all or selected member countries.

- Access for extension students to lectures from the university's campuses via video broadcast to local centres.

- Tutorial and counselling services to extension students via videoconferences to Laucala campus.

- Easy access for lecturers, tutors, administrators and fellow students at the other campuses and centres for course-related discussions.

- Enhanced online course delivery.

- Increased efficiency and effectiveness of the university's administration of extension students through satellite data transfer and reliable communications.

- Expanded teaching tools that include computer-based content such as spreadsheets, electronic slide presentations and audio-graphics.

- Easy ways for lecturers to use photographs, video images, audio-cassettes, CD-ROMs and other audiovisual materials in their courses.

- Expanded internal training options at the university.

- Reduced travel costs and increased time savings for university administrators, especially in training and personnel recruitment.

- A greater sense of ownership of the university among member countries.

USPNet 2000 offers four 128-kbps two-way data circuits that allow compressed video broadcast and videoconference services to all of the university's locations.

The value of the satellite system upgrade is about FJ$12 million (US$6 million) which grew through the generous support of the governments of Japan, New Zealand and Australia and the university's member countries.

Part Two

Some women and girls have encountered barriers to the access of information and communications technologies for open and distance learning because they come from low-income backgrounds. In some cases, they do not have access to these technologies to widen their scope for further learning or for accessing information that may serve as the basis for standardising their basic living skills and their literacy capacity. Among the more recognised barriers for women accessing information and communications technologies for open and distance learning:

- poor reading and writing skills in both the vernacular language and English; and

- cultural barriers that impede human development because of traditional norms and values and resistance to changes (for example, Nauruan women are still culturally expected to perform housewife roles while at the same time they are also expected to work in paid employment to contribute to household living expenses).

There have been numerous attempts carried out by women's groups, non-government organisations and youth groups to use work programmes that target improving the living and working conditions for women in the world of life and work.

For example, the Nauru National Youth Policy recognised young women and gave young women (youth) a social status that allows them to take part in the overall socio-economic development of Nauru. This includes having the right to education at all levels and in all formats, such as formal and non-formal education, and vocational and tertiary education.

Nauru's position with information and communications technologies also recognises that access to computers remains beyond the means of certain areas and certain marginalised people. However, the Ministry of Education is pushing itself to keep abreast of developments in these technologies in Nauru and the Pacific region. For example, the Ministry of Education has achieved the following:

- The Nauru Education Department has provided all its secondary schools with computers to give access to students who are enrolled in formal education from Form 1 to Form 4 (equivalent to Year 7 to Year 10).

- The Youth Affairs Department and the Nauru Vocational Centre have been equipped with computers to cater to those who have left formal education and are at post-secondary institutions. The Youth Affairs Department provides non-formal education for young people who have not received education and those who dropped out or were pushed out of the formal education system.

Nauru believes that she must move with the rest of the world to provide access and education, as well as to support maintenance of information and communications technologies in her pursuit to allow women and other users to benefit from the technologies. Nauru has identified that for information and communications technologies to become an effective tool for the delivery of open and distance learning programmes, it is important that the technologies address the specific needs of the people or the users. For one, they must be flexible to accommodate the rising needs of women in Nauru regardless of their status in society.

Nauru, anticipating the need to overcome the social and economic constraints that may be faced by Nauruan women in accessing and using information and communications technologies, identified the following efforts that might counteract the barriers:

- Developing a programme that encourages women to take up open and distance learning as an alternative way of learning.

- Developing a programme that assists women in having and accessing low-cost but powerful information and communications technologies in their own homes.

- Developing a programme that gives students the opportunity and choice to study in their own time and own home.

- Joint programmes and projects between the University of the South Pacific and other recognised educational institutions to provide accreditation and delivery of programmes through open and distance learning, particularly on information and communications technologies.

Part Three

Nauruan women and girls have a defined role in Nauruan society, and much of this can be explained by the fact that Nauru is a matrilineal society. However, the roles of women and girls are quickly changing and the male gender has overtaken socially, politically and economically. Therefore, there is a great need for an awareness campaign to re-emphasise the importance of the role of women and girls. Nauru believes that women and girls can and should utilise the potential benefits of information and communications technologies to boost their confidence in their abilities to become technologically literate and to make use of these technologies for further improving themselves. Suggested ways that women and girls can benefit from using information and communications technologies for open and distance learning include:

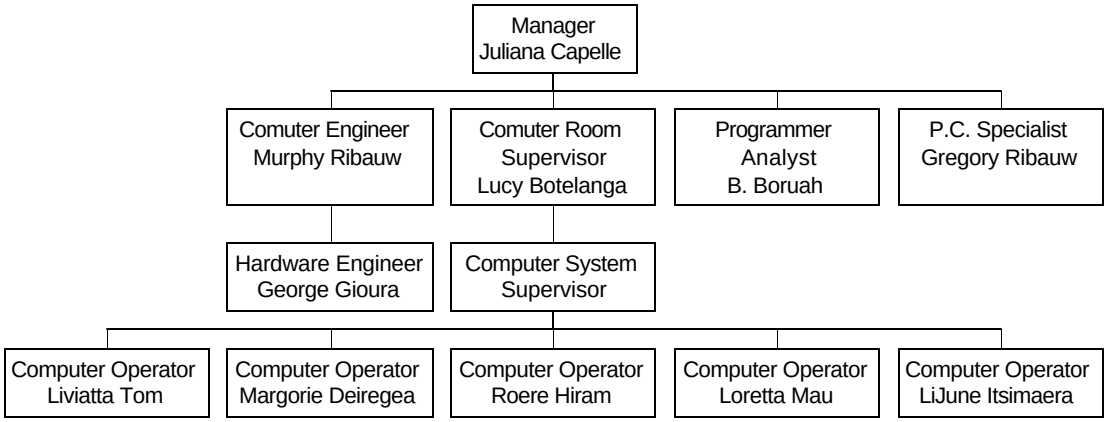
- Conducting workshops aimed at training trainers at the regional or national level as part of a "hands-on approach" training scheme. The trainers will go back to their respective countries and carry out training programmes at the national and grassroots level in training programmes for women in the villages and districts, and for youths and church groups. This should further enhance capacity building among women in information and communications technologies.

- Offering more informal education programmes that will allow women and girls to take part in less expensive training schemes that are designed specifically for women and girls who do not have access to information and communications technologies, but who have the potential to benefit from them to improve their living standards. Such schemes can be offered through already existing institutions such as USPNet 2000, available at the university's Nauru Extension Centre.

Working women and girls have more opportunity to enhance and upgrade their skills, knowledge and access to information and communications technologies because Nauru's modern working facilities provide the appropriate framework for this. For example, the Computer Bureau of Nauru is equipped with a modern IBM mainframe AS/400. The Bureau is managed by a woman and is dominated by women staff.

Nauru Computer Bureau Establishment Chart

Figure 1. Computer Bureau of Nauru Establishment Chart.



Working women have the opportunity to enhance or upgrade their skills and knowledge, and have access to information and communications technologies because they have the financial support to become engaged in further training and they have the experience and confidence gained from working. They also have access to overseas training such as that offered in Australia, New Zealand and Fiji.

There are existing initiatives to build capacity through open and distance learning programmes. Such programmes have been carried out mainly by the University of the South Pacific. The university, through its Extension Centre, has focused on providing courses that will encourage women and girls to use information and communications technologies. The university is also an institution that promotes equality and employment opportunities among genders.

The university's extension studies offered from the three campuses through distance education mode fall into four categories: preliminary level, foundation level, vocational level and degree level. Extension courses currently being offered through the Nauru Extension Centre to move Nauruans and people in the other member countries into the fields of information and communications technologies are as follows:

Certificates by extension:

- Advanced Certificate in Teaching Agriculture
- Business Law
- Community Development
- Computing
- Civil Law
- Criminal Law
- General Law
- Population Studies
- Postgraduate Certificate in Education
- Tourism
- Non-formal Education
- Management
- Ocean Resources Management

Diplomas by extension:

- Banking
- Community Development
- Environmental Education
- Fisheries Economics and Management
- Prof. Diploma in Legislative Drafting
- Library/Information Studies

As the figures below indicate, there are more Nauruans utilising the open and distance learning mode of study through the University Extension Centre in Nauru for the year 2000 than there are Nauruans studying overseas at the main campus in Fiji.

Internal students	External Students
7	38

However, the number of students studying through the university by open and distance learning (external mode of study) have fluctuated but not increased in the period 1995 to 2000:

1995	1996	1997	1998	1999	2000
39	46	66	45	35	38

(Figures taken from a University of the South Pacific report.)

Another important factor to take into account is the potential for information and communications technologies and open and distance learning to contribute towards the three chief concerns for women, as defined by the Platform for Action of the Fourth U.N. World Conference. The Platform for Action calls for:

1. Education and appropriate technical training
2. School curricula that encourage girls to enter technology and science areas
3. Support of women organising and mobilising for empowerment

The Internet, which has more that 50 million users and is attracting more and more users each minute, is dubbed the "Information Super Highway." The implication is that the world has become a smaller place and is wired together into one global village. Education will never be the same. Research can be done cheaply and quickly. School teachers all over the globe can work together to co-ordinate projects. Women can join newsgroups and visit places in cyberspace that deal with women's issues such as discrimination and empowerment.

On the Net, you are what you type on the keyboard. It provides anonymity which has broken down barriers relating to physical appearance, culture, gender and disabilities. Women can maximise this anonymity to empower themselves and break through the wall that divides them from an area dominated by men.

Part Four

The government of the Republic of Nauru has established the Ministry of Women and Cultural Affairs. This department is still in its infant stage and there is substantial work being carried out to develop policies that promote women's affairs in the context of Nauruan cultural, social, political and economic development.

Public policies are still a major concern. There is a need to formulate appropriate policies and, just as importantly, to implement them. Policies that have been developed have not proven to be adequate to address the issues, concerns and welfare of working women and girls. The government has not developed appropriate or adequate policies that can be used to guide the direction of approved programmes and projects that emphasise the needs of women.

This area needs to be developed to ensure that women's needs are emphasised and distinguished adequately.

A major improvement in telecommunication services is necessary before Nauru can secure the delivery of open and distance learning through the use of information and communications technologies.

Nauru National Telecommunication is a government-owned entity. Its policies are dependent on governmental directives and priorities. The needs of the private sector are also catered for through the company's various services which include:

- Mobile phone services
- Internet connections
- Line connections
- Facsimile connections
- International calls

There have been several calls for liberalising the Telecommunication Department to allow for greater autonomy and managerial freedom which would likely result in greater productivity. Privatisation of the department will depend on the political will of Parliament to pass the bill which will privatise it and make it either a statutory body or a company. The bill is still under review for further deliberation.

Conclusion

Nauru shares with other developing nations their concern about the need for more collaborative work to further the development of open and distance learning that will serve the Nauruan people and widen the scope for access to opportunities for quality education.

The people of Nauru, need to understand and cope with the social changes taking place in our society, and with the explosion of the information era through technological advancement. Nauru, a small developing nation, faces the challenges of being confronted by the effects of globalisation. It needs to develop progressively too, in order to allow itself to access opportunities for quality education. In addition, Nauru needs to have access to the use of distance education technologies so that it can build capacity through its human resources. This can be the most effective and efficient manner to exploit the benefits derived from information and communications technologies.

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Samoa

Nina Netzler von Reiche and Dr. Emma Kruse Vaai

Introduction

Samoa consists of two main islands, Upolu and Savaii, as well as two smaller inhabited islands and six uninhabited islands. The population of Samoa in the 1991 census was 161, 298 of whom 76,697 were female and 84,601 were male (Department of Statistics, 1991). It is a comparatively young population, with 50.7% less than eighteen years of age.

Samoa is termed a "Lesser Developed Country" with a GDP per capita of approximately US$940 in 1992. Economic growth has been favourable since 1993. Before that time, a series of natural disasters and endemic economic issues had caused growth to decline.

Problems inherent in the country include: dependency on ill-defined markets; the high cost of public utilities and infrastructure; and vulnerability to natural disaster. Samoa is also heavily dependent on remittances and donor assistance, the result of which is an economy that is vulnerable to both external and internal market fluctuations. To boost the living standards of the families at the grass roots level, their capacity to earn an income needs to be developed. This means exploiting the opportunities available for income generation, such as through the export of agricultural products.

Education has focused mainly on the attaining of formal academic qualifications. Families target civil service employment as being a more secure source of income and also more socially prestigious than employment in agriculture. The result has been widespread rural-to-urban migration. Coupled with the unpredictability of natural disasters, which can wipe out massive investments in crop production, a regular income from white-collar employment seems all the more attractive. The white-collar skill acquisition, however, has also led to a "brain drain" with many of the skilled population migrating overseas. At the same time, the supply of formally trained persons cannot keep up with the country's growing employment needs. The government therefore encourages private sector development, through the development of a skilled labour force, which can then begin to fulfil employment demands.

The need to stimulate informal and private sector growth and increase opportunities for self-employment shows the importance of entrepreneurial training programmes within the current socio-economic climate of Samoa. Indeed, women feature as a hub in this context of development because they are often the ones faced with the raw realities of financial difficulty and are therefore much more pro-active in a wider and more diverse range of income-generating activities.

According to the *Pacific Human Development Report 1999: Creating Opportunities in Samoa* (UNDP, 1999), the Department of Education (with overseas aid and assistance) initiated a project to formulate policies and prepare a plan of development for this sector during the decade 1995–2005. The aim of the strategic plan is to establish a framework to:

- support early childhood education;
- improve the overall quality of primary education and at the same time, implement the requirements of the Education Amendment Act 1991–1992;
- increase access to senior secondary education by merging the two streams into a single stream, at the same time improving overall quality;

- strengthen the administrative function of the Faculty of Education (National University of Samoa) and improve the quality of graduates;
- facilitate linkages between secondary schools and post-secondary institutions;
- introduce best practice into the department's central management; and
- provide advice and assistance to school management committees.

Distance education is on offer in Samoa, but accessibility really does depend on different sets of circumstances. For women, case studies have shown that they must already have reached undergraduate level and be familiar with information and communications technologies in order to consider the possibilities offered through Distance Education. This is one of the main reasons that many women who use the information and communications technologies are actually already "well educated." Having acquired first degrees, they then use the technologies for further education by distance. Another group of women who may have this sense of familiarity are office secretaries who may know how to use the Internet through the use of computers at work. Apart from e-mail and the occasional surfing, most have not considered the possibilities of further education by distance through this mode.

Lack of information about further training or lack of courses and financial support offered at this level means that this group of women, who have some familiarity with information and communications technologies, have not used it for further advancement in education. The University of the South Pacific has an extension service on its campus in Alafua, Apia. While the education is offered by distance education mode, information and communications technologies are not fully used. The students are furnished with course materials and readers, and they meet with a tutor on a regular basis, perhaps once a week, to discuss and clarify topics. There is, however, no constant "back and forth" as is possible on the Internet. It is still very much print materials focused, with some help from tutors if and when they are available.

The University of the South Pacific Extension Centre does not have Internet facilities available for the students, although they do have some satellite audio conferencing. Having computers for direct e-mail contact with lecturers on the home campus would most likely raise course fees and certainly fewer students would enrol as a result of financial constraints. Education for women is always difficult and the options presented by such an institution as the University Extension Centre are not free of hindrances. For example, while distance learning means not attending regular classes and being left to one's own devices and level of commitment, lack of contact with real supervisors and peers increases isolation and not everyone will be fully motivated to stay on target with reading, coursework and assignments. Moreover, family commitments loom even larger when one is isolated from academic support.

Samoa does not have any national priorities in open and distance learning as such. However, donor agencies such as AusAID, offer scholarships at the master's level through distance mode. There are nine women currently enrolled with Australian tertiary institutes to complete master's level studies through distance education. One has already completed a Massey University (New Zealand) post-graduate diploma in Computer Studies. However, there are no official statistics on the number of women undertaking distance education courses in Samoa, as some of these clients are privately funded.

The opportunities for the women who have been able to access these AusAID scholarships have been great. Two women lecturing on Computer Education and History at the National University of Samoa are about to complete their master's degree via distance mode. Dr. Emma Kruse Vaai

enrolled at the Masters level but was able to upgrade to a Ph.D. through distance education and a minimal amount of time on campus at the beginning and the end of the study period. Apart from the qualification itself, other skills upgraded include computer and Internet literacy, as well as being able to contribute through networking in the same field of study. Other women at the National University of Samoa undertaking these scholarships are studying in the fields of language and linguistics, history, business administration, and education management.

For all the women involved, the ability to study at this level and be able to stay in their home countries was crucial. Women speak of their ability to fulfil family obligations such as caring for children, elderly parents and spouses, and to fulfilling other roles in the wider social circles of the extended family, church, village and others. Many of the women are also in the age bracket and stage of life where mortgages and loan payments for cars and houses must be made, as well as being responsible for the management of family monies for various Samoan *faalavelave* (such as funerals and weddings) and for lands and titles, court cases and the like. One can foresee difficulty if the women were to leave Samoa at this time because the pressure to be at home is so great. It is far easier to have distance education as an option as one's life could be more balanced here than from miles away. Nevertheless, as already mentioned, the balance in the scales can tip either way in terms of prioritising study and home life (Netzler von Reiche, 2000).

The National University of Samoa has very recently opened up an online videoconferencing link (PEACESAT/TIPG) with American Samoa. This was initially established in order to offer courses in the Samoan language and culture online to those in American Samoa, Hawaii and the United States who are interested. Although this new link promises other exciting opportunities, the fact remains that we need the infrastructure to make it work and, more importantly, to make it work equitably for all members of the population. As this is a very new venture, its total impact is not yet visible except in providing closer links between the two Samoas and with other Pacific islands, such as Hawaii and Guam.

Priorities for Open and Distance Learning

For priorities to be set for open and distance learning, first there needs to be a priority to improve education offered to rural women from elementary/primary level to tertiary level. There is a bias towards urban schools in terms of better resources. There is also a bias towards higher education. For example, overall national budget allocations are weighed heavily towards the National University of Samoa, while not all primary and secondary schools are equipped with basics such as well-stocked libraries and science labs, let alone one or two computers for staff and student use.

Because village communities take responsibility for the provision of school facilities, there are marked differences in the quality of schooling infrastructure available in rural areas. This disadvantages girls who attend these schools right from the beginning of their schooling lives. Girls in these schools are not exposed to any form of information and communication technologies except for radio broadcasting and television (to a lesser extent), unless they move to schools in the urban areas. In urban areas, however, life for girls is not always happy and settled because the girls are often separated from parents and home. Furthermore, only a handful of urban schools have information and communications technologies such as computers and access to Internet. At present, an urban private school (Robert Louis Stevenson High) is building a multi-media library. Students from this school have had the highest percentage of success at the college level in the last five years.

Girls also do very well at this school: top students have mainly been girls in the last five years. It is clear from this example that urban-based, well-staffed and resource-equipped schools do have clear advantages. The style of teaching and ethos demonstrates and ensures that gender equity does have positive social and academic effects.

Women and girls need to be exposed to computer technology from an early age so that they will be competent and confident users of the new technologies when these are available in their future. Information and communications technologies do offer possibilities in terms of teacher upgrading and access to information for classroom use through videoconferencing and the like. It could well be the answer to bridging the gap between social and economic disparities, but again the infrastructure must be in place and that paradoxically goes back to economic inequality which largely determines those who have and those who do not have access to information and communications technologies.

Education planners must also foresee that access to the new technologies does not only mean prospects for white-collar jobs but that it also offers access and exposure to other employment opportunities such as crop production, hydration, handicraft making, the food industry, and the tourist and hotel industry. These are the kinds of areas where the curriculum needs expansion, as there are only a limited number of white-collar jobs to be had for the hundreds of women in Samoa looking for employment. Many are self-employed, some having basic school qualifications, though they have expressed a definite need for business and financial management skills. Access to relevant information and education, possibly through information and communications technologies, can enable women to compete more equitably in the market and aspire to greater successes.

Local Access to Information and Communications Technologies

There are a few schools in Samoa equipped with computers. The University of the South Pacific library at the Agricultural School, Alafua, has a computerised classification system which the students simply have to understand and use. Computers have also been readily incorporated into the Samoan church system, for record-keeping and general administration. Because churches are still central to most villages, access to information and communications technologies could perhaps be facilitated through this institution in the same way. In the past, the church was instrumental in Samoa's achieving a 90% literacy rate.

The costs of accessing the Internet, however, are expensive and therefore many organisations shy away from offering free access to the Internet. Once a fee is imposed, everyone—including women and girls—are disadvantaged. Open and distance learning is very new to Samoa, but educational priorities (as expressed in the current Institutional Strengthening Project) are much more targeted to improving basic services in the country before distance education is seen as a priority. But, perhaps improvements to the basic services, such as upgrading teachers and providing greater access to information, may be better and more efficiently fulfilled through information and communications technologies.

Widening Women's Access to Education and the Use of Information and Communications Technologies

Overall, girls have performed just as well as, if not better than, boys in all academic fields, especially those traditional academic areas such as law, medicine and teaching. Statistics from the University of the South Pacific Development Office for 2000 show more women than men were studying through the University of the South Pacific, especially by distance at the Extension Centre:

External students (Samoa: Extension Centre)			Internal students (Fiji: Laucala campus)		
# female external students	# male external students	Total external students	# female internal students	# male internal students	Total internal students
109	76	**185**	100	115	**215**

Enrolment figures at the university preparatory year for the last ten years show that girls have outnumbered boys every year except for 1993 (Table 1).

Table 1. Enrolment Figures at the University Preparatory Year Level, 1991–2000

Year	Male	Female	Total
1991	51	76	127
1992	63	68	131
1993	73	62	135
1994	72	105	177
1995	50	79	129
1996	55	108	163
1997	73	104	157
1998	94	102	196
1999	44	159	203
2000	82	125	207

Source: University Preparatory Year Office, National University of Samoa, 2001

The number of students who start education far outweighs the number who reach this level. This shows the negative bottleneck effect of the current education curriculum where so many students begin primary school and so very few actually make it to tertiary level. It is not clear what happens to the rest and those include many disadvantaged women and girls.

Barriers encountered by women and girls in accessing information and communications technologies are primarily financial. Competency in information and communications technology skills is also a real barrier, as computer skills are not introduced into the Samoan curriculum until Year 11 (when students are sixteen to seventeen years old), but again these are accessible only to girls attending schools with the computer facilities. Girls cannot take computer studies as a course until they reach the university preparatory year or a polytechnic.

There have not really been any initiatives implemented for this specific goal. To encourage more girls to pursue computer studies would entail large expenditures by the Education Department. Like most education departments worldwide, Samoa's has a limited budget. Some schools have attempted to introduce computer studies at an earlier year, but again these are mainly urban schools.

Women and girls need to be exposed to computer technology from an early age so that they can become competent in using information and communications technologies. Radio as a vehicle for information has historically been a very effective means of transmitting information in Samoa. In addition, our education curriculum needs to widen to include science-related courses tailored to girls. These could be in

agriculture, transport and energy management, environmental management, nutrition engineers and hydraulics.

Women are affected by a large number of constraints: socio-cultural, financial, educational and physical.

Rural versus urban issues — Rural women are much more disadvantaged than urban women. Rural women are not exposed to information and communication technologies in their schooling lives.

Affordability — Financial constraints are very real barriers for both rural and urban women. Urban women who have good jobs with government or in the private sector may have some access to information and communications technologies through their work. However, due to the expense of modern technology, many women cannot afford the tools to access education.

Physical location (in relation to educational institutions, etc.) — In rural areas, poor infrastructure, such as the lack of roads, electricity, postal services and telephones, limits access by women to educational institutions and therefore to training in information and communications technologies.

Attitudes — Many women do not perceive the importance of accessing information and communications technologies. The attitudes held by women and curriculum developers towards these technologies need to change.

Skills and literacy — Low literacy rates and typing skills hinder many women's ability to use computers.

Training and Capacity Building

The potential exists to increase access to education using information and communications technologies, but women who perceive this need have already received a solid formal education base. Other women must be exposed to the benefits of pursuing technical training and education.

Samoa Polytechnic does offer scholarships to women in fields that have been predominantly occupied by males. Samoa Polytechnic and the National University of Samoa offer science and technology courses, but there is no definite strategy in place that encourages women and girls to pursue science- and technology-related areas. Girls who have excelled in science often choose to study medicine, but not all can take up a medical degree, as there are limited scholarships in medicine. Therefore many women pursue general degrees in basic science as a second choice.

National Telecommunications Policies and Provision

The present telecommunications service provider, Samoa Communications Limited, has signed a ten-year contract with the government as the sole providers of telecommunications.

Samoa Communications Limited currently operates as a "State-Owned Enterprise", although it has not yet formally become that type of entity. It operates with a Board of Directors involving two to three government representatives and representatives from the local community. Although there is a ten-year mandate, the company has stated that it seeks to operate in a competitive environment. It is believed that because of Samoa's relatively small population, the economy cannot handle another telecommunications provider.

Samoa Communications Limited's main goal is to provide service to all its clients. There is, however, no concrete policy on provision of services to the education sector as such. The company's approach is to try to service all clients, including those on the waiting list and rural clients. The belief is that because there are many district schools in the rural areas, providing phone lines and thereby possible Internet access to these areas will cover schools.

Hindrances to phone line access in Samoa seem to be greatly influenced by the volatile weather conditions. Storms, cyclones and heavy rains that occur in the wet season can provide real problems for telecommunications services. Currently, funds spent on adjusting for storm damage had implications for rural clients awaiting phone connections.

Views from the management of Samoa Communications Limited are that human resource technical capacity is lacking in the country. It is believed that this type of expertise will always need to come from human resources sourced from New Zealand and Australia, as local information technology experts will not have had exposure to the latest developments in communications technology.

Phone line access to rural areas is limited, mainly as a result of heavy costs. It seems that these costs will continue to contribute to the lack of information and communications technologies in the rural areas.

As previously mentioned, the new PEACESAT/TIPG telecommunications connection to link Samoa and American Samoa has been approved and agreed to by two governments.

The high costs of telecommunications in the Pacific islands region has been a barrier to the sharing of information and resources among Pacific nations and other political entities. This network connection, it is hoped, will help alleviate some of these barriers and establish a model for interconnection and international co-operation.

The Samoa site is at the National University of Samoa. As Va'a (2000: 102) says: "This link will:

- Facilitate the sharing of programmes in health (Tele-medicine) and education through video, tele-conferencing and the Internet.
- Provide access to the Internet which can then be extended to the school system.
- Be between the National University of Samoa and the American Samoa Community College, University of Hawaii, University of Guam and possibly others on the PEACESAT system. It is also envisioned that other academic institutions in Australia and New Zealand will be accessed through ISDN connections through the PEACESAT/TIPG and the Telecommunications Link of the ASG DELTA Consortium.
- Facilitate student exchanges between Samoan students and those in American Samoa, Hawaii and others.
- Provide links for health programmes between the national Samoan hospital and the LBJ Tropical medical centre of American Samoa.
- Enable other exchanges such as coordinating emergency and disaster relief and other government agencies for training, meetings and cultural exchanges."

There is vast potential to increase educational opportunities and address gender differentials, however, there must first be an attempt to offer basic training skills to rural and urban women in information and communications technologies.

As yet, there are no formal policies to support the use of information and communications technologies in education generally, let alone specifically for women. There is no real linking body between education and the telecommunications sector at this stage. However, with work beginning to link the National University of Samoa and American Samoa there is now a starting point where collaboration between the two sectors is essential.

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Solomon Islands

Irene Henson

This paper identifies the barriers that women in the Solomon Islands face in the use of information and communications technologies for open and distance learning. It discusses four main areas: (i) impact of information and technology on distance learning; (ii) women's access to information and communications technologies for educational purposes; (iii) training and capacity building; and (iv) public policy.

Introduction

The Solomon Islands, an archipelago of mountainous islands and coral atolls, has a total land area of 27,540 square kilometres scattered over some 800,000 square kilometres of ocean. Its closest neighbours are Papua New Guinea to the northwest and the Republic of Vanuatu to the southeast.

The country gained its independence from Great Britain on July 7, 1978, and subsequently adopted the constitutional monarchy type of government with the Queen as the head of state, represented in the country by a Governor General. The government operates under the principles of a parliamentary democracy.

The total population according to the 1999 census was 409,042, of which 48% were females and 41.5% were under fifteen years of age. The ethnic background of the population is Melanesian (94.5%), Polynesian (3.0%), Micronesian (1.2%), and Chinese, Europeans and mixed races (1.3% combined). The annual population growth rate of the country is 2.8%.

Twenty-three per cent of the total population is involved in paid work and of that group, 31% are females. The total school age population (ages five to twenty-nine years) is 227,473 of which 51.4% are males and 48.6% are females. Of the school age population, only 89,727—39.4 %—are attending school (primary, secondary, tertiary), as education is still not compulsory in the country. Of those attending school, 45.5% are females, a total of 40,842.

Open and distance learning is not new in the Solomon Islands. The University of the South Pacific established a centre in the Solomon Islands in 1971. The number of enrolments at this centre, where students study by the distance mode, has gradually increased over the years.

As well, the Solomon Islands College of Higher Education opened a distance education centre in 1992. These are the two main institutions in the country that provide open and distance learning for Solomon Islanders.

The communications technologies long used in these centres for open and distance learning have been telephone and postal services, local radio programmes, two-way radio networks, audio- and video-tapes and, for students at the University of the South Pacific centre in Honiara, satellite tutorials. The introduction of technologies that interlink computing and telecommunications systems into the open and distance learning system is a very recent introduction.

Impact of Information and Communications Technologies on Open and Distance Learning: A Gendered Status Report

The University of the South Pacific and the Solomon Islands College of Higher Education (SICHE) co-ordinate and facilitate academic programmes through the open and distance learning mode. The educational programmes provided by both institutions range from pre-tertiary education to post-graduate in various disciplines including education, business and commerce, management and administration, humanities and science. In 1997, the Distance Education Centre of SICHE took on the role as support agent for the University of Southern Queensland, with responsibility for facilitating and co-ordinating that university's undergraduate and post-graduate programmes.

The training and education provided by these institutions are publicly funded. SICHE is a statutory body within the Solomon Islands government system. The University of the South Pacific is owned by twelve member countries in the South Pacific region. As such, a large proportion of both institutions' operational costs are met by their respective governments. Furthermore, most of the new initiatives, as in the case of the Distance Education Centre, in promoting and providing education through the open and distance learning mode have been funded by donor agencies such as AusAID and New Zealand Overseas Development Assistance.

The offering of the educational programmes by the University of the South Pacific and SICHE through open and distance learning is an attempt by the two institutions and the governments in authority to make education accessible, as well as to provide equal educational opportunities to Solomon Islanders. Although the national government of the Solomon Islands recognises the importance of open and distance learning in meeting the educational needs of Solomon Islanders, it does not have a policy that clearly spells out its priorities with respect to open and distance learning—or to information and communications technologies—in the light of improving women's participation in education. Government priorities place more emphasis on traditional modes of learning than on open and distance learning. As a result, the trend of more males than females going through the formal education system continues, even though there is a policy which stipulates equal education opportunity for all.

Such inadequate policies on open and distance learning have had negative implications for women's participation in education and training through the use of new information and communications technologies. For example:

- Most women, particularly those in the rural areas, are unaware of the education and/ or training opportunities offered in the country through the open and distance learning mode.

- A large proportion of women are not able to continue formal education because of the financial constraints, as when available, have a fairly high cost.

- Most women are unaware of the existence of information and communications technologies and how these could be important in improving their learning capacity. Most women, particularly those in the lower level of paid employment and those in the rural areas, do not have access to information and communications technologies.

- Many women would not know how to use new information and communications technologies for their benefit, even if these were available to them.

Consequently, women will continue to be disadvantaged and marginalised with respect to education and training through open and distance learning.

Reflecting on what might be the priorities with respect to the needs of women, the following suggestions are raised:

- The Solomon Islands government should come up with a clear policy framework on its educational priorities for the provision of education through open and distance learning, and giving specific consideration to promoting and encouraging women's participation in this mode of learning.

- The government should prioritise women's needs with respect to training and providing access to information and communications technologies for open and distance learning.

- Institutions delivering training through the open and distance learning mode should work in collaboration with the Solomon Telekom Company to provide training for women on how to use information and communications technologies that are available in the study centres or provinces.

While the national government acknowledges and appreciates the efforts of the University of the South Pacific and SICHE in providing open and distance learning, students who enrol at the distance learning centres of these institutions have done so through their own initiatives and inspirations to meet their educational goals. As such, only those who are able to afford the fees have been able to enrol at these centres.

Most of the students studying through open and distance learning are self-sponsored or privately sponsored. For the University of the South Pacific Solomon Islands Centre, the total course enrolment for semester 1 in 2001 is 1,275. Of that number, only 15.7% are on scholarships, and of those only 21% are women. The number of students who are sponsored slightly increased this year from the previous years. Generally speaking, at the university's Solomon Islands Centre and the Distance Education Centre at SICHE, sponsored students studying through open and distance learning make up a small percentage of the total enrolments.

Approximately 90% of Solomon Islands women are illiterate in the use of information and communications technologies. For those who have been exposed to the new technologies, only a very few have access to them and the knowledge to use them for educational purposes.

The Distance Education Centre of SICHE is still using a traditional distance learning system designed around the "learning isolate." An individual, isolated learner has a communication link with his or her tutor through the postal system, telephone, two-way radio and facsimile, but has few communications links with learners from other study sites. Although this centre has access to e-mail and Internet facilities, students do not have free access to these services, and the majority of those enrolled do not have access to a computer at home or at their study location.

However, recognising the importance of maintaining tutor-student and student-student interactions, the centre has established about twenty-five study sites throughout the provinces in Solomon Islands. Whatever units or courses the students are doing, they have the opportunity to participate in three or four face-to-face tutorials with their course tutors at the study centres. Initially, these study centres were equipped with telephones and teleconferencing equipment, which were donated by The Commonwealth of Learning. However, because of the lack of technical know-how, repairs to this equipment have not been possible, resulting in students and course tutors now depending on a paid telephone connection to their

course Coordinator at the Distance Education Centre in Honiara. Course books and recorded audio-tapes are provided as part of the course delivery. Most of the courses from the University of Southern Queensland co-ordinated by the Distance Education Centre are delivered through printed materials, except for the master's programme that is delivered online.

The University of the South Pacific provided free access for its students and staff to the following information and communications technologies facilities:

- Audio conferencing
- Videoconferencing
- Internet access
- E-mail
- Online courses

Students studying at the centre participate in audio and video tutorials with lecturers and tutors from the main campus. They also communicate with other students doing the same courses at other centres. They have free Internet and e-mail services which enable them to communicate freely and quickly with their tutors and lecturers. For the Bachelor of Law and Journalism programmes, theses are offered online and students doing the programmes also participate in group discussion forums with their cohorts and tutors.

These new information and communications technologies are being used as part of the means of delivery of the courses in some programmes of study. Overall, they are used to supplement the local tutorials that are offered at each centre. On the whole, the new technologies make up about 20% of the overall delivery.

Besides the University of the South Pacific centre in the Solomon Islands, which provides information and communications technologies access for open and distance learning, the Solomon Islands Telekom Company provides government offices, private businesses and SICHE with access to these technologies at certain charged rates. These are mainly e-mail and Internet services. In turn, some private businesses set up services to provide Internet and e-mail access to the public, but often at relatively high charges because they are set up mainly to make profit.

At the beginning of 2001, the Solomon Islands government, with the United Nations Development Programme, set up a Web site for Solomon Islanders and an Internet café. This was established under the Solomon Islands Development Administration Participatory Programme (SIDAPP). The Web site was set up to (i) provide an advocacy tool for rural development, as well as a rich information and news resource for all developing partners including the rural communities; and (ii) help nurture development among countries by providing information online. The government is supportive of open and distance learning in that it has also set up a SIDAPP–Distance Education Centre–SICHE link. A Web page on this organisation's Web site had been set up for SICHE, and the Distance Education Centre students were encouraged to use the link to contact their tutors and other students doing the courses through the centre. The Internet café gives the public access to Internet and e-mail services at relatively cheap rates.

Table 1 shows that the number of enrolments in recent years at the University of the South Pacific Extension Centre in the Solomon Islands.

Table 1. Enrolment at the University of the South Pacific's Extension Centre in the Solomon Islands

Year	1996	1997	1998	1999	2000
Total number of students enrolled	488	535	453	195	163
No. of females enrolled	109	108	88	46	40
% Female enrolments	22%	20%	19%	23.6%	24.5%

Source: University of the South Pacific Statistics 1996–2000

The main reason for an increase in the number of enrolments in 1997 was the introduction of an augmented Science Foundation Programme at the centre and an increase in Form 6 drop-outs which continued their studies at the centre. Of the total enrolees in 1997, thirty-one were in full-time programmes, 91% of whom were females (University of the South Pacific Annual Report, 1997). The significant drop in the number of enrolments in 1999 and 2000 as compared to the previous years was due to the ethnic unrest being experienced in the country.

Because of technical problems with the Distance Education Centre's records system at the time this paper was written, not all the enrolment data at the centre were available. However, the following information has been retrieved from the files for the years 1995–1996 and 1999–2000.

Table 2. Enrolments at the Distance Education Centre, SICHE

Year	Total Enrolment	Male %	Female %	% of Those Withdrawn	Total Graduated %	% Male Graduates	% Female Graduates
1995	162	60%	40%	N/A	20%	61%	39%
1996	354	70%	30%	5% (56% males & 44% females)	15%	70%	30%
1999	90	71%	29%	Not available	Not available	Not available	Not available
2000	415	66%	34%	Not available	Not available	Not available	Not available

Source: Distance Education Centre Files, 1995/1996 and 1999/2000

Although not all the data are available, the information given in Table 2 gives an idea of the number of students who enrolled for Distance Education Centre courses each year. The number of students enrolled depends on the accessibility to the provincial study centres and the availability of a course tutor. As indicated, fewer women than men are participating in the distance education programme still. One of the reasons is that women are culturally given second priority when it comes to education. Although individual

views and values are changing, women or girls are expected back in the community and villages to fulfil their family obligations at an early age, while men or boys can pursue their education or career should they wish to.

In the case of those undertaking programmes from the University of Southern Queensland through the Distance Education Centre, a total of forty students initially enrolled for undergraduate and post-graduate studies once the centre began supporting delivery of the university programme in mid-1997. Since then, 57% have withdrawn for various reasons. Of these, 13% are women. The reasons for withdrawal are common for all students, male and female. These include financial inability to pay for educational costs, a heavy work commitment (most of the students undertaking the university courses are working), family obligations (particularly for women) and the impact of the recent social unrest. About 9% withdrew when the company sponsoring their studies closed at the height of the ethnic tension. Others left for the safety of their rural villages. To date, only 43% of those initially enrolled still continue their programmes of study. Of these, 29% are female. Only one person who enrolled in 1997 will be able to complete his master's programme by the end of June 2001.

Widening Women's Access to Information and Communications Technologies for Educational Purposes

Two common obstacles to the offering of distance education in the Solomon Islands are (i) the logistical problems associated with the country's archipelagic setting and (ii) the limited infrastructure, including that for new information and communications technologies. The limitations explain why 70% of Solomon Islanders enrolled with the University of the South Pacific's extension programme live in Honiara (Rutherford, 1993). Since the majority of women live outside Honiara (Solomon Islands Government, 2000), these obstacles pose difficulties in limiting women's accessibility to information and communications technologies for educational purposes. Some of the obstacles are outlined below:

- Transport and communication to places beyond the provincial centres are slow and inadequate. For a lot of places, telephone contact is non-existent. Postal services are also unreliable.

- Telecommunications services to the provinces is limited, available only in the provincial centres in most areas.

- There is lack of awareness that information and communications technologies are available. Radio as a tool for disseminating information is still not enough because a lot of people in the rural areas do not own radios. Thus, awareness about the use of information and communications technologies is minimal in rural and remote areas.

- Power or electricity supply is limited to the provincial centres in most places; as a result access to information and communications technologies is not usually available to those living outside the provincial centres.

- Information and communications technologies are inaccessible to many even within the capital, Honiara. Accessibility to these new technologies is limited only to a few organisations, business houses and government offices—places where few women work.

- Where information and communications technologies are provided or are available, access is costly. The Internet and e-mail services provided by Solomon Telekom and other businesses are relatively high in cost, so most women cannot afford access to the new technologies.

- Many people lack the confidence and knowledge to use available information and communications technologies, either for accessing or disseminating information, or as a means of using open and distance learning.

- Many open and distance learners, especially women, do not own a computer, television, telephone, video or radio in their homes. Hence, they are unable to have direct contact with their tutors by telephone, e-mail or fax. Furthermore, they do not have a private place to study, with good lighting, comfortable furniture and appropriate storage places for their course materials. A strong communal ethos and large extended families limits learners' space and private time for study.

- A high percentage of women in the Solomon Islands are illiterate. The literacy rate for the country according to the 1999 Census report is 64.4%. The male literacy rate is 69.1%; the female literacy rate is 59.4%. Therefore, women who are illiterate think education is unattainable to them, and thus believe that technology is not for them to use—it is out of their scope.

The government has attempted to overcome these barriers by setting up SIDAPP. Under this programme, it created a Web site through which people in the rural areas and anywhere else can access information about the Solomon Islands. It hopes to facilitate information sharing and improved communications in the rural areas and the Solomons as a whole. It will also create an Internet-based rural communications system called People First Network (PFnet). This will involve creating twenty-six rural e-mail stations in the ten provinces of the country which will be run in the fashion of telegraph offices by rural development volunteers. An Internet café recently opened, which will be the central office or hub of the People First Network. The initial services provided will be e-mail. The Internet café will become like an electronic post office, where people can send or receive messages using the e-mail services available. The operators will be available to provide assistance to people. For areas where power or electricity is unavailable, the rural e-mail stations will be solar-powered, connecting to the Internet using existing HF and VHF radio technology through the central hub—the Internet café in Honiara. These initiatives taken by the government under this programme will help to overcome some of the barriers identified previously.

The Solomon Telekom Company is also extending and improving its services to the provinces and remote areas of the country. However, the current crisis going on in the country has affected its services, and the work to improve these services to the provinces is still yet to commence.

At present, the overall impact of information and communications technologies for educational purposes for women is minimal. However, it is quite significant to women who have access to and knowledge about using these technologies. Women tutors or teachers are able to communicate faster and more effectively with their students. They are also able to deliver courses more effectively to students who are studying through the open and distance learning mode. Information and communications technologies have helped a lot in the delivery and running of courses in this way.

The restricting of the new information and communications technologies to only a few public offices, private houses and institutions continue to result in men, and a few women with higher education and income, dominating the user profile in the country. There is, however, an increasing awareness of the technologies' usefulness for educational purposes. The Women in Development Division and other non-governmental organisations could, for example, access information on issues relating to women and disseminate other information to women through local radio programmes and through various representative women's groups in the country.

The provision of information and communications technologies services by the SIDAPP in the provinces will, it is hoped, increase education and training opportunities for women with different education levels, wherever they live within the country. The growing need to participate in open and distance learning will increase women's requirement to access information and communications technologies and to acquire appropriate knowledge and skills on how to use them in order to participate effectively. To meet this need, the educational institutions will have to provide some kind of training for women.

It is a trend today that more and more women and girls, house-wives and school dropouts, have enrolled themselves in basic computing courses at SICHE, the University of the South Pacific Centre and other privately run schools. This could be a starting point from which women and girls become familiarised with the use of computers. The female populace could be encouraged to participate more in education and training through open and distance learning if the government, through SICHE and the university and in collaboration with the Solomon Telekom Company, developed a programme to provide women with training in the use of information and communications technologies.

Another way to encourage women, particularly women in rural areas or those with lower incomes, to participate in open and distance learning is for the government to subsidise the high costs involved in providing education through the distance learning mode. Again, this may require the national government to draw up policies that clearly state its priorities with respect to open and distance learning and the use of information and communications technologies. Having access and knowledge on how to use the new technologies for educational purposes or personal benefits will enable women and girls to keep up-to-date with new information that will help them to go higher in their education or improve their quality of living.

Training and Capacity Building

Information and communications technologies have been newly introduced into the country, and awareness about how to use them should be the first step towards encouraging their use by women. The following are suggested ways to raise awareness and encourage more women in the use of information and communications technologies:

- *Using the media.* Special women's programmes are aired weekly on the national radio station, SIBC. One such programme, called "Olokete Mere," could be a very good channel through which awareness of these technologies can be provided. In these programmes, women could be encouraged to use the technologies, and could be made aware of the benefits of these technologies in open and distance learning. The country's newspapers and women's newsletters could be also used to raise women's awareness.

- *Giving talks* to schools and women's groups or organisations to raise awareness.

- *Working through the Women in Development Division*, the women's division in the Women, Youth and Sports Ministry of the government sector. Awareness programmes and special training sessions could be provided for women through this division. Special training to increase the literacy rate of women might increase their confidence in the use of technology.

- *Working through non-governmental organisations and women's organisations.* Awareness programmes and training sessions could be provided for women through these organisations.

- *Putting out special information especially for women on the SIDAPPP Web site*.

Information and communications technologies are still more readily available to working women in Honiara compared to the working women in the provincial centres. In workplaces where access to these technologies is free—such as at the University of the South Pacific Centre and the Solomon Telekom Company—training is provided to all staff members from the clerical officers to the top managerial position holders. In workplaces where free access to these facilities is not provided, training is given only to the senior, administrative and executive officers where they are required to use these technologies to carry out their duties efficiently. Very often men hold these top positions and women are in the lower positions. Thus, women at the lower ranks are often not given opportunities to upgrade their skills or gain knowledge or access to information and communications technologies.

Nevertheless, both working and non-working women in Honiara are becoming aware of the existence of the new technologies and are taking the initiative to enrol in short computing courses to acquire and upgrade skills in computing (Table 3). In this way, they will be introduced to using information and communications technologies.

Table 3. Number of Women Enrolling in Computing Short Courses at University of the South Pacific's Solomon Islands Centre, January–April 2001

	Basic Keyboard Skills	**Basic Computing**	**Basic Word Processing**	**Electronic Spreadsheets (MS Excel)**	**Database Management (MS Access)**
Working Women	29	34	17	7	6
Non-working Women	31	46	23	3	2

The working women who enrolled in the basic computing courses were made up of clerical officers or those who have no access to, or do not use, the information and communications technologies available in their workplaces. The working women enrolled in the more advanced computing courses are women in middle and senior management levels and professionals who have already used computers.

The existence of the USPNet (the private network owned and operated by the University of the South Pacific), the Distance Education Centre–SICHE link with SIDAPP, and the Solomon Telekom Company's provision of information and communications technologies in the country are examples of initiatives that have the capacity to build on open and distance learning programmes, such as courses that use gender-sensitive training, methodologies, materials and language.

The USPNet provides students with the opportunity to participate in audio tutorials, to communicate by telephone, fax or e-mail, to watch a live video transmission of a lecture from any of the three campuses of the university, and to take part in videoconferences and tutoring with the main campus in Fiji. The university is developing online programmes for open and distance learning and has already offered online courses in law and journalism.

The Distance Education Centre–SICHE link with SIDAPP also has the capacity for open and distance learning. It could provide e-mail services and Internet whereby learners could interact with each other and with their tutors or mentors. It could also be used for online courses or programmes for open and distance learning that are gender-sensitive.

If the costs of existing telecommunications services were low, it would encourage more women to take up online courses and open and distance learning programmes.

The information and communications technologies can contribute a great deal to education and appropriate technical training of women in the country by providing facilities that support and enhance open and distance learning: online courses and programmes of studies; e-mail/ chatroom/group discussion forums that enable the learners to communicate with their tutors, mentors, lecturers and colleagues efficiently and easily; and Internet facilities in which a wealth of information can be accessed.

The new technologies can also contribute to school curricula that encourage girls to enter technology- and science-related areas. By incorporating the use of computers and information and communications technologies in schools, girls will be encouraged to use these facilities at an early age and thus might be interested in pursuing technology- or science-related areas of development later in their lives. In the Solomon Islands, only one primary school—the Wood Ford International School—had introduced computers in the class in its curriculum. More schools should be encouraged to introduce such curricula into their schools in the future.

As well, information and communications technologies are a useful tool for women to organise and mobilise for empowerment, as they will contribute to accessing and disseminating information. The SIDAPP Web site that has been set up will have special notice boards for women to post notices, announcements and general information that concerns them. Also it will help women to access useful information on what other colleagues or women groups or organisations are doing, what activities are being carried out, and so on. In addition, it can be an avenue, forum or voice where issues concerning women can be raised or addressed and brought to the public's notice.

Women and Public Policy

Is public policy working for women?

The national telecommunications policies in the Solomon Islands are made up of general objectives covering the postal, telephone and telecommunications network services in the country. According to the Ministry of Works, Transport and Utilities Policy Objectives (2001), the postal services system is be expanded as a network to improve its role in national development; the telecommunications network and telephone services are to be extended and co-ordinated to improve their role in national development and unity; and communication services are to be provided in rural and outer islands. The Solomon Telekom Company is owned by the Cable & Wireless Company and the Solomon Islands government.

Liberalisation of the telecommunications sector—now a global trend—implies the merging of these separate technologies. This would mean merging telephone/voice networks with the information or computing systems. The result would be better, faster and more reliable communication services to the community and the country as a whole. At present, there are no national telecommunications policies on using information and communications technologies for open and distance learning.

The issue of gender equality in education is recognised as stated in one of the policy objectives of the Ministry of Education and Human Resources Development (2001): to give equal opportunity to both males and females in schools and institutions of learning. Government policies recognise the importance of educating women, as they also play an important role in the development of the country. However, there are no information and communications technology policies on open and distance learning in the

education sector. It is obvious that the policy-makers need to co-operate and collaborate to ensure policies enhance and build on each other's objectives. Notably, a policy to support women's use of information and communications technologies needs to be put in place.

It is obvious that the national policy-makers are not aware of the latest International Telecommunication Union resolutions on gender and development in the telecommunications sector. When amending and making new or better policies, the policy-makers must take those resolutions into consideration.

Conclusion

The provision of education through distance mode is not new in the Solomon Islands, but doing so through new information and communication technologies is fairly new. While the accessibility to these technologies is limited to only a few public offices, business and private houses, the potential it implies in promoting and enhancing the delivery of education and training through open and distance learning is significant.

So far, the use of new information and communications technologies is having a significant impact on those very few who can access them and have the knowledge to use them. This particularly applies to women with higher education and those who hold upper management positions within public offices and private houses. These women and girls have the opportunities to access information in areas of their interest or study. They can participate effectively in any discussions with participants from anywhere in the Pacific or internationally. This helps them to broaden their knowledge base and understanding of issues of importance. For women and girls undertaking online courses or other programmes from outside universities through open and distance learning, new information and communications technologies are very useful in allowing the students to communicate with their tutors, lecturers and fellow students.

While the national government appreciates the role that educational institutions such as the University of the South Pacific and the Distance Education Centre play in providing education through distance mode, it does not have policies that clearly spell out its priorities for the use of new information and communications technologies and the provision of education through open and distance learning. As such, the concept of receiving education through the normal system supersedes the equal importance of education through distance mode. Lack of available places within the education system continue to see many women or girls not able to continue their formal education. The majority of them, particularly those in the rural areas and those with lower education or income, become marginalised.

Furthermore, having such inadequate policies on open and distance learning exacerbates the problem of providing education through distance mode. Inaccessibility to new information and communications technologies in most rural locations and lack of knowledge about, and skill in using, them also mean that more women and girls are unable to participate in education. However, with new initiatives taken by Solomon Telekom and SIDAPP in making communication links to the remote areas throughout the country, women have an increasing awareness of education opportunities available to them through the open and distance learning mode. The demand for education through open and distance learning will create a need to have some kind of training to help participants gain confidence in using the information and communications technologies for educational or training purposes.

To be able to meet this need, government must come up with clear policies on how it will provide equal education opportunities for its citizens. Equal emphasis should also be given for open and distance learning. More promotional activities should be organised to raise public awareness of education opportunities through distance mode. A clear public policy related to information and communications

technologies should also be put in place. It would see the provision of new technologies in the country to enhance education and to encourage, in particular, women and girls to participate. The University of the South Pacific and SICHE, in collaboration with Solomon Telekom and SIDAPP, should take an active role in providing support for women and girls to acquire the skills and confidence in using the new technologies for educational purposes. Government should consider subsidising the high costs involved in creating distance learning and using information and communications technologies for education, as a means of encouraging more women and girls who are at a disadvantage to participate effectively in education.

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Tonga

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This paper discusses the barriers that Tongan women experience in using information and communications technologies for open and distance learning. The first section describes Tonga's population, its form of government, its education system and the current situation of Tongan women in society. The second section looks at barriers to women's full use of information and communications technologies and strategies for overcoming those barriers. The final section presents conclusions and recommendations for future plans, projects, research and directions to facilitate Tongan women's participation in the new technologies globally.

Introduction

The central question of this paper concerns Tongan women's use of information and communication technologies. It especially focuses on the barriers to the use of such technologies for open and distance learning. These barriers include issues of access and the impact of the technologies on open and distance learning. Also discussed are the benefits for women afforded by the Tongan experiences and widening access to information and communication technologies for educational purposes, training and capacity building. Women's expectations from the new technologies are described and the roles that women have and do play in the production and dissemination of information.

This paper is presented in three sections. The first presents general background information and a brief discussion of Tonga, its population and form of government, its educational system and the current situation of Tongan women in a social, technological and information context. The second section looks at barriers to women's full use of information and communication technologies, and strategies for overcoming those barriers. This section is based on examples of women's experiences and activities. It focuses on the empirical study that was carried out amongst some women using technologies for open and distance learning. The final section briefly presents the conclusions and recommendations for future plans, projects, research and directions to facilitate women's participation in the use of information and communication technologies globally.

About the Country

The Kingdom of Tonga is an archipelago in the South Pacific consisting of 171 islands, thirty-six of which are inhabited. Its nearest neighbours are Fiji to the northwest, Niue to the east and Western Samoa to the northeast. The capital, Nuku'alofa, is located on the island of Tongatapu, and is the major centre for government administration and business.

Tonga has a population is 97,446 (1996 population census) and this is spread over the three main island groups. Tongatapu, the largest of the islands, with 38% of the total land area, has 68.7% of the population. Vava'u Is, with a total land area of 21%, has 16% of the population. Ha'apai Is has 9%, 'Eua has 5% and the two Niuas have only 3%. The 1996 population census established that there were 49,395 males and 48,051 females, and that the average annual growth rate during the ten-year period (1986–1996) was 0.3%, compared to 0.5% between 1976 and 1986. The census also revealed an average population density of 150 people per square kilometre.

The system of government is a Constitutional Monarchy based on a constitution laid down in 1875. The government is made up of three main bodies: the Executive, Parliament and the Judiciary. His Majesty

King Taufa'ahau Tupou IV is the Head of State, and the Prime Minister is His Royal Highness Prince Lavaka Ata.

The Education System

Formal Education, initially primary education, was first introduced into Tonga by missionaries of the Wesleyan Missionary Society in the early nineteenth century. The first act of Parliament to regulate education was passed in 1876. Secondary education for all was introduced by the Education Act of 1927. Minor amendments were made in 1947 and were later repealed by the 1974 Education Act, which is in force at the present time.

Education is the responsibility of the Ministry of Education, which has been conducting distance education by radio for many years through its Schools Broadcasting Division. Education is provided by both government and non-government systems (mission schools). Education accounts for the largest share (18.8%) of the government's overall budget and is the largest government department. The mission is "to provide and sustain life long relevant and quality education for all Tongans."

The Ministry of Education is made up of three subdivisions: primary; secondary and professional services; and the tertiary/post-secondary divisions. There are six years of primary education (classes 1–6). At the end of class 6 there is a national entrance examination which decides a student's entry to the secondary education level. Secondary education involves seven years (Forms 1–7), with national exams carried out in Forms 5–7. This determines entry into the next level of education. In 1999, there were 117 primary schools. Ninety-one per cent were government owned and the others were managed by non-governmental organisations (NGOs). Of the forty secondary schools—with a student population of approximately 13,349—about 30% are government and the others are managed by NGOs and missions. Under post-secondary education, government currently provides 53% of facilities and training and NGOs, private sectors and mission schools provide 47%. As Annexes 1 and 2 show, the females outnumber the males in some institutions in Tonga.

There are four main institutions offering post-secondary education: the Community Development and Training Centre; the Distance Education and Communication Centre; the Tonga Institute of Education; and the Tonga Institute of Science and Technology. This educational division provides technical and vocational certificate and diploma level programmes in education, agriculture, accounting, tourism and hospitality, and courses in areas such as computing, maritime, automotive, engineering, electrical and construction. Diplomas in education are currently offered by distance education mode. About 70% of the participants are women. The technical and vocational teachers are also trained by distance education. Major achievements are being scrutinised and closely monitored for improved quality in these programmes. Women in Tonga have gone through this education system and, under the Education Act of 1972, education is free and compulsory from age five to twelve.

The Open and Distance Learning Providers

The open and distance learning providers in Tonga are:

- University of the South Pacific Extension services in ‘Atele.
- Royal School of Science managed by the Ministry of Tonga Defence Force. The Crown Prince opened the Royal School of Science which provides an Internet-based distance education now offered by other international universities around the world.
- the Ministry of Education.

Primary Education (Government Primary School, ages five to eleven years)

Primary School students in Tonga have been provided with education programmes via the Tonga AM Radio Broadcasting Commission since 1963. The broadcasts run from 9:00 a.m. to 10:00 a.m. Monday to Friday throughout the year. The one-hour sessions on Fridays are training programmes for primary teachers on teaching methodologies and strategies. During the three-term school year, the programmes are confined to prescribed subject areas covering Language, Mathematics, General Science and Social Science. During the school holidays and the Christmas holiday, the school programmes contain drama and story-telling presented by the students from designated schools. A printed quarterly magazine called the *Tokoni Faiako* (Assistance to Teachers) is produced by senior education officers and distributed to schools to assist the teachers in both content and methodology. These are based on requests from teachers and from the monthly evaluation and inspection of schools.

Secondary Education (Colleges and High Schools, ages eleven to eighteen years)

At this level, there are one-hour weekly programmes by the AM Radio Broadcasting station for both students and teachers and the public at large. This has been the initiative of the Ministry of Education through the Schools Broadcasting Division. This programme airs from 8:30 to 9:30 p.m. on Wednesdays. This is seen to be the only time when all the high school students throughout the island group can listen in to the radio. The presenters of the programmes are picked through various subject associations so as to ensure the engagement of subject experts who can share their knowledge and resources with all, especially the rural and less advantaged schools.

There are also educational programmes organised by the Ministry of Education through the various subject associations and sponsored by local business enterprises via two of the television stations, Tonga Television (government-owned) and Oceania Broadcasting Network (privately owned). Each of the stations relays one-hour programmes during the evening on the weekdays and on Saturday afternoon. In addition, there are monthly bulletins distributed by various subject associations (for example, on science, history and the Tongan language) to assist the teachers of secondary schools in some issues seen vital to the curricula in Forms 5 and 6.

Tertiary Education

In 1998, the Ministry of Education started a training programme through distance education for teachers in primary schools. This is an upgrading programme that allows qualified teachers with a Certificate in Teaching to undertake study programmes towards a Diploma in Education. This means that the teachers selected to take this distance education programme will continue to teach with a lightened workload and at the same time take courses through distance learning. This used to be managed by the Distance Education and Communication Centre, but is now managed by the Tonga Institute of Education because

it offers the same programme in face-to-face mode. The mechanism for delivery is still confined to printed course materials and queries are discussed through the Friday radio programmes to primary schools.

The Distance Education and Communication Centre was established and is responsible for the development of open and distance learning programmes at the higher education level. Currently, it offers training programmes in information technology for the Ministry of Education, government departments, private sector agencies as well as the general public. It also offers short-term and long-term certificate and diploma programmes in information technology, with all courses being delivered in conventional form.

This centre desperately needs skills development in flexible delivery systems to provide the range of training programmes needed by women teachers. The Ministry of Education, through the Distance Education and Communication Centre, offered a Master of Arts degree in Distance Education under the sponsorship of The Commonwealth of Learning (COL) and through the Rajiv Gandhi Scholarship Scheme. Courses were offered from the Indira Gandhi National Open University in New Delhi. This allowed senior teachers in various subject areas to be trained in distance education strategies in order to staff the distance education centre in Tonga and to assist with course delivery as well. At this stage, the programme is geared towards teacher training and the delivery mechanism is by print materials only. Through COL's financial assistance, five teachers enrolled in the Master of Arts programme in distance education but only two completed the degree.

The other main tertiary education provider is the University of the South Pacific, through its University Centre in 'Atele.

Major Achievements

Tonga provides universal education for all of its population and has a 100% literacy rate. Access to education is very high, and no child lives more than two kilometres away from a primary school. English is the second language of the country and is widely spoken to a high standard. English is the medium of instruction at secondary and post-secondary education levels, and is the dominant language in government and business. In recent years, concerns have been expressed about the ability of the Tongan language to survive. In response, the Ministry of Education has launched an integrated language programme in primary schools to develop equally bilingual skills in Tongan and English. Only a generation ago, most Tongan children did not have access to printed learning and reading materials. Now all schools and colleges have a library or reading area, and there is a good supply of books and printed resources.

Education and Information Technology Policy

The Government of Tonga assigns a very high priority to the implementation of technology throughout the education system. Such implementation is a relatively recent activity for the Ministry of Education, and it is proceeding as fast as resources, both human and financial, allow. This is also part of the planning for the establishment of the Tonga National University in 2002. Careful consideration is being given to the expected future level of technological development, and how far we wish to go. One of the challenges we face is in achieving a balance between ensuring our teachers have the ability to use appropriate local technology effectively, and ensuring that they are up-to-date with the new developments in high technology that we may wish to introduce as and when resources allow.

The education service plays a major role in the promotion and use of technology throughout the country. The establishment of the Distance Education and Communication Centre in 1991 was a major step forward in the provision of computer training and distance education. The technology available at this unit enables us to ensure that women on outer island groups have equal access to education and training opportunities. The Tonga Institute of Education is now offering a computer studies module for Year 3 students in order to prepare student teachers for the delivery of computer studies in secondary schools. Teachers are encouraged to introduce co-operative learning strategies into their range of teaching and learning activities in the classroom. The next step towards effective independent learning, with the teacher as tutor or facilitator, is also progressing well. This is especially so with our diploma in accounting, which focuses on learning outcomes, and gives each student resource manuals for every module, as well as access to CD-ROM review tests. Internet and e-mail are available through the Distance Education and Communication Centre and access is through PEACESAT and Tonga Telecommunications Corporation.

Distance education is a very important part of the future development of technical and vocational development in Tonga, and it is a high priority area for the Ministry of Education. In a country that is as geographically spread as Tonga, the development of the provision of distance education programmes is vital to ensure the participation of people in the outer islands in education and training. We are planning to provide distance education units on each of the three main island groups in order to extend educational opportunities. The development of distance education will be important in upgrading and service training, and will also increase the number of women involved in technical and vocational education. The beauty of this is its cost-effectiveness.

Moral Dimension in Information and Communications Technologies

It is our view that what goes on in the workshop or classroom in terms of the selection and use of learning materials, and the interaction between teachers and students and between student and student, should reflect the values of the wider society. A constant sense of Tongan values (for example, sharing) needs to be infused throughout science and technology programmes and activities in order to deepen students' moral understanding.

Cultural Impact of Information and Communications Technologies

New technology means change—economically, socially and culturally. And change means adjustment and compromise. However, all cultures and societies change regardless of the level of technological development. It is only the rate of change that varies.

Tonga is no stranger to change. Small states like us have probably experienced more technological change in the past twenty years than have many larger, wealthier countries in the so-called developed world. Ten years ago, we installed our first street lights; today we use the World Wide Web to access the Internet. Technological change poses no real threat to our culture, provided we are able to control its introduction, and make decisions about the selection and uses of the new technologies. One of the challenges we face as we move into the 21st century will be how we can use technology to improve our management and administrative procedures, our education system and our living standards while still preserving the best traditions of Tongan culture.

Principal Achievements

As previously mentioned, science and technology education is still at a relatively early stage of its development and implementation in Tonga. However, we believe that good progress has been made, and we are continuing in our efforts to support new initiatives. Our greatest achievements to date are probably the provision of the infrastructure—the classrooms, workshops and laboratories—and the training of our staff though short-term attachments and scholarship programmes in preparation for the introduction of the planned new programmes. As a result of this strategy, we are poised for a significant expansion of science and technology education. While women are given opportunities for primary and junior secondary schooling, it is interesting to look at reality for women in our society.

Women in Tongan Society

In promoting and accessing women's access to, and use of, information and communications technologies in Tonga, it is important to look at the culture. It is important to understand the gendered nature of the social, economic, policy and technology systems that frame educational opportunities for women. Women's needs for information are also structured according to their gendered roles and responsibilities, which in turn influence their use of and response to information and communications technologies.

Women's place in Tongan society was, in the past, markedly distinct from that of men's in almost all parts of life. Views of women's capability, purpose and needs are still strongly held, defining the boundaries of what women expect of themselves and what is expected of them by the rest of society. Their purpose is generally defined as that of marrying, producing children and attending to domestic duties. Boys and men are more highly valued, and more investment is made in their education, health, and future income-earning potential. It is likely that more investment is made emotionally in the boys as well, leading to a lesser sense of self-worth on the part of girls. However, in recent years, gender equity has been ensured in Tonga. Today, 50% of the Deputy Directors of Education are females. A change in traditional attitudes has happened recently and now it is up to women to recognise within themselves the capability of transcending the limits socially ascribed to them.

In contrast, in the past, a mother's typical role was to stay home, fulfilling the traditional role of women—that is, caring for the children and husbands and meeting the customary obligations of being Tongan by acting out of a strong sense of duty and without questioning their work. Tonga, unlike many of its neighbours, has always claimed that women hold a special place in society. But how realistic is this belief? Although women in Tonga hold special privileges in the *Fahu* system, they are expected to bring up their children, support their families, their schools, their communities, do their domestic labour and produce goods such as mats, tapa, and so on. Tongan women are subservient to their spouses and in-laws (especially mothers-in-laws, sister-in-laws and their children) as extended family philosophy is very much realised. Throughout history, we read of great men but hardly of great women with the exception of high-ranking women such as the late Queen Salote Tupou III.

Nowadays, what happens to Tongan women? Some are far better educated than their husbands, and some are the only breadwinners in the families. Some Tongan women become primary school head teachers, deputy heads, secondary school principals and deputies. Of the eight government secondary schools, four have male principals and four have female principals. Further, the deputy principals in six are females.

In this millennium, many women in Tonga have benefited from education and hold positions of importance and influence. Yet, a closer look still finds them subservient to males. However, in most co-education schools in Tonga (for example, Tonga High School, the most elite school) school enrolments for 2001 were approximately two-thirds female (refer to Annex 1). This indicates that women are involved in education and training in our society.

The effects of low paid, lower skilled employment opportunities, lack of recognition of the triple roles of women, limited autonomy and lower status in the household are exacerbated by the increasing hardships of environmental degradation and the cutting of social services by structural adjustment programmes. As a result, women's time is a critical resource in short supply. Any systems or activities meant to improve their lives and increase their empowerment must be perceived by women as allowing them to save time or increase their efficiency rather than adding to the already long list of activities in a day. The daily schedule for these activities must also be flexible, in view of the strategies women use to accomplish their tasks. These include multi-tasking, co-operation with networks of women, and the breaking up of tasks into smaller discrete units.

Meeting Tongan Women's Information Needs

The importance of information and of technologies to transmit and disseminate information for development in Tonga is well recognised. However, there has been little research done on women's information needs and access to appropriate information in developing countries. While this is changing, the information technology is still predominantly male-oriented and often a forum for gender discrimination, intimidation and even harassment. The profound, gendered implications of information and communications technologies for both men and women in employment, education, training and other productive and personal development areas of life mean that women need encouragement and support to take their place in the information revolution. For example, the concentration of women in clerical and similar positions does not translate further up the hierarchies of the new technologies.

What will the need for increased technical and operational skill levels mean for women's employment in information and communications technologies in the future? Studies show that men continue to crowd out women's access to the training required for higher skilled work. The field of information and communications constitutes an increasingly significant element of science and technology. It will increasingly influence the content and mechanisms in developing countries for education in science, technology and communications, and will influence the creation of communities for learning, interaction and participation in community, national and international life.

The critical issues for women are:

- Type of information – what kind, access to it, and gender consciousness

- Information technology process – availability of technologies to women, their ease of use, policy processes around these, and the effects on women. Active involvement of women in the identification and definition of their information needs, and in the choice of mechanisms and processes to meet these needs is critical for their productive participation in production and dissemination of information. Viewed in that light, access to information can be seen as a central empowerment issue. Control over the kinds of information women need and produce—communications—is a fundament aspect of empowerment for women, as is the ability to organise and mobilise for their concerns.

Equitable access to information and communications technologies and the autonomy to receive and produce the information relevant to their concerns and perspectives are therefore critical issues for Tongan women. The Platform for Action for the Fourth World Conference on Women states that: "Women should be empowered by enhancing their skills, knowledge and access to information technology. This will strengthen their ability to combat negative portrayals of women internationally and to challenge instances of abuse of power of an increasingly important industry…. [W]omen therefore need to be involved in decision making regarding the development of the new technologies in order to participate fully in their growth and impact."

Clearly, the platform calls for increased access by women to expression and decision-making in the media, and in information and communications technologies to encourage the presentation of balanced, non-stereotyped and diverse images of women. Despite the concept that women engage in domestic activities which require a lower level of skill and innovation, NGOs and policy bodies are beginning to recognise and highlight the knowledge, innovation and abilities possessed by women.

The Report of the Gender Working Group of the UN Commission on Science and Technology for Development highlighted the gender dimension of science and technology development, planning and implementation. It also emphasised the centrality of women's technological activities, as practised in subsistence farming, natural resource management, health care and entrepreneurial activities to sustainable and equitable development. The report further recognised the importance of women's participation and control over information and communications technologies for their work in the formal sector and in improving business efficiency of women in the informal sector.

Women therefore are important contributors to knowledge for development. Women's needs with respect to information and communications technologies, then, don't concern only access to education and training that will support their participation. It is also important that there be social and policy acknowledgement that what women already do is technology, appropriate and worthy of recognition and an important resource for development. Support of women's existing technology activities, recognition of their role as possessors of most of the indigenous knowledge in developing countries, and support of their potential for contributions to science and technology are critical to community development in their various countries.

Communications technologies are important for conveying alternate, balanced and equitable portrayals of women and their potential. They are also important for facilitating the analysis of women's situations and developing active strategies to improve those situations. Using information and communications technologies can assist women in co-ordinating communication and sharing information and experience with other women. They assist women in developing confidence and experience in expressing their viewpoints publicly by allowing space for experimentation and enabling them to find allies across communities, nations and regions. Other advantages of these new technologies for women include the much lower cost of publications, once the initial financial investment is made, which encourage women to articulate their views publicly. Information and communications technologies are allowing the development of alternative modes of communicating and acting which go beyond rhetoric into the exploration of new models for action.

The explosion of electronic communication among women around the world in the run-up to the Beijing conference is an example of the use of information and communications technologies by women as a tool for information dissemination, communication and organisation. For example, World Wide Web sites were set up to disseminate information on the conference before the conference took began. E-mail distribution took place through listservs and other means.

Apart from strengthening women's voices, information and communications technologies can benefit women in other ways. They can facilitate participation among women in different sectors and in different regions. They can provide the information that women need to improve their own well-being and that of their families, and to more efficiently fulfil their triple roles. The introduction of computers into offices has improved the quality of work life for women in clerical and administrative occupations in some countries. The new technologies allow the exchange of views, opinions and news that might not be possible in other media under government censorship and control. They have also been used to protect unpopular leaders in authoritarian countries, through publications of their ideas and up-to-the-minute status reports. They provide a vehicle for international expressions of concern and demonstrate to authoritarian governments that their actions are visible to the world.

Tongan Women in Development

Tonga's commitment to women in development is reflected in one of its basic social strategies in the Sixth Development Plan, which states that the government will direct more assistance to women's development groups, particularly in isolated island communities. To facilitate the implementation of such policies, His Majesty's Cabinet in February 1993 approved:

- developing a national policy on women and development;
- continuing to co-ordinate, through the Prime Minister's Office, women's activities in Tonga and to formally designate a unit to work for women's activities;
- setting up a National Committee on Women's Affairs to review and co-ordinate issues of special concern to women;
- having the Prime Minister's Office propose for Cabinet consideration membership of the National Committee on Women's Affairs; and
- enhancing the effectiveness of government's effort towards the development of women's affairs in the Kingdom by having the government recognise and support the activities of the Langafonua National Women's Council.

The long-term objective of this strategy is: to integrate women into the mainstream of development in the country; to provide assistance and consultancy to women so as to enhance their economic productiveness and awareness of their role in the economy; to promote women and development and co-ordinate with women's groups and organisations in developing and implementing programmes for women in the fields of education, health, agriculture, fisheries, trade, nutrition, politics and law, home management, income-generating activities and communication.

The Women's Unit in the Prime Minister's Office has been established and is in the process of trying to set up the National Committee on Women's Affairs and its membership. There are many women's organisations and many informal groups in Tonga, all with the common objective of upgrading the standards of living of families through encouraging women's involvement in development activities, such as education, family planning, home care, business enterprises, agricultural and other traditional subsistence activities. The establishment of the following organisations expedited the growth of women's effective participation in development activities and increased their opportunities for employment and establishing distinct developmental goals and priorities for themselves: Langafonua ae fefine Tonga, a village women's development programme; Pan Pacific South East Women's Association; Young Women's Christian Association; World Vision; Ministry of Agriculture's women's section; and the Women's Unit in the Prime Minister's Office. The Central Planning Department has, as a key function, the co-ordination of women's activities such as evaluating women's project proposals and assisting with

implementation and evaluation. Women activities have accelerated owing to more frequent participation in international forums. Since the establishment of the Langafonua, the interaction between government and NGOs has increased tremendously and has led to better understanding and better co-ordination of women activities and resources.

Through the government and various NGOs, several programmes are directed at assisting women, particularly in the rural areas. The Extension Division of the Ministry of Agriculture and Forestry runs a programme for rural women, particularly those in the outer islands, which includes training, home economics, sanitation and income-generating activities. According to a recent review of the Rural Business Women's Group, no woman or women's organisation has been a recipient of the fund since its existence, which further underlines the need for access to information, for the establishment of information networks to disseminate such information effectively, and for the provision of basic training in accessing information and in manipulating developmental benefits to the advantage of marginalised and excluded groups. It also points to the need for institutions to review their operation procedures to ensure gender awareness and improve equity. However, the women's development revolving fund continues to play an important role in women's income-generating projects, especially those in the rural areas.

Barriers to Tongan Women's Use of Information and Communications Technologies for Open and Distance Learning

The barriers to using information and communications technologies and gaining access to open and distance learning are many in Tonga. Annex 3 shows that the cost of Internet access at all levels makes it inaccessible for the majority of Tongan women. Computers and modems are imported from industrialised countries such as the USA, Australia and New Zealand with accompanying increases in transportation and duties as well as the disadvantages of high exchange rates. The cost of online access is prohibitively expensive for most. Only the middle class and women in management posts might have access to Internet and e-mail. Furthermore, telephone lines are generally undependable and the electricity supply can be erratic. Other problems include the lack of access to training, technical information, computer parts, and human skills and repair know-how, as well as high rates of technological obsolescence. As well, computer literacy is a barrier.

Key issues for the development of information and communications technologies in Tonga are:

- Relevant information (content) training packages need to be produced, managed and delivered appropriately within Tonga. Almost no resources are directed to this need.

- Communication and telephone infrastructure beyond Nuku'alofa remains problematic. Currently, water works going on throughout Tonga have damaged some of the telephone lines and created extra costs for both the Tonga Board and Tonga Telecommunications Ltd.

- The little international investment that there is in technical training and capacity-building—a critical need, especially to bring more women into networking—too often neglects the particular needs of Tonga. Additionally, cultural attitudes and problems pose challenges for the non-hardware aspects of technology implementation. These include lack of experience in incorporating electronic networks into inter-organisational communication and the tendency to locate communications technologies in the top managerial offices (for example, Directors or Deputy Directors).

These barriers to information and communications technologies use are exacerbated for women as a result of their lower economic and social status, their lack of training and literacy, their concentration in lower-level and entry-level employment, and their lack of autonomy and time.

The economic hardships in our country make it impossible for women, who have to pay school fees for children and to cater for other basic needs, to save money to buy computer hardware. That is why, after attending computer courses, if a woman does not have a computer in the office on which to practise, then she will lapse back into illiteracy because she cannot afford to buy a computer for herself. Many men are already computer literate because they have more time available, access to information and communications technologies and a supportive environment in which to acquire new skills. Women professionals also experience difficulties. The general and widespread decreased access to education and training experienced by Tongan women has several ramifications for their use of information and communications technologies:

- High rate of computer illiteracy among women is the first obstacle to information and communications technologies use.
- Language issues are intensified for women (especially the technical terms) with less time, money and opportunity available to learn English (the dominant language of the new technologies), or to translate existing information and training documents into Tongan.
- Women have less access to basic computer literacy courses, let alone advanced computer training.

As mentioned in many of the examples above, women's time is at a premium. One respondent from a survey commented that in some ways the Internet is a tool for those with lives of leisure. Another respondent commented that the only time she finds for the Internet is at 2 or 3 in the morning since the line is usually busy at other times.

Social influences on women's relationships to technology also affect women's attitudes toward information and communications technologies. The tendency to direct women into non-technological professions and responsibilities means that women feel "fear and embarrassment" when dealing with the new technologies. The word "technology" has male connotations even though the word information seems more feminine. Some survey respondents even believed that working with information and communications technologies would drive women mad (for example, women cannot carry around computers or even try to shift computer equipment from one place to another). These examples indicate a high level of discomfort with new information technologies. Women who hold low-paying positions do not gain access to computer equipment even if they have more computer ability and need for computer access. I remember at one time, ten computers being in the office of a male principal, where they remained unused and became dusty for years, while some schools who were willing and able to use the computers for training, communication and document production had no access to computers. Other institutional problems include lack of knowledge of available computer facilities and lack of training. These obstacles are exacerbated for women by the fact that women tend to be clustered in junior, part-time, and temporary positions, thus finding themselves at the bottom of the technological ladder.

In the non-government sector, women's organisations tend to be information-poor in general, in addition to suffering from a lack of training, reliable telephone lines and funds. Scarcity of technical service providers allows them to charge higher rates, and this tends to disadvantage women's groups. Some women's groups that do have online access may play only a passive role in receiving information, and do not attempt to produce or circulate their own contributions to virtual discussions.

The lack of networking and information exchange among women in different sectors within Tonga (that is, among secretaries, activists, educators and researchers) sets up barriers for the best use and circulation of information for women's empowerment. Other barriers to access for women emerge for those who do not have professional access to information and communications technologies, and are not encouraged to use them by women's NGOs on the part of the parent organisations.

Overcoming Barriers to Tongan Women Use of Information and Communications Technologies

From a small survey carried out amongst women's groups, information and communications technologies professionals and distance education students about the World Wide Web, it is apparent that Tongan women are still in the tiny minority of users of the new technologies. Some only started a year ago; I just started two years ago. The evidence that women are using these technologies for their development concerns is scarce. That being said, it is apparent that many innovative and exciting projects should be initiated or be in the planning stage now to implement in Tonga. At the same time, it is important to ensure that women's participation in information and communications technologies be appropriate to their situation, perspectives and concerns. They should be supported in creating: their own technological processes and abilities; virtual spaces; and content that supports their concerns and allows them to fulfil their productive, reproductive and community management roles more efficiently and effectively. The following few examples of Tongan women's use of the new technologies indicate a strong potential for the innovative use of new technologies to support these goals. Attempts to support and encourage women's participation in information and communications technologies should learn from and build on the examples of these pioneering efforts.

Facilitating Education and Training for Women and Girls Using Open and Distance Learning

Initiatives are currently being developed to facilitate women's access to higher levels of education and to technical training in information and communications technologies. This is part of the planning for the establishment of the new Tonga National University for 2002. This would enable women civil servants to enrol in post-graduate studies in overseas institutions using online facilities and at the same time fulfil their triple roles at home. They should provide examples of how information and communications technologies can facilitate education and training for women in different sectors.

The Distance Education and Communication Centre should provide training workshops for women in the use of different networks and technical support. Support for the workshop costs from an external funding donor could help. Internet facilities could also be provided by an external donor. Certainly, participants in this kind of workshop would definitely leave with skills in using information and communications technologies. The use of CD-ROMs at the local level has not yet occurred, but this should give the best opportunity for the widespread education for girls and women.

Overcoming Illiteracy Amongst Women

A fundamental barrier to women's use of information and communications technologies in developing countries is illiteracy. This is true for Tonga when it comes to computers. The danger in such a situation is that it will widen and deepen the gap between the haves and have-nots as economies become more and more information-based. However, two different approaches to this issue illustrate that information and communications technologies can, in fact, assist to overcome illiteracy. The BEL literacy project is successful because it ties literacy training to a package of skills and services which support the activities of young girls and women in Tonga. It provides reading and writing lessons and is intended to allow

pupils to develop their literacy skills. Lessons in computer technology and typing are also offered in most secondary schools now and the Ministry of Education has as a priority the provision of computer technology to the primary schools.

The Distance Education and Communication Centre should be able to assist in running short-term courses for interested women and girls. Projects to improve computer literacy should support women's effort. For example, the Distance Education and Communication Centre or the Tonga Institute of Education should offer courses for student teachers taking diploma courses by distance education to support them in their learning. Information and communications technologies can be used to: deliver information on techniques and resources; to sharpen students' English language; or to train them to use computers for word-processing and developing computer language skills via CD-ROM. Reading skills can be developed through the use of CD-ROMs and can be supplemented by community education found over the Internet. This use, in fact, can spark a community initiative to provide funding for the education courses available on the local network, for example.

Supporting Women's Activities in Tonga

The support of women's activities such as entrepreneurial ones can be an important information and communications technologies benefit for Tongan women who own retail shops. They could use e-mail for ordering goods and this would increase their income generation. Timely information on policies, production methods, and support are available through the Internet, and can make important contributions to the success of enterprises. Additionally, the Internet and the World Wide Web present an important opportunity for national and international marketing and advertising. I learned this through trial and error when downloading information to assist me in my work as Deputy Director. Facilities set up in local communities can assist women to carry out their various activities within their communities.

Information and Communications Technologies Delivery and Access Systems

Women's NGOs could potentially play a role in facilitating the distribution and production of information by women in Tonga. Since cost, technology expertise and infrastructure issues will ensure that information and communications technologies stay out of reach of most individuals for the foreseeable future, alternative systems of access, delivery and information will need to be developed that are more appropriate to the situation in Tonga. This is especially true for women, who tend to have less economic power, training and technical expertise. Strategies for women should focus on e-mail and listserv/conference systems. Studies worldwide show that women tend to use e-mail more than other Internet services, for reasons of time, cost and level of technical ability.

The majority of women who have access today do so from research institutions, governments and some businesses. Access among poorer and rural classes is non-existent, but critical for Tonga's development. A technical mix of transmission systems will most benefit the Tongan women. Such a mix should combine networks, fax facilities, computer communications and even World Wide Web connectivity and should link them to larger off-line or low-tech dissemination networks. Women should be fully aware of the local distribution of information downloaded from the Internet by a communication centre or NGO through verbal interaction and education. Other possible means include the use of radio and TV (already a proven effective dissemination medium) and even music.

Tongan Women's Time Constraints

Women's lack of time influences the form and content of information and communications technologies. Most women will not perceive the benefits of the technologies, nor will they be able to use them to their full potential, unless they can see an immediate benefit or result. Personal experience with other electronic goods indicates that women generally do not have the same time or patience for chat, philosophical discussion and generalised networking, but instead are much more practical in their assessment of the benefits of information and communications technologies. Women want hard, factual data, such as information on practical health and educational issues, and government policy documents in their country and in other Pacific countries. They are interested in specific thematic and sectoral information systems, which they perceive as fulfilling certain practical goals. This is demonstrated by the fact that the use of information and communications technologies by women around the world was catalysed by women's interest in information generated in the course of the UN's Fourth World Conference on Women. For these reasons, promoting women's information and communications technologies participation will mean focusing on the sectors in which those technologies will be of most use to women in any of their triple roles.

Women have developed or are developing networks and communication projects in sectors they consider crucial. Women in Tonga are important managers and their access to current information is very important, but so is their role in dissemination of information in this area.

Potential Roles for Women's NGOs

The rapid growth of women's organisations at all levels and their demonstrated ability in development, education, training and activities make them a key element in any strategy to encourage women's participation in information and communications technologies. They are generally trusted by local communities and church organisations, are flexible in operation and have demonstrated great innovation and creativity in framing and organising development projects. For example, several women's NGOs have developed networks with the Catholic women's organisation and operations across Tonga. They are thus well placed to work with other organisations to develop training and implementation programmes for information and communications technologies, especially courses that can be offered on distance education to outer islands. Sensitising women heads of NGOs is important to encourage others to use the new technologies.

Implementing Information and Communications Technology Systems for Women in Tonga

Access to information and communications technologies for women in Tonga depends critically on where the technologies are located. The most efficient and beneficial use of the new technologies is closely connected to the kind of information that directly supports women's activities and responsibilities. Since personal ownership of information and communications technologies for the vast majority of women in Tonga is not feasible, the question of where and how they can gain access to the technologies is central. This includes institutional, sectoral and geographical contexts. The Distance Education and Communication Centre, for example, which is located in Nuku'alofa, can offer varied courses to women in Tonga. Currently, it is only middle class and professional women who use information and communications technologies.

In order to facilitate access for women from other classes and sectors, information and communications technologies will need to be located in local institutions such as primary and secondary schools in rural

areas, health centres, women's NGOs , women's employment centres (such as in the Prime Minister's Office, Women's Unit), libraries, women's studies departments and institutes, and perhaps even churches. The location in these types of contexts also pertains to the practical, specific kind of information that women require as a result of their time constraints. For example, placing Internet access in a local school centre will facilitate women's access to the information they need for themselves and their children, by providing the access at the same time as a school-related visit is made. When women can understand and experience the benefits of information and communications technologies, they are quick to use them. Not only that, but also educational programmes that are currently offered through conventional means can be offered in a more flexible manner through open and distance learning.

Recommendations and Conclusions

Overall, policy-makers and practitioners engaged in measures to increase Pacific women's participation in technological education need to consider:

- the relative significance of the various barriers that were briefly discussed;
- the strategies that are necessary to reduce those barriers; and
- the means of mounting affordable, appropriate training programmes.

Barriers, strategies, and research needs that might be discussed in the symposium will enable participants to plan possible projects that will definitely assist Pacific Island women to use information and communications technologies.

For Tonga, distance education programmes, such as the primary school teacher's Diploma in Education programmes, are likely to provide a solution if the following happens:

- Teacher educators, distance education curriculum writers and tutors work together and consult each other closely, and the Internet infrastructure is well in place at the Teachers' College.

- Populations are served by local community-based initiatives. For example, infrastructure provided in a primary or secondary school for women in rural areas will allow them to gain access to programmes that are available through open and distance learning. Tonga anticipates developing its TVET offerings through distance education in the three-year COL programme which begins in 2001. The Ministry of Education also included using information and communications technologies for its educational development in the 21st century, especially in its plan for the establishment of the National University in 2002.

- Practical ways can be found to provide the crucial support, encouragement and social interaction necessary to secure continuing participation and low drop-out rates. For example, the teacher training programmes that were offered by the Distance Education and Communication Centre are now being offered at the Tonga Institute of Education. This can encourage teacher educators and enrolled primary school teachers to interact using information and communications technologies. This will definitely encourage low drop-out rates compared to past years.

Appropriate combinations of distance education and face-to-face interaction will be required to ensure retention and success and to support women teachers in their schools. However, resources should first be put into strategies (which can themselves involve distance education with other modes) to reduce

disjunction. In any event, both direct programmes and wider strategies need to be pursued in parallel if gender-sensitive approaches are to become mainstreamed and institutionalised.

It is clearly seen that our principal concerns are about resources. The Tonga Institute of Education must have the level of resources necessary to prepare teachers to enrol for open and distance learning and training programmes. Those teachers need the knowledge and the information and communications technology skills to become effective users of technology themselves, and for them to be able to integrate technology into educational provision.

Other concerns are the need to make the senior and top managers more computer literate and aware particularly of the potential use of computers and computer software as management tools. The development of information and communications technologies for women plays a major part in economic development in the future, particularly important for small states such as Tonga.

Our vision is for women in Tonga to make full use of the opportunities provided in order to improve economic and social development, and the quality of, and access to, education and training. We still have to request assistance from COL, AusAID, and New Zealand Overseas Development Assistance in securing personnel and training packages to provide women with continuous information and communications technologies training and usage.

Research is very much needed to ensure the quality of information and communications technologies usage in Tonga. It is anticipated that, at the end of the symposium, projects should be proposed for implementation in our Pacific Island countries for women's use of information and communications technologies.

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Annexes

Annex 1. Enrolment at the Tonga Institute of Education, by Gender and by Programmes in 1999

	Diploma 1	Diploma 2	Diploma 3	Total
Female	64	82	53	199
Male	44	43	41	128
Total	108	125	94	327

Annex 2. Enrolment at the Government Secondary Schools in 1999, by Gender

	Male	Female	Total
Tonga High School	275	571	846
Tonga College	1,093		1,093
Tonga National Form 7	42	71	113
Vavau High School	295	424	719
Eua High School	222	159	381
Niua Toputapu High School	92	113	205
Niua Foou High School	73	48	121
Talafoou Middle School	56	124	180

Tuvalu

Elenisi T. Malona

Introduction

To have a clear idea about information and communications technologies and their accessibility to women and girls in Tuvalu, I think it is better to be briefed on the geographical location, land area and population of the country. Tuvalu (known as the Ellice Islands until 1978) is an island nation in the Pacific, lying approximately 10' south of the equator. It is made up of nine small and fragmented atoll islands, with the total land area of about 26 square kilometres. Its population is about 12,000 people.

In this paper, I will first define what is meant by information and communications technologies. Next, I will talk about the use of these technologies and how they are accessible to women in the country for open and distance learning. Then I will suggest ways and means of improving information and communications technologies (Internet and e-mail) in Tuvalu so that women could be confident enough to use these for open and distance learning.

Information and communications technologies (the use of the Internet, including e-mail) in Tuvalu are mainly used as a two-way means of correspondence or exchange of messages between friends, governments, companies and so forth. Radios and televisions are the means whereby one-way communication, sender to receiver, occurs. In fact, the only institution that offers courses using the distance learning mode and the mentioned means of information and communications technologies is the University of the South Pacific in Suva.

The Use of Information and Communications Technologies for Open and Distance learning

According to the Director of the University of the South Pacific Centre in Funafuti, Tuvalu, the Centre offers about fifty-five courses. These are mainly in Language, Mathematics, Economics, Social Survey Studies, Accounting, Education, Library, History, Politics, Geography, Science, Marine Science and Agriculture. These courses vary in level from Form 6 (Year 12) to 200-level degree (undergraduate), in accordance with the needs common to all member countries of the university. The Senate makes recommendations about proposed courses, which the University of the South Pacific Council, consisting of all high level officials of the university's member countries, either approve or decline. In most cases, the Council usually approves the Senate's recommendations. Such courses are then only available to those who pay their tuition and course fees. In other words, the courses are privately funded. Those who pay their fees get printed texts as well as audio-tapes. They can also borrow video-tapes from the library at the Centre.

This year the total enrolment at the University Extension Centre in Funafuti is 230, of whom 141 are girls and women. The government very much encourages all people to take courses at the centre. For those who pay their tuition fees and get through their courses successfully, their fees would be refunded so that they could pay for other courses they are planning to do. Those who complete three to four courses at the centre may apply for government in-service or pre-service scholarships. Such people usually get scholarships to do studies overseas. In the recent past, the proportion of women who have completed University of the South Pacific programmes is higher than that of men.

This year, it is reported that about 301 students, pre-service and in-service scholarship holders, of whom more than half are females, are in Fiji, New Zealand and Australia doing studies there. This is a high number indeed, and most, if not all, prefer doing studies overseas as they get first-hand and direct help from lecturers, have easy access to facilities such as libraries, and have opportunities to participate in field trips.

Such is the trend that the major problem faced by everyone doing long distance learning is the unavailability of computers. Most people who have access to computers are those working in government offices (government is the major employer in the country). Of course, most of these people are men. This is mainly because of the negative attitudes of Tuvaluans in the past to girls going to school. Girls were supposed to stay at home and learn domestic skills, whereas boys were encouraged to go to school. That has changed tremendously. Girls and boys now have equal opportunity to education and this is greatly supported by the government. Of those taking courses at the University Extension Centre on Funafuti, most are young; and, if they work, they do not usually have computers they can use at work. Thus, they have difficulty using the Internet and e-mail.

Tutorials are conducted locally, weekly or fortnightly and tutorial archives can be accessed using the Internet. Video- and audioconferencing are also used in these sessions. With regard to assignments, the use of the Internet, including e-mail, however, is not encouraged. Though students may have accounts in the Computing Department and are connected to the Internet, they still need to submit these in A4 scripts, stamped and sent by mailbag. To be connected to the Internet (including e-mail) is, in fact, mainly on a first-come, first-serve basis—and it also depends on how regularly one pays his or her bills. Another matter to consider when connecting to the Internet is the availability of facilities needed. Users of the Internet and e-mail are charged according to the rate of their choice. Those who want to use the Internet (including e-mail) with unlimited time are charged AUS$200 a month. Dial 10 is where the user is free to use the Internet and e-mail for ten hours a month and is charged AUS$52 a month plus overtime of 30 cents a minute. Those who wish to use Dial 20 can use the Internet with e-mail free for 20 hours and are charged AUS$94 a month, plus overtime of 30 cents a minute.

The Internet as well as radios and television are used by the University of the South Pacific for open and distance learning. The Curriculum Unit is planning to have educational programmes on the national radio station and television to reach primary school children on the outlying islands. At present, these islands do not have access to television. Programmes are recorded local events, and are on the air on Mondays only from 5:30–8:00p.m. The national radio station is on the air every day at 6:30–8:00 a.m., 11:30 a.m.–1:00 p.m., and 6:00–9:00 p.m. These times, according to the manager of the Tuvalu Media Corporation, could be extended to accommodate the needs of the Education Department, which has made education a priority.

Concerning the educational institutions in the country, there are ten primary schools, one on each outlying island and two on Funafuti. Nine of these are government schools and one is a mission school. The enrolment at each of these varies from seventy to eighty, with the total of 1,500 pupils. The government has given eight schools one computer each. There are no radios or televisions in these schools. The subjects taught at the lower primary (Years 1–4) are English, Mathematics, Basic Science, Social Science, Health Science, Physical Education and Tuvalu Language. At the middle (Years 5–6) and upper primary (Years 7–8), the same subjects are taught together with Business Studies, Technical Drawing, Home Economics, and Arts and Crafts. At this level, despite the teachers' encouragement to the children to do the practical subjects of their interest, boys still do Technical Drawing while girls do Home Economics.

In the only secondary school in the country, the total number of students this year is 558, with girls numbering 269. In the school there are about five computers, which are still in working condition. There are also two radios and televisions, none in working order. The subjects taught at the junior level (Years 9–10) are the same as those taught at the upper primary. At the senior level (Years 11–12), those subjects are also taught together with Geography, History, Physics, Chemistry, Economics and Accounting. Boys still tend to dominate the Technical Drawing classes while girls are the only ones doing Home Economics. In these formal settings of education, computing is not yet a part of the school curriculum. Plans are still being made for the inclusion and the development of this into the Whole School Curriculum.

There are two commercial schools at the post-secondary level, that teach secretarial and computing skills, as well as office management. Most of the students are women and girls. The Paute Commercial School teaches the above-mentioned subjects in thirteen weeks and its intake varies from eighteen to twenty. It also has about six computers. The other school, the MKH Typing and Computing School, has about eight computers and teaches the mentioned subjects in six months. Its intake is about twenty-four to thirty every start of the programme of study. Most of the women and girls from outlying islands travel to the capital to be enrolled in these commercial schools.

After studying in these two schools, the women will then look for work as office clerks. I think the reason most women aim for these jobs is mainly because of the high cost involved in pursuing more challenging and academic courses as those offered by the University of the South Pacific. The other reason is that not many other regional institutions are interested in offering courses using the distance learning mode at a lesser cost. Another reason is that the women of Tuvalu are still expected to do household chores. Therefore, even if they have the money to do academic courses, they do not have adequate time to do the studies well or achieve good marks. Most capable women with such problems end up withdrawing from their courses and lose interest altogether.

With regard to a formal government policy on telecommunications, there is none. I also understand that the government has not signed an agreement with an overseas telecommunications provider for Internet access or other telecommunications. The only company that has the government's permission to use the Tuvalu Internet address, .tv, is a U.S. company.

Recommendations

Considering the above, I personally think that, though the government supports equal opportunity for men and women, women are still at a disadvantage practically. Some are disadvantaged because of cultural attitudes in the past. They find it hard to have access to education and nowadays, if one is not competent and literate in computing, one is illiterate in education altogether. Other women, because of the time commitment, lose interest and may not be able to complete courses. They think that their main work is to do with the home and child-bearing, and looking after their families. My suggestions, then, to resolve all these problems are:

- To make computers available to women. This could be done through the Department of Women or the Tuvalu Council of Women. Workshops could then be conducted yearly, with help from overseas consultants, developing skills in information and communications technologies. In this way, women could use this knowledge to do distance learning.

- To make computers available to the two commercial schools where the students are mostly women and girls. These schools could then be encouraged, through aid from overseas, to

include in their curricula Basic Skills of Information and Communications Technologies and other relevant courses.

- To ensure that radio programmes give full and specific details on how to use the Internet, including e-mail. This, however, needs a specialist from overseas and an interpreter.

- To decrease the cost of the connection to the Internet so that people with limited funds can have access and also be able to use it for education and training purposes.

- To encourage international, regional and local educational institutions to use information and communications technologies (especially the Internet and e-mail) for training and educational purposes. This would help working women upgrade their skills in the use of these. As well, courses and programmes about these new technologies should be taught.

- To ensure that the lines or connections to overseas countries are improved. This is the responsibility of the Telecommunication Corporation in Tuvalu.

Conclusion

In conclusion, I would say that due to the size of Tuvalu and its population, women in the country are not that disadvantaged in terms of education and training with respect to using information and communications technologies. This does not mean that women in Tuvalu do not need help. We do, as this subject is of great significance internationally with regard to literacy in the modern sense. If one misses out on this, one will be illiterate and would totally miss out on education, as most things nowadays are done electronically using computers. Also, skills in relaying and broadcasting information over radio and television need to be of high quality or else the audience will not be keen to listen. By improving the means of information and communications technologies, the capacity of women to do open and distance learning in Tuvalu would also be improved. Women and men alike would not need to go overseas to do studies, but could stay in Tuvalu to study using these technologies.

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Vanuatu

Jane Kanas and John Gideon

Introduction

The Republic of Vanuatu, formally known as the New Hebrides, is an archipelago of some eighty islands that lie roughly in a Y-shape. This group of islands spans almost 1,100 kilometres from the southern Matthew and Hunter islands to the northern Banks and Torres group.

The islands vary in size, with the twelve largest accounting for most of the total land area. The islands' topography also varies from low coastal plains to rough mountainous and heavily forested interiors. Overall, 41% of the country's land is considered to be cultivatable.

The climate changes from tropical in the north to sub-tropical in the south. The temperature, precipitation and humidity also vary. Temperatures range from a minimum of 16 to a maximum of 32 degrees Celsius. There are two distinct seasons: one wet (summer) and one dry (winter). During the wet season, winds from the north and east bring rain. The average rainfall in Vila is about 2,300 millimetres. The islands are also prone to cyclones during the summer, which is from November to April. During the Southern Hemisphere winter (May to October), the southern islands in the group can experience cool weather.

The indigenous people of Vanuatu are of Melanesian stock and call themselves Ni Vanuatu. As is characteristic of Melanesia, there is much diversity in the cultures and languages found in the group. In Vanuatu, 109 Melanesian languages are spoken, as well as English and French for education and Bislama, a dialect of Melanesian Pidgin English, as a lingua franca. Ni Vanuatu families live in villages that may range in size from one- to two-family settlements to those with up to 200 inhabitants. Socially and culturally, kinship ties are important and life revolves around the extended family with the bigman or chief as head of a village. Rural Vanuatu life is truly agrarian, with copra, kava, cocoa, coffee, beef and fish being main exports (Bolenga, 1995: 235–236).

Traditionally, the male child is more important than the female child in many local societies and receives preferential treatment. Thus, when resources are scarce, priority is given to the male children for education. Young female children are expected to assist in household duties by caring for younger siblings and to tend to subsistence farming until their teenage years (Bolenga, 1995: 236).

Vanuatu became a sovereign nation on July 30,1980, having been once jointly ruled by France and Great Britain. Today the country is an interesting mix of the two previous colonial powers in almost all sectors of public life. This is especially evident in the education system and the languages chosen for education: English and French.

Vanuatu's biggest task upon independence was to reinforce among English- and French-educated Ni Vanuatu—aptly called Anglophones and Francophones—the idea of thinking of themselves as one people. Today, we can say there is some success to this, though there still exists the idea among Francophones that they are less advantaged than Anglophones in furthering their education and securing higher positions in the public or private sector (Virelala, 1995: 405).

With the legacy of the colonial education system, this meant that the country had to develop a new system that was truly for Ni Vanuatu, not one that was meant for the British or French student. Today the country can be proud that, for its primary and secondary levels, schools are now using a national curriculum, with major examinations sat at years 6 and 10. At the higher secondary level, students also sit the regional examination for the Pacific Secondary School Certificate. Much debate still exists surrounding the immediate importance of the New Zealand Bursary examinations in English secondary schools. In the French secondary schools, the Examin Superieur D'entrée Universitaire is sat in year 14.

According to the 1999 national census report, of the total population of 186,678, almost 49% are females. The life expectancy for females is seventy, higher than that of males (sixty-seven years). Out of the total female population (90,996), almost 43% have gone through some kind of education from kindergarten to tertiary. Of this, 3.8% have attended junior secondary school, while only 0.6% have made it through to the senior secondary level and only 0.2% to the tertiary level (Table 1).

Table 1. Number of Males and Females in Secondary and Tertiary Education in Vanuatu[a] in 2001

	Junior Secondary	**Senior Secondary**	**Tertiary**
Male	3,710 (51%)	648 (54%)	243 (57%)
Females	3,545 (49%)	555 (46%)	181 (43%)
Total	**7,255**	**1,203**	**424**

[a] *This includes Ni Vanuatu students studying in overseas tertiary institutions.*

Of the females who enter a tertiary institution, 35% attend overseas tertiary institutions while the remainder attend the Vanuatu Teachers College (Bibi, 2000: 2).[1]

Life today in Vanuatu is very much rural based, though the two urban centres of Port Vila and Luganville are a hub for commercial, political and educational activities as well as the link to the outside world. Urban drift and the related unemployment factor are local problems, as they are worldwide.

With the introduction and fast advance of modern technology globally, countries such as Vanuatu cannot be left behind. The computer age has brought with it information and communication technologies that the Vanuatu population cannot ignore. Today in the urban areas, the term "computer" is not new, and many have realised that as well as traditional literacy, computing literacy is also vastly important.

This paper focuses on the use of information and communication technologies for open and distance learning by women in Vanuatu.

[1] While the percentage of females in tertiary institutions appears to be a substantial number, this only reflects the large number of females enrolled in teaching at the Vanuatu Teachers College.

Impact of Information and Communication Technologies on Distance Learning

Currently in Vanuatu, the only institution providing open and distance learning is the University of the South Pacific (through its regional extension centres) and the School of Law, Emalus Campus, both based in Port Vila.

The University of the South Pacific is a regionally owned institution. The twelve Pacific nation members are: Cook Islands, Fiji Islands, Kiribati, Marshall Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu. Member countries make annual contributions based on the number of students enrolled through the university. Overseas aid from Australia and New Zealand also assist in the running of the institution (Lynch, 2001).

Through its extension centres and sub-centres in member countries, the University of the South Pacific enables students to enrol in courses at certificate, diploma, degree and (to some extent) post-graduate levels. The local extension centres also provide continuing education courses that try to meet the local demand for acquiring certain skills. In this section of the extension services, there are also regional continuing education courses that aid students in gaining entry into any of the extension courses or programmes available. An example is the Pacific Pre-School Certificate, which enables students to start the Diploma in Early Childhood programme.

In Vanuatu, basic education is still a luxury. The Ni Vanuatu child receives six years of primary education before a national examination is sat. Only a selected few enter one of the fifty-eight secondary schools. Four years in junior secondary school prepares the child for the annual Year 10 leaving examinations. From there, a further filtering of students takes place and only the successful can enter the senior cycle, sitting the New Zealand Bursary examinations which enable them to go for further studies through government- or overseas-funded scholarships. Students who are not successful in any of the secondary schools have a second chance to further themselves with the continuing education, preliminary and foundation programmes offered by the University of the South Pacific.

Primary education in government schools is free, with parental support through contributions and fundraising activities encouraged. This is not the case at the secondary level. A major problem faced by parents of children in secondary school is financing this education. The cost of fees and transportation are high and, in some cases, students drop out to ease the burden. The cost of further training is, of course, more and many parents struggle to repay loans in order to keep their children at one of the university's centres before they are given much sought-after scholarships.

Because of the traditional importance of the male child, today there are more males than females in the classrooms. What is needed most are awareness campaigns introducing women role models who can encourage young females to go beyond village commitments and obligations that have held back their mothers and grandmothers. Vanuatu's greatest needs, then, are to put more females in schools and to work on altering traditions against the girl child, making certain that gender equality is fully understood and embraced.

Due to the above constraints, the pool of well-trained human resources is small (though growing steadily) and seems to be concentrated in the urban areas. For Vanuatu, the pressing need is first to increase its well-trained men and women before other areas of concern can be addressed. Both young men and women are required for further training in all areas (formal and non-formal as well as traditional and non-traditional), though funding agencies stress the need for gender equity. As it is, open and distance learning through the university's centres and sub-centres is a first in the country, but

it is a method that is currently associated best with tertiary training. It will not only be expensive for rural dwellers, but also seems unnecessary, to those who might be able to afford it will be close to the good schools in the urban areas.

The information and communications technologies offered by the University of the South Pacific in Port Vila include audio and video conferencing, the Internet and e-mail services. All registered students, both extension and law students are encouraged to use these facilities. The Law School uses the Internet through its own Web site and e-mail to provide some courses to its students. Lecturers employ these facilities, as the university is instrumental in making use of all means possible in reaching out to the students (Farran, 2001). Locally, students enrolled in extension courses make use of these services to attend tutorials conducted in Vila or from Fiji (or from any of the other centres).

Other institutions offering information and communications technologies that might be applicable to open and distance learning are mainly non-governmental organisations (NGOs) and private primary and secondary schools in and around Port Vila and Luganville, as well as the Vanuatu Teachers College. Most use the Internet for research purposes.

Enrolment through the University Extension Centre every semester is made up of about 65% males and 35% females, although this gender gap is narrowing very slowly as more and more females take up studies through this method (refer to Annex 1 and 2 for comparison). Of the 35% females doing courses through distance learning, fewer than half are usually successful in completing their programmes of study due to reasons of age, marital and parity status, health and nutrition, low educational level, occupation, ethnicity, area of residence, size of household, access to household amenities, household income and community issues including financial support (Bolenga 1995: 245–254). Through the extension centre, audio conferencing is used on a daily basis for various courses. This method, known as satellite tutorials, is used by 70% of students enrolled at the centre. The other 30% who do not use this service are not interested in attending, are unaware of the daily schedule of tutorials, or live in the outer islands. About 45% who use this service are females and attendance trends show that females attend tutorials more than males (Bolenga, 2001).

Widening Women's Access to Information and Communications Technologies for Education Purposes

At the Emalus Campus of the university, both female and male students have equal opportunities in attending satellite tutorials to access information through the Internet and use e-mail to communicate with their lecturers and tutors both locally and regionally. As an institution, the university greatly supports gender equity and thus supports all opportunities for students and teachers to further themselves. With the methods available, all lecturers are able to research up-to-date material as back-up to lecture notes. Internet usage training is part of the orientation for students and is even part of some courses.

For a regional institution such as the University of the South Pacific, information and communications technologies are seen as vital for open and distance learning. Not only are these technologies cost effective, but they are also considered to be appropriate for such an institution. For instance, in a situation where a married female student requires one more course to complete a programme offered only on the Fiji campus, attending a video conferencing class is much less expensive than having the student in Fiji away from her family. The same lecturer may be attending to a class of sixty in Suva while the married female is also participating in a studio many thousands of miles away.

In Vanuatu, a third-world country where communication is poor and electricity is non-existent in the rural areas, information and communications technologies for the purpose of open and distance learning is seen as an extreme luxury. Basic means of communication such as telephones, tar-sealed roads, airports and shipping services are still greatly absent on most islands of the country. For Vanuatu, the question of addressing the basic means of communication must first be met before the expanded use of information and communications technologies can be looked into.

With the growing realisation of the usefulness of information and communications technologies and of computers as an indispensable tool in today's world, continuing education t the University Extension Centre are swamped with applications for computer courses by both genders. Courses offered include those on basic computer know-how, as well as introductions to the Internet and e-mail usage. However, with the limited availability of information and communications technologies services and lack of other institutions providing similar courses, the rural population is still disadvantaged. Although the University Extension Centre in Vanuatu has two sub-centres in the north and south of the country today, only e-mail is accessed, and then only by staff members for administrative purposes.

All forms of communication are expensive in Vanuatu. Thus, despite increasing awareness in the efficiency and power of these information and communications technologies, the rural woman will continue to be at a disadvantage. For her, the closest sub-centre of the university may be on the next island and telephone communications will be her best option. Moreover, the nearest telephone may be some miles away, and walking or paddling a canoe to reach it may take half a day. If she uses public transport, it will cost about US$40 one way, money that she does not readily have. Thus, for open and distance learning and the use of information and communications technologies generally, rural Vanuatu may not yet be in a situation to fully utilise these options, and any intentions for outreach into these areas must acknowledge that conventional ways of learning will still be applicable. Literacy, for instance, must be taught using traditional methods as well as models (such as the Grassroots Model) that are culturally acceptable. Trainers in workshops conducted in some rural villages in Vanuatu in 1999 felt this model was successful (Ngwira, 1999).

Training and Capacity Building

Under the auspices of the Vanuatu National Council of Women, women's groups within the village or church level are very effective in disseminating new ideas and technology. With regard to information and communications technologies, however, the high cost of communication coupled with related challenges (for example, financing the maintenance of equipment and specially trained manpower) remains a problem. Girls and women both in the urban and rural areas may be taught the usefulness of these tools, but only when the costs of connection and availability of the tools are addressed will the task of encouraging their use for open and distance learning be more pressing.

For Vanuatu, the urgent task is to spread education out to the rural girl, to allow her to make choices as to what future she desires for herself. That, as mentioned briefly above, needs to be advertised through means such as women's radio programmes or newspaper pages, posters of successful women, and short videos. Qualified women through the Vanuatu Association for Women Graduates should assist in this as much as possible.

In theory, all working women are given the opportunity to further themselves, but in practice, sadly, this is not often the case. Training privileges are mostly given to enhance or upgrade a previously

qualified employee's knowledge or qualification as stated by the Public Service Staff Manual (Public Service Commission, 1998). Most employers follow this general rule. Thus, in situations where office cleaners (and other very low-paid/daily-rated employees) desire to upgrade themselves educationally, they are disadvantaged at the outset.

However, for those women who are eligible for training, many try to make use of the opportunity by enhancing skills as well as qualifications through local institutions such as the University Extension Centre. Skills are mainly those involving the use and application of computer software ranging from word processing to MYOB and Web design. Women who desire to further themselves are most likely to engage in courses that are in line with the work they are currently doing. Interestingly, it is very rare for private companies or government departments to provide funding for a full programme locally (most opt for the funding of shorter courses and workshops). Thus, most women who do pursue further training in a particular field at the University Extension Centre fund themselves.

Very rarely are training workshops or courses gender specific. Through AusAID though, the Institut National de Technologie in Port Vila encourages young women to enrol in non-traditional courses for women such as carpentry and joinery, electronics and mechanics. Offered by AusAID are scholarships that specifically call for young females. These are well received as this is one way in which females can expand their horizons beyond domestication.

In terms of open and distance learning, the University of the South Pacific offers courses that are non-gender specific. Through scholarship sponsors such as AusAID and the New Zealand Overseas Development Assistance (NZODA), females are sponsored in non-traditional areas such as the sciences and technology. The table shown in Annex 1 indicates the percentage of enrolments by course and sex at the University Extension Centre during the period 1987–1990. As can be seen, no females were engaged in any science courses at all in that time. Annex 2 presents the enrolment percentages during Semester 1, 2001 and shows that a small percentage of females are now taking science courses. Today nearly twenty females are on scholarships in regional institutions taking science courses (Palmer, 2001; Stevens, 2001).

Locally, for information and communications technologies to be effective, the three chief concerns for women—affordability, accessibility and availability (as defined by the Platform for Action of the Fourth U.N. World Conference on Women)—need to be addressed. In order for information and communications technologies to satisfy education and training, access to them must be made available in schools and training institutions throughout the country. In most cases, only some schools in the urban areas can benefit from these technologies because of high maintenance costs. In order for information and communications technologies to assist in encouraging girls to enter technology- and science-related fields, the technologies need to be physically present in the schools and also be part of the school curricula. In order for information and communications technologies to support women in organising and mobilising for empowerment, women must have access to this technological source both in the urban and rural areas.

Women and Public Policy

The government of Vanuatu has, at present, no public policies related to information and communications technologies, and there is still much scope for telecommunications expansion in the country. However, since there is now awareness of the need for such policies, the national government will certainly put in force appropriate measures when the demand arises. Policies

regarding open and distance learning are also non-existent and the use of information and communications technologies for that mode of learning have not been considered a priority.

Locally, telecommunications in the country are monopolised by Telecom Vanuatu Limited (TVL) in a franchise agreement with the government. Although the company's aim is to provide telecommunications throughout the country, TVL has not yet achieved this. It aims to install Internet services at a reduced cost or even free to primary and secondary schools in the urban areas. To date, it has done so for five schools. The telecommunications connections at the University Extension Centre are independent of TVL (Banga, 2001). Thus, although this monopoly exists, the government supports the proponents of open and distance learning using their own means in reaching out to their students.

Like other respondents to recent surveys, TVL is very much aware of the latest International Telecommunication Union resolutions on gender and development. The company tries to meet the people's needs and is a big sponsor in many local fundraisers.

Conclusion

In Vanuatu, telecommunications and other means of communication are very expensive. Although with the changing world, information and communications technologies can bring the rest of the global village to our fingertips, for rural women (and anyone else) to be able to fully utilise these services (not only in open and distance learning), there needs to be the supportive human resources, as well as the availability of the technology, for this to occur. At this time, using information and communications technologies remains unworkable for bringing better education to the rural areas to further women in non-feminine fields or to help women empower themselves. Instead, traditional means of education are still the way to go. A forecast of ten to fifteen years for rural women to be able to access this technology easily—provided the necessary basic means of telecommunications are met—would be close to reality.

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Annex 1. Percentage of Enrolments by Course and Sex at the University of the South Pacific Centre, Vanuatu, 1987–1990

Courses	Females	Males
Accounting	29	71
Admin St/Manage.	8	92
Biology	-	-
Chemistry	-	-
Economics	17	83
Education	34	66
Geography	26	74
Home Economics	75	25
History/Politics	23	77
Library Studies	89	11
Literature/Language	30	70
Mathematics	20	80
SE	34	66
Sociology	17	83
Physics	-	-
Technology	-	-
UU	11	89

Source: Bolenga, 1995: 244

Annex 2. Percentage of Students by Gender Enrolled in Extension Courses at the University of South Pacific Extension Centre, Vanuatu, in Semester 1, 2001

Course	Female	Male
Accounting	37	63
Agriculture	8	91
Biology	43	57
Chemistry	28	72
Computer Science	3	97
Economics	38	62
Education	57	43
Geography	35	65
History/Politics	49	51
Language/Literature	47	53
Law	33	67
Library	89	11
Management	67	33
Marine Science	50	50
Mathematics	26	74
Physics	6	94
Psychology	33	67
SE	60	40
Sociology	33	67
Technology	0	100
Tourism	100	0

Note: SE – Interdisciplinary Courses