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Culture and Information Systems: The Tongan Experience

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Abstract

Over the years, it is argued that due to cultural differences between traditional and more innovative societies, technologies which have been invented, developed and served their intended purposes without disrupting the culture of the society to which they were meant to be used, should be modified to suit the culture of other societies. The author strongly believes that in order for the people in less developed societies to be more creative and to act independently, people in more developed societies should avoid imposing their ideas and technologies upon the indigenous systems of social organisation.

This paper explores the possibility and ways through which to attract and encourage people from developing countries to consider the information and communication technology industry as a potential field of study for their children and prepare themselves to secure jobs in the information industry, as the world is gradually but surely transforming itself from industrial society to an information and knowledge society. The paper presented the result of a study about how the people of Tonga view computers and computerised information systems. An overview of the importance of socio-cultural values is presented, followed by a discussion of the impact of cultural interaction and cultural change on traditional societies. The concept of appropriate and suitable technologies is briefly described. Finally, a study of the perception of Tongans, in the Waikato area in New Zealand is presented, followed by a strategy that may be used to improve people's understanding of computers as tools for processing, sharing and preserving information.

Keywords: information, information systems, culture, cultural change, developing countries

INTRODUCTION

Historically, Information Systems have been developed to provide a reference and to sustain the knowledge of a subject for future use and reflection. Hitherto, information systems innovations and developments have been made from the viewpoints of systems' developers and users, and sometimes for financial gain. However, Hannah & Harris (1996) point out that in non-industrial societies, like those of the insular nation of Oceania, information is rarely for sale and cultural tradition defined and conditioned who is allowed to know what information. Moreover, Hannah & Harris state that information, the basis for knowledge, remained largely the personal property of the educated elite. Cultural differences have diversified the way in which people of different societies view and use information and adapted modern information systems. Cultures of traditional societies often conditioned and restrained information from being published or made known to the public except certain factions of the society concerned. Hess (1990) states that *"But tourism also may be abhorred by island residents who object to selling their culture for currency. To some islanders, the thought that items and practices of deep religious nature are to be listed in catalogues, together with the tariffs and delivery conditions, is utterly sickening"*.

This paper is part of an ongoing study about encouraging young Pacific Islanders to study and eventually move into the job sector for the Information and Communication Technology (ICT) industry. Latu and Young (2004) presented an overview of how to teach ICT to Pacific Island background students. This paper takes one step back to explore the reasons why parents of Pacific Island students are reluctant to encourage and support their secondary and tertiary aged children to consider ICT as one of the their priorities for further education. This ethnographically exploratory research looks at the concepts of culture and cultural interaction, information, and information systems before exploring ICT in developing countries and using Tongans in New Zealand as a case study. The result of an unstructured interview of Tongan parents who have children at secondary and tertiary level is presented and used to identify barriers that hinder the parents from considering ICT as potential career path for their children. Furthermore, the result of the interview will be used to formulate approaches and pathways to allow people from less developed countries of the Pacific to participate in the ICT industry.

CULTURE: An overview

They called what they saw (or, more exactly, what they imagined they saw), 'culture'.   (Bauman, 1973:2)

In the English language, the word culture is defined in many different ways and not always used consistently. Anthropologists Kroeber and Kluckhohn (1952), after censoriously reviewing more than 150 different definitions of the word culture have suggested that culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artefacts. Kroeber and Kluckhohn further contended that the essential core of culture consists of traditional ideas, which have been derived from historical facts and their attached values.

While Pitts (1992) defines culture as sets of rules, beliefs, customs and institutions, morals and interpretations of behaviour that are shared by a society, Geertz, (1975) argues that culture comprises a system of symbols by which man confers significance upon his own experience. As a scientific term, de Blij and Muller (1986) claim that culture encompasses all the features of a society's way of life. It includes, among other things, the routine living habits, the architecture of houses, social relationships, distribution of property rights and obligations, the system of government and the laws that govern a society.

The above discussions show that culture is neither genetically predetermined nor self-invented but is totally a result of social invention. Spencer and Thomas (1978) studied and found that the processes involved in crafting the conditions that maintain, manipulate, and change a cultural system are: 1) discovery (the way in which mankind learns about the physical world); 2) invention (the human act of creating something that does not occur naturally in the physical or biotic world); 3) evolution (the cumulative process of development over time and space), and 4) diffusion or spreading of the cultural traits in all directions from a central point, usually the origin of a society.

Cultural interaction and cultural change

When cultures of different societies intermingle one of them must give up some or most of its traits and adopt the traits of the other in order to facilitate and expedite socio-political, technological and economical transference and introduction. de Blij and Muller (1986) characterise the concept of acculturation as a process whereby cultures of different strengths interact, and the stronger cultured societies condition and change the traits of the weaker ethnic groups. During the cultural interaction, traits of the stronger culture (in this paper stronger cultured societies are those that have been identified and labelled as developed countries based on economic indicators) are usually adopted by the weaker (developing countries or traditional societies whether they are geographically isolated or contained in and surrounded by stronger ones). As a consequence, Ezigbalike and Benwell (1994) rightly point out that the adoption of alien cultural traits results in net disadvantages to the weaker societies.

Johnston (1883) realises the acculturation process and argues, *"Why should the Polynesian people be taxed, fined and imprisoned according to the rules of the civilisation of an alien race?"* It is important to note that the more unlimited the power of a foreign culture and its technological innovations over another, the more the former cripples the creative capacities and weakens the ability of the latter to act independently.

When transferring new technologies cross-culturally, several factors must be considered so that it is beneficial to the receiving societies. Nielsen (1993) and Henssen (1990) summarise the characteristics that a person should possess to ensure his or her success in transferring technologies cross-culturally as: technical ability, managerial skills, cultural empathy, adaptability and flexibility, diplomatic skills, language aptitude, self-motivation rather than financial reward, and emotional stability and maturity. Knowledge of the culture, economic and socio-political arrangements of the receiving society must also be studied and understood beforehand. In addition, Larmer (1992) has stated that *"to make a success of both business and life in a foreign country one has to be sympathetic and even receptive to local customs and norms"*. Accordingly, to be able to successfully develop, introduce and encourage indigenous people from traditional societies to use information systems, developers need to understand and appreciate local cultures.

INFORMATION SYSTEMS IN DEVELOPING COUNTRIES

Studies show that computerised information infrastructure and technology is neither culturally nor socially neutral (Henderson, 1993; Dyson, 2003). As such, Hedberg (1998) advises that its introduction must be adapted and conditioned according to the socio-economic and cultural traits of its new environment to be useful. Otherwise, people in developing societies, given their economic constraints and historic marginalisation, will find it difficult to process and preserve data and information about themselves. Furthermore, Hedberg stresses

that a successful technology development in one society, producing appropriate solutions or products, must not be considered to be the blueprint for other societies to adopt but more as a guide and possible solution depending on the societies' understanding and requirements.

With regard to the cultures of the South Pacific societies Olutimayin (2002) states that the South Pacific societies had perceived information as something to guard and hide rather than shared and published, and access is a matter of responsibility rather than right. There are many reasons why people in some societies are reluctant to share information. Among these are: 1) since information gives birth to knowledge and knowledge bestows power in many traditional societies, chiefs, tribal leaders, and elders fear that they might lose their power over their subjects; 2) people may use information for financial gain and this will lead on to; 3) strong kinship relations which assure social security and support will deteriorate and disappear in the future; and 4) information should only be transmitted from the senior to the junior generation in the right time.

In Tonga, information and knowledge about the affairs of kings and chiefly titles is confined to the upper class of this highly stratified and hierarchical society. Information about what to grow at what time of the year is considered to be the private property of certain tribes. Such information normally resides within a minority group of uneducated but experienced and successful families locally called the *"kau fa'a"*. Similarly, the information about when, where and what fishing techniques are to be used to catch what type of fish is the property of the *"kau toutai"* or fishermen. Interestingly, within the extended family groups, information about lineal descendant or ancestry is confined to the elders and will be passed on to the eldest son within the group. Prior to the introduction of video, television, and computers/internet, sex was culturally forbidden and shameful to talk about openly even among the more mature Tongans. Consequently, Olutimayin (2002) warns that despite the ongoing claims made by the advocates of information systems and information technology (IS/IT) that the adoption and usage of IS/IT yield positive effects on the economic development of any country the introduction of such an alien technology seems to have come at a cost of losing the indigenous people's way of doing things and that will lead to an eventual loss of some of the important aspects of their cultural traits, such as language, and hence their identities.

This paper contends that the state of knowledge regarding IS/IT in most developing societies has not reached the level of understanding of what such technology can do and should be used. Our knowledge of the structure and the functionalities of information systems determine what we know about information and information systems. Moreover, it is only when we are convinced and understand that we really know what we think we know, and we know what we do not know that we are able to design and implement an effective information system. This is neither an attempt nor a call to preserve the purity of the local culture by deliberate elimination of foreign influences and their technologies. Burrough (1986) has stated that in order to survive in a competitive industry, an organization/society must invest and use new technologies to secure a strategic position and gain an edge over its contenders. If it does not, those who have made the investment and are organized in such a way that they become successful and profitable will overtake it.

Dyson (2003) concludes that the main factors inhibiting indigenous Australians from adopting IT are not rejection of Western values embedded in technology itself. Rather, Dyson claims that the issues of access and lack of awareness are the main obstacles. In an earlier study Robertson, Dyson, Norman, and Buckley (2002) found no evidence that Australian indigenous people had any specific problems with learning and using technology except access and awareness. However, looking at the following picture gives us a different perspective of how indigenous people, from a different culture, view and use technology.
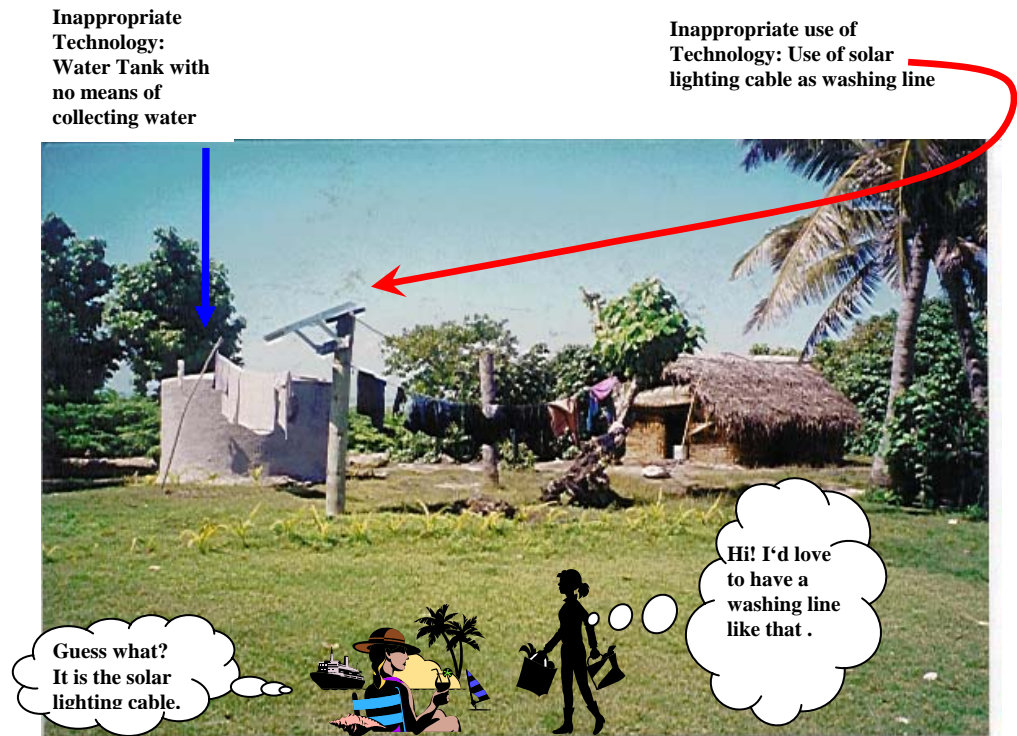
Figure 1. Wrong use of inappropriate technology   (adapted from Latu, 2002).

In the late 1990s there was an urgent need to provide safe drinking water for the low-lying islands in Tonga. There was also a need to replace the kerosene lamps that caused young children in the islands to become ill by inhaling fumes from these lamps. When the Tongan Government asked for assistance from the developed world, the New Zealand and the Canadian governments responded by providing a concrete water tank and solar lighting for each house (family) in one of the islands in the archipelago. Figure 1 shows that local conditions and the good intentions of the donors did not serve the requirements of the recipients.

Concerning students and computers Roblyer, Dozier-Henry and Brunette (1996) found that when economically disadvantaged students do get to use computers, they are used primarily for remediation and basic skills. They follow what the computer tells them to do while more affluent, already-advantaged students use it as a tool to develop higher level thinking skills.

TONGANS and ICT
In this section the author presents the result of an ethnographic study of Tongans residing in the Waikato area of New Zealand. To conduct an ethnographic study successfully, researchers must be well acquainted with the culture and customs of the people under investigation. In addition, researchers must be able to understand the language, gestures, and protocols and think on the same wavelength as those under study. Thanasanki & Corbitt (2000) believe that ethnographic study takes researchers closer to the reality of people's lives by developing theory from direct observation and practices, thereby generating data from the perspectives of the individual being studied.

The objective of this study was to find out how parents of Tongan students, at secondary and tertiary levels feel about the impact of ICT on the socio-economic aspects of their lives, culture, and the future of their children. The outcome of this investigation will be used to formulate strategies to encourage Tongans to experience and see the positive side of ICT and to encourage and provide the necessary support for their children so that they can consider ICT as one of the potential industries to explore for job opportunities.

The Interview
To guarantee that reliable data was gathered for this study, the author had to follow the Tongan protocol and way of doing things. The ideas behind the interview were addressed, several times, during informal social gatherings to raise the awareness of the potential participants. The parents need to understand and must be convinced about the importance of the study to the future of their children. Parents of twelve Tongan families were chosen for the study.

The choice of parents to be interviewed was based on the following criteria:

- Born in Tonga or in New Zealand,
- Length of stay in New Zealand,
- Educational background,
- Number of children attending secondary and tertiary education,
- Willingness to participate in the study.

Interview times were set for each family (parents) during weekends. Each interview started with articulating the purpose of the study to both parents. At the end of the interview, the notes taken were handed back to the interviewees for confirmation and to write down any additional comments that they wanted to make together with the residential address of the author so that they could drop the notes in the mailbox for complete anonymity. Parents were asked open-ended questions during the interview to ensure that they expressed their feelings about the advantages, disadvantages and the impacts that ICT could make on their cultural and family life and the livelihood of their children in the future.

The Result
The outcome of the interview showed that less than half, (five of the twelve families participated in the study), have a computer at home and only two were still connected to the Internet. Of the three families that are no longer connected to the Internet the reasons for discontinuing were given as follows:

- Downloading music and the cost amounted to over $200 a month.
- Viewing pornographic material.
- Dating and chatting over the Internet instead of studying.
- Too much time spent playing games.
- Individual isolation and weakening of social relationship and family interactions.

Comments from the Parents
Some of the interviewed parents believed that the teachers of their children had deceived them. One parent claimed, "… during a parent-teacher interview the teacher told me that we should provide our children with a computer, connected to the Internet, because there is a lot to learn from the Internet. We purchased a second-hand machine and I gave my son permission to arrange and get it connected to the Internet. We paid only NZ$14.50 every month for the Internet but few months on our phone bill jumped to more than two hundred dollars/month. I rang telecom and they told me that someone downloaded songs from the Cook Islands which I do not understand until I talked to one of my friends who knows a lot about computers and the internet. Now I don't trust the Internet and the computer makes us pay more money to telecom and we can't afford to pay for me to visit the doctor or to donate money to church and family functions."

Another parent claimed, "As for my family, the so called computer and the Internet created a new atmosphere amongst us, an atmosphere of misconduct, distrust and disrespect. One night, I woke up at about one o'clock, in the morning, and saw a light in the living room. I crept quietly and to my disbelief my fourteen-year-old son was watching naked people on the computer. I stood there for a while trying to compose myself and think about what I would do. I walked into the living room, tears flowed from my eyes, and asked my son to explain to me slowly what he had been doing the whole night. My son said that it's a popup and I asked him to explain to me what was a popup, which I simply do not accept up to this very moment. A popup may be true but how would I know that it's just a popup and not intentionally activated. So you (interviewer) see, computer and the Internet bring strange things to this house therefore we have decided that we can only stop the fire while it is still small. We do not want our children, especially our daughters, to be exposed to these nasty things when they are still young".

Another interviewee has stated, "When we bought our computer I thought it would help all of the family. It turned out to be a disappointment for us parents because we cannot use it to type what we want to prepare for business, family and church activities. The machine is only good if we speak and understand English very well. I spent several hours trying to type a sermon for my husband, after my daughter showed me how to do it. When she came back I asked her what next and she said whether I printed out the document. I said no and she told me to open the window so I went and open the kitchen window. She laughed and told she meant to tell me to open a window on the computer and she explained and I realised that I never saved the document.

Reasons for not having a Computer
The seven families that did not have a computer at home, made the following general comments:

- Too expensive.
- Too much money needed for family and church activities.
- Did not think that they were obliged to provide computers for their children's education, thought it was the schools' responsibility.
- Their friends told them that there were hidden costs involved like internet connection fees, special application software needed by the children, service fees, and so on.
- We heard that children are using computers to do nasty things, like looking at pornographic materials.
- There was no space for the computer in the home and it would require additional furniture to put it on.
- Tongans are not good at using computers, therefore let us do what we are good at and leave computers to those who created them.
- The schools are to blame for teaching their children bad things about computers like the Internet, viewing pornographic material etc.
- If we trust computers and computerised information systems and rely on them to store and preserve information that is vital to our survival and something catastrophic wiped out the computers and their memory then there goes the information therefore traditional ways of preserving information should still be encouraged.

Overall the parents, because of their naivety of computers, did not trust the use of computers or could not see any additional advantage through their children using computers. They believe that there was a big difference between the purchases of a TV as opposed to a computer. The reason given that the whole family would enjoy the TV but only one or two members of the family would use the computer. The parents, when trying to use the computer themselves, struggled to understand when something went wrong and the instructions given (English being their second language).

POSSIBLE SOLUTIONS
Because of the parent's ignorance of computers, it is apparent to the author that the best way forward would be to have an education programme encompassing the parents of secondary/tertiary students. This programme would be staged to give these Tongan parents the information they need and dispel the concerns they currently have regarding computers. There would still be the problem of having a computer in the home because of the cost factor, but with the information learned, it would no longer be viewed as a non-essential item but rather a learning tool for the family. Carefully designed programmes could be used to increase parent's awareness and then tailor basic programmes towards points of interest to them.

It is obvious that in order to develop effective training programmes, few issues must be dealt with appropriately. Firstly, a thorough ergonomics investigation should be made, to study the factors that affect the welfare, satisfaction, and performance of people working with these artificial machines and new systems. This in turn would allow people from the teaching cultural background, to understand and become familiar with the traits of the learning culture. Secondly, a two-way learning environment in which traditional and western cultures can come together and develop recognition, mutual understanding, sensitivity, and respect for each other's traits and values, must be provided and encouraged. These issues may be implemented by involving computer literate Tongans to bridge the gap between the participants, and to promote learning and education for others instead of simply providing services in order to be paid. The author, and some of his fellow computer literate Tongans, demonstrated to some of the parents how to use MSN Messenger to interactively communicate with each other in real time, at a minimum cost, and as a result reducing social and geographical isolation. Another example was using MS Word to type, save, print and store parents' documents, like pious discourses, letters, etc. in Tongan. The other was to use MS Access to store family related information, which is much easier to retrieve than looking through several papers, and trying to read others' handwriting.

In order for westernised information systems to be adapted to nurture and supplement social, cultural and economic developments in traditional societies something must be done to encourage people in and from developing countries, some of who are now residing in metropolitan centres to think of computers as tools to help them to do the things that they used to do differently and efficiently, like the use of outboard motors to expedite and replace paddles and canoes to travel between the islands. However, because of the prevailing local conditions and customs, special types of dinghy have to be designed and built accordingly. Likewise, this study proposes that, as a first step towards reconciling culture and foreign technologies such as computers, simple computer applications, acknowledging local languages, should be developed and given to the local people to use

in order for them to see and appreciate the way that computers work and what computers can do to enhance the traditional ways of processing information. As the majority of the people concerned learn visually, it is strongly recommended that the most effective way would be to have the computer literate Tongans to develop and conduct educational programmes to teach the others, using the local language, to ensure that the introduction of the new tools will not take the participants out of their comfort zone. Providing ongoing support is one of the important areas that must be considered and provided when developing the training programmes.

CONCLUSION

While recognising the important roles that ICT plays in economic development of any society its social implications should be scrutinised to ensure that it does not adversely affect and annihilate the cultural values and customs of the indigenous people in developing societies. Bhatnagar (2000) claims that concepts and technologies developed in the West are forced upon a local context in developing countries and very often efforts to adapt any elements of these products to the local culture are not made. In order to encourage people from developing countries who have migrated and made metropolitan centres their new home this paper proposes that a thorough investigation and understanding of their culture, level of skill and knowledge of technologies that are alien to them should be conducted so that the two complement each other.

The paper argues that technologies that are new to any ethnic group should be adapted to suit indigenous communities' prevailing cultures, beliefs, level of skill, and economy instead of using technologies to acculturate weaker cultured societies. Furthermore, the study presented in this paper shows that if ICT developers fail to address cultural values, such as language issues, of a minority group within a bigger and stronger cultured group the end result would be a rejection of the new technology by the weaker one or a total loss of their language, hence culture, in the future.

It is obvious that it would be impractical for software vendors to write 'user guides' for computer applications in every language spoken in the world. However, every effort should be made to create and provide easy to use and self-explanatory guides, in indigenous languages, to encourage as many indigenous cultures to understand and appreciate the benefits offered by ICT. These guides would also contribute greatly to the parents' understanding of computers and be in a better position to approve and assist their children's use of home computers. In order that information systems generates and gives the users the knowledge that they need to make informed decisions, people in developing societies should be convinced that, having access to and using computers in a network environment, they may find themselves paying more attention to the meaning of information presented rather than making biased decisions based on their emotional feelings as well as the status and importance of the person giving the information.

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