

Potential Users Profile and Existing Communication Pattern among the Rural Community of Bario: A Need Analysis for the Development of a Telecentre

Poline Bala
Faculty of Social Sciences,
Elaine Khoo Guat Lien, Peter Songan, Ph.D
Faculty of Cognitive Science and Human Development
Roger Harris, Ph.D
Faculty of Information Technology
University Malaysia Sarawak (UNIMAS)
(bpoline@fss.unimas.my)

Abstract

Remarkable and rapid developments in communication and computing technologies in recent years offer exciting avenues for rural communities to move into the information age. Nonetheless, it is important to view rural communities not merely as passive consumers of information and knowledge, but also as contributors. As such, the focus is not on the technologies, but on the communities' needs. This paper highlights some communication and information needs of a rural community derived from a survey conducted on 140 households in the Bario area of Sarawak and from some focus group discussions with different sectors of the community. Out of the 140 survey respondents, 67% of them are farmers and about 29% have never been to school. Data drawn from the survey and group discussions also shows that the community is deprived of a wide range of information categories and their current source of information is primarily face to face communication. Finally, this paper discusses the impact of the analysis on how technology might help to meet the established needs, thus forming the basis of decision making for the development of a telecentre.

1. Introduction

Information and Communication Technologies ICTs are widely accepted today as new social and economic force in the world economy. In fact, some scholars (for example Barr 1998) suggest that a close correlation exist between telecommunications and economic development, whereby efficient telecommunication facilities promote economic development. This is particularly so as the world moves into information age where wealth creation and accumulation is increasingly dependent on high technology for the exchanges of data, information and knowledge (Omar Abdul Rahman, 1993). Thus governments such as the Malaysian government has adopted ICTs as an important component of the national development policies and its aspiration to be a fully developed nation by the year 2020. (Mahathir 1991).

However, there exists amongst development agencies, particularly in the area of communication for development, a great concern over the increasing gaps between the information have and have-nots. This discrepancy is sometimes known as the digital divide or information gap, which does not only exist between the rich and the poor, between the developed and developing nations, but also between the urban and rural populations and in many cases, although not exclusively, within the developing nations. According to Hudson (1998) the gap between the urban and non-urban areas is far more significant since about 80 per cent of the population in poorest countries live in rural areas. Besides that 71 percent of the total population in the developing world lives in rural areas (World Bank). Moreover, most telecommunication infrastructures in developing

countries are found in the larger cities and are non-existent in rural and remote areas in some countries.

It is suspected that if these gaps are left unchecked, it would lead to other forms of poverty and inequality related to an imbalance of access to ICTs. Thus, various bodies and agencies at the international level such as the United Nations, Development Sector of the International Telecommunication Union (ITU) and its members are building in roads into providing rural communities with access to computer mediated information and communication services or facilities, i.e. through Information and Communication Technologies ICTs. In fact, universal access is now generally accepted as an appropriate goal in the rural and remote areas of developing countries (Barr 1998). Today, provision of this access is eased by advances in networking technologies that can provide some unique opportunities for rural areas to have the benefits of connectivity as the urbanites.

2. Rural Areas in Greater Need for Telecommunication Services

Nevertheless, not everyone happily accepts and embraces the idea that ICTs should be extended to the poor and rural people. As pointed out by Enberg (1998b), for some people these efforts are inappropriate and too sophisticated for rural people who are basically less educated and who are used to traditional ways of communicating, whereas others questioned whether the rural and poor people do really need access to ICTs since these technologies are not neutral, but rather loaded with western ideas, contents, cultures and values, thus are a threat to rural peoples livelihood

Yet for advocates of telecommunication access for remote and rural communities, these efforts are crucial for the betterment of life in rural areas. For example, Paisley and Richardson (1998) argued that getting connected means a lot for rural people since it provides options to share a wide range of information categories available in the urban areas. Besides that it helps them with “making better and informed decisions” as well as a means to keep in touch with friends and relatives in urban areas, and also to connect their business with trade, transport and commerce systems in the urban areas. It also provides them opportunities to access sources for health, information, and so on, which are useful to improve their rural life.

In a sense, the provision of ICTs holds a promise to promote social, economic and cultural conditions in rural areas (Enberg 1998). It is even argued that the rural populations need information and communication facilities as much if not more than densely populated urban communities. It is proposed that development in telecommunication will benefit remote communities more than a densely populated urban areas because other telecommunication methods could be costly and difficult for rural areas. These other methods are suggested to have significant effect on the flow of information in rural areas either by delaying, reducing the value of information or even stopping the information from being forwarded (Barr 1998). Besides that, advance in telecommunication provide opportunities and means for rural communities to compete with urban areas in the area of business, cultural and social activities with the same telecommunication services and at the same cost (Enberg 1998b). Furthermore, rural geographical locations, which are often remote and isolated, should be compensated with efficient telecommunication services.

Having said all that however, the greater challenge is to ensure the economic, social and cultural benefits of these technologies to the rural and poor. This could be achieved by ensuring that these services are efficiently and effectively deployed in these areas (Barr 1998). This is a great challenge judging from past experiences with past technologies, where the applications of these technologies in certain areas have generated not only disappointment, but also negative

consequences. In a sense, technologies themselves do not guarantee benefits for the local people. As such the challenge is to ensure not only the success of the technology itself (meaning the technology runs and functions well), but also that the people benefit through the application. And, how do we ensure the benefits to the people?

In an effort to answer this question, some practitioners in telecommunication for rural development suggest a shift from looking at technology, and instead of asking, “What can we do with this?” there is a need to look at people’s needs and ask, “Which technology might help here?” It is a proposal to focus on people (not technologies), on what people can do with technology, and training (FAO 1998). The call is to put emphasis on the context in which the technology will be introduced, and who will use the technology rather than on the technology itself. Anderson (1998) pointed out, “...in our enthusiasm for ICT technologies and their potential, we should not forget that the focus should be on people, organization and processes rather than on the technologies themselves.” Thus, there is a need to put an equal importance to understand both the technology and the context in which the technology will be deployed. In fact, to some people it is far more important to look beyond the technologies to the social, economic and political systems of the community (Garcia and Gorenflo 1998).

Where do we begin to understand the context, particularly in terms of a strategy for the application of ICTs in rural areas? Richardson (1998) and Anderson (1998) suggest the idea of analyzing the needs of people in the rural communities and their existing communication patterns as a preliminary step towards the effective and successful of ICTs in rural areas. This effort will help to identify requirements, opportunities (skills and knowledge) that exist within the community and which are essential in the process of selection and content development of the technology. This is an important step to ensure usefulness and appropriateness of technology for the local people.

Besides need and skill assessment, it is important to obtain a clear understanding of local communication patterns and processes to ensure appropriate applications of technologies and content to the local situation. This includes understanding cultural norms, where and how people communicate, what is communicated, and by whom. This will help with the harmonization and integration of the technology within the existing communication channels and processes since the success of ICTs application largely depends on its integration within the local communication networks (Anderson 1998).

Having this in mind, a group of researchers at University Malaysia Sarawak has employed this step – assessing the needs of the community and understanding the existing pattern of communication as a preliminary step towards ICTs application and development by introducing a telecentre in Bario. Methods used include participatory approaches qualitative and quantitative methods, as well as ethnography. We have conducted dialogue sessions with locals, focus group discussions as well as conducted a survey on 140 households in Bario. These tools have been useful to draw out and articulate needs, opportunities, problems and solutions related to communication and information pattern in the area. This base line study also helps us to identify communication systems and general socio-economic and environmental situation of the community.

3. Community Telecentres as Provision of Access to ICTs by Rural Communities

Telecentres are increasingly seen to be an effective means to make ICTs services accessible to people in remote and rural areas in developing countries in Africa, Asia and Latin America

(Harris, et al., 2000). For example, Brazil where a significant number of such centres have been established and where 3000 centres are planned to be established by 2004, is in the process of introducing these centers to very remote and isolated areas in the country (Ernberg 1998b). Another example is an effort by the M.S. Swaminathan Research Foundation in India, which has established Six Village Information Shops that enable rural people to access and exchange information via ICTs services (Balaji and Harris, 2000).

The main characteristic of telecentres is a physical space that provides public access to ICTs for educational, personal, social and economic development. They are usually designed to provide a combination of ICT services ranging from e-mail to full Internet and World Wide Web connectivity. Additionally, services such as fax and word processing may be provided or even specialized applications for tele-medicine or distance education (Gomez, Hunt and Lamoureux, 1999).

However this is not to say that telecentres are technology centres. According to Anderson (1998), telecentres can be living laboratories not only for global information, but also for creation of a common local development vision. As such, “telecentres are not only a way to provide simple, single-point access to external information and services, but also a facility for local residents and groups to organize village meetings, video conferences and technology training to address their development needs”. However, what is most important is that the centre serves the community’s telecommunication needs and is accepted, embraced and used by the community as a valuable community resource.

Telecentres are considered to be useful as ICTs provision tool for rural communities since 70 to 80 percent of the population in developing countries live in rural and remote areas, and most have little if any money to spend on “luxuries” such as information and communications accesses, (Ernberg 1998a). As a form of low cost networked information technologies and which allow for concentration of telecommunication services at a focal point in the community, telecentres seem to make ICTs services widely accessible to populations in remote and isolated areas, not only realistically, but also in the most economical way. Concentrating these services at a focal point is argued to be the most economic way to provide such services to isolated areas (Ernberg 1998a). This is because of the need to maximize the number of users to make the optimum use of common, expensive telecommunication infrastructure, rather than to provide separate facilities and support for each application on an individual basis for the community (Ibid). Thus, telecentres are seen to be relatively cheaper, powerful, decentralized and also an ideal platform to build flexible and powerful environment for sharing and learning.

4. Bario and the Kelabit Situation

4.1 Bario

Bario in the central northern highlands of Borneo is the hub of life in the Kelabit Highlands, and sort of the unofficial capital for the Kelabit people. It is the centre of most activities in the highlands. In fact, most of the highlands population are found in the area. For instance, in 1998, Bario constituted % (715 out of the 993 people) of the total population of the Kelabit Highlands except for Pa Dalih, Ramudu and Long Dano. Bario is the center of other important government offices in the area. This includes the immigration office, forestry department, the police station, agriculture department, water department, health centre and clinic, the civilian aviation center and the two schools in the area. Other important centres such as the Borneo Evangelical Church, the Malaysian military base, shops, lodging houses, the MAS ticketing office, and most importantly (for the Kelabit in the Highlands), the airport, are also found in the Bario area. All these offices,

shops and centres make Bario the centre of activities such as commerce, trading, exchanges of ideas, etc. in the highlands.

Today, the only practical means to get to Bario is by air---a daily flight either from Marudi or Miri. Prior to World War II, the only means of communication to Bario was by foot, climbing mountains, following the mountain ridges, crossing and re-crossing rivers and valleys for several weeks. There is no road, and a land expedition requires a river journey plus an additional weeklong trek across forested mountains.

4.2 Social Change and Some Implications on Communication and Information Pattern

Like many parts of Sarawak, Bario and the Kelabit people have gone through rapid social and economic change within the last 50 years. The two main catalyst to these changes were the introduction of formal education with the establishment of the first school in 1946, and the adoption of Christianity, particularly after a spiritual revival took place in Bario in 1973. The Kelabit as a community embraced Christianity wholeheartedly, thus an important turning point in the history of the Kelabit as a people. Both events are important part of the Kelabit history. Today, many Kelabits occupy influential positions in Malaysian national life as senior government officials, academics, business people and professionals.

Embracing change has great implications on the Kelabit livelihood. It affected various aspects of their lifestyle including their communication and information pattern. The introduction of formal education, for instance, did not only cause an attendant drift away from the highlands but have also gradually redefined the nature of previously established channels and sources of communication and information within the community. For example, although oral tradition is still widely practiced in the highlands, written tradition is increasingly an important channel.

Formal education also has caused many educated Kelabit to leave their homeland to seek well-paid positions in cities such as Miri, Kuching and Kuala Lumpur. Today, there are about a thousand out of approximately 5,000 Kelabit, who remain in the highlands, and these are mostly the elderly and the very young ones. These movements have other consequences such as the increasing occurrence of inter-marriages between the Kelabit with non-Kelabit, (with locals as well as with foreigners). Intermarriage has become such a common phenomenon that it is not unusual for several members of a family to marry non-Kelabits. For example, all 5 daughters of one couple are married to foreigners. The increasing occurrence of intermarrying with non-Kelabit has caused some concern in the community in recent years. Many have permanently left the highlands or even migrated overseas to the U.K, U.S.A, Canada, Holland, Australia and New Zealand.

An implication of these phenomena is a need to communicate between the Kelabit who are still residing in the highlands and those who have migrated out. In other words, due to Kelabit Diaspora, a new situation emerged whereby the Kelabit in the highlands (internal) need to exchange information with members of the community outside the highlands (external)--- a mutual exchange and feedback of information between the external and internal. This need is particularly eminent between parents (often left in the highlands) and the children (usually migrated out).

There is no doubt that there have been attempts to improve and facilitate communication between the highlands and the world outside, and one of the first attempts was to build an airstrip. The first airstrip was built in 1953, and ever since then, the airstrip has an important role as a means of communications and transportation between the internal and external. This is further eased with the completion of the concrete airstrip in 1996. For many people in the highlands, the airport is

their closest link to the outside world. One significant implication of airstrips in the highlands is the introduction of airmail/postal service provided through the MAS (Malaysian Airlines System) flights.

Nonetheless, this does not mean that airmail/postal service has become a very important channel of information into the highlands. Based on data gathered from the survey of 140 households, as many as 41% of the survey respondents receive very little information through the service, while as many as 93% still receive a lot of information through face to face communication. One of the ways in which face to face communication is done is through *metatad* whereby a person is asked to relay a message for and to someone else. For example, when a person boards a flight for Bario in Miri or vice versa, most likely that person will be asked to relay messages for and to someone else at the destination. Besides *metatad*, one can *nulis surat* or write letters to be handed by a passenger to the receiver. As such, as people move in and out of the highlands, they (the people themselves), including outside visitors, become important sources of information. Thus, the airport in the highlands is not only a link to the outside world, but also acts as a hub for information exchange and feedback between members of the community and the external world as well as between the members of community internally. In fact, the span of 2–3 hours daily at the airport before and after the daily flights is observed to be an intense time of information exchanges between members of the community.

Other than face to face communication, modern facilities such as radio/audio player and television have increasingly become important channels of information in recent years. About 79% of the households surveyed own radio, and about 66% suggest that they do receive information through the radio. Although only 30% of the households surveyed own a television set, almost all of them (26% of the 140 households) indicate TV as an important channel of information.

Another important communication channel introduced in recent years is the radio telephone service. A radio telephone service centre, popularly known as *inan* radio call (lit. radio call place) was set up about 7 years ago to help the locals. The government subsidizes telephone calls through Very High Frequency (VHF). One has to line up to book a call with the operator who will then place a booking by calling the telephone operator several hundred kilometers away in Penang who then connects the line. By the end of 1999, the Bario community of almost 1,000 people was averaging 750 calls per month from this facility.

5. Potential ICTs Users Profile

5.1 Socio-economic profile

The Bario district occupied principally (78%) by the Kelabit (one of the smallest ethnic groups in Sarawak), and others being Penan, Kenyah, Iban, Bidayuh and Malays (11.5%), Chinese (1.6%), and some Indonesian Immigrants (8%). Most are Christians (98.6%) and others are Muslims. Members of the community are primarily farmers (93%), planting wet rice as their main crop. Some are working in the government offices in the area (5%), while a few are running personal businesses and trading (2%). Besides cultivating rice, most members of the community rear livestock such as buffalo, cattle, sheep, chicken and pigs. While pigs, chicken, cows and recently sheep are reared for domestic consumption, buffalo are reared mostly to help with preparing the rice fields and sometimes are sold for cash. Some members of the community are also involved in hunting, fishing and forest gathering.

Although women make up 50.3% of the sample surveyed in September and October 1999, only 7.9% of the 140 respondents were women, while men make up 97.9% of the respondents. This is

possibly because men are seen to be the head of the household. The survey depicts that a large percentage (66%) of household members (n=740) are between 21-50 years old. About 16% are children below 10, about 8.5% between 11-20, and about 10% are adult above 50 years of age. About 79% of the respondents' children (n=274) currently reside outside Bario, mainly for job and educational opportunities.

Education wise, most (30.7%) of the respondents have completed upper secondary education, 20.7% completed lower secondary school, 19% received primary school education, 0.7% received tertiary education, while the remaining (28.6%) never went to school. Whether this can determine the literacy rate is quite unclear since 87.9% are able to write, although in Kelabit. All the respondents speak Kelabit, while 91.4% speak Malay, but only 75.7% can write in Malay. About 37.1% can speak English, though only 35% can write in English. Other languages spoken and written are Iban, Penan, Murut and Bidayuh.

According to the survey, the monthly mean household income is RM597.00 and their monthly mean household expenditure is RM307.23. Remittances from members of the household are considered by 86% of the respondents as to be a very important source of income. Their other sources of income include selling their produce such as rice, vegetables, forest products, and domesticated animals. Although 62% of the households own motorcycles, still about 31% use their baskets to carry their produce to sell. About 79% of the households own a radio, and 30% own a T.V set.

Table 1 Distribution of respondents by demographics characteristics (n=140)

Variable	Category	Number	Percent
Race	Kelabit	133	95.0
	Kayan/Kenyah	2	1.4
	Others	5	3.6
Religion	Christian	137	97.9
	Islam	3	2.1
Gender	Male	129	92.1
	Female	11	7.9
Age	30 and below	14	10.0
	31 – 40	51	36.4
	41 – 50	24	17.2
	51 – 60	27	19.3
	61 and above	24	17.1
Education	Never go to School	40	28.6
	Primary School	27	19.3
	Lower Secondary School	29	20.7
	Upper Secondary School	43	30.7
	College/University	1	0.7
Occupation	Farmer	94	67.2
	Government Servant	26	18.6
	Businessman	15	10.7
	Pastor	3	2.1
	Private Sector Employee	2	1.4

Monthly Household Income	RM250 and below	32	22.9
	RM251 – RM500	67	47.8
	RM501 – RM750	7	5.0
	RM751 – RM1,000	19	13.6
	RM1,001 and above	15	10.7

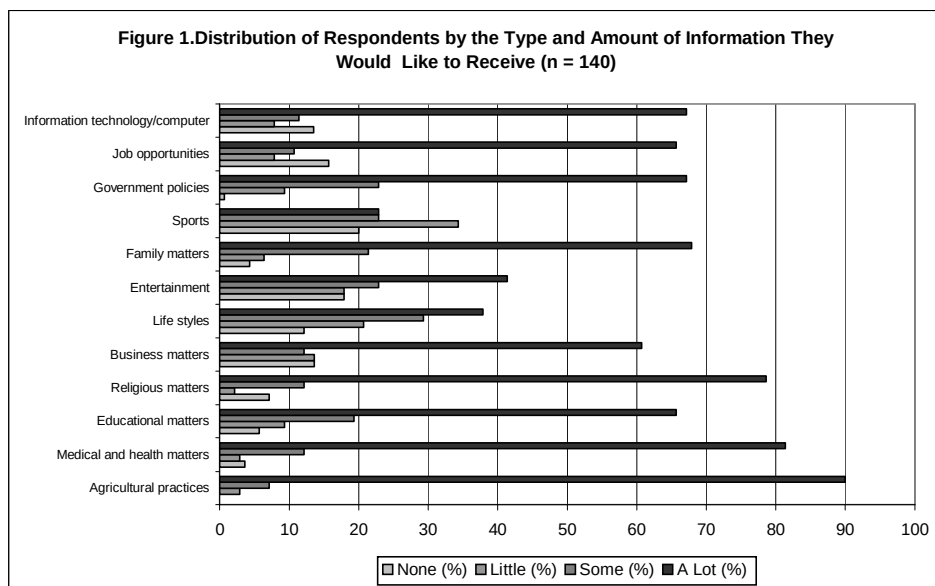
5.2 Knowledge, skills and attitudes profile

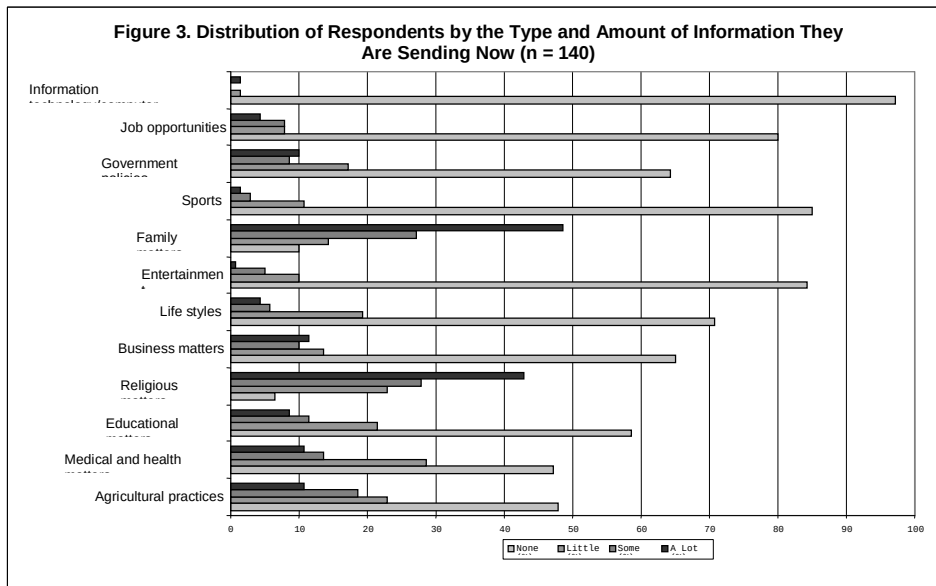
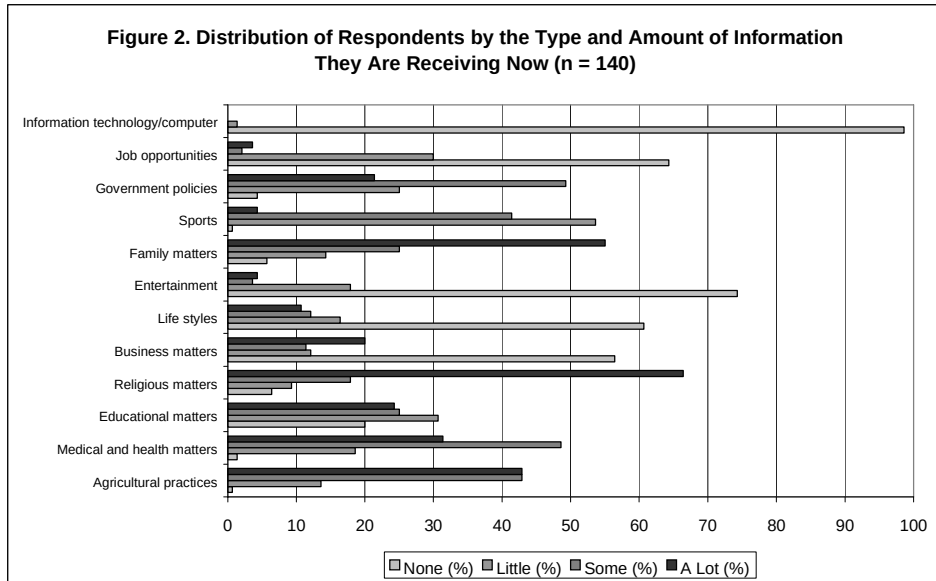
Results from the survey conducted both at the schools as well as amongst the longhouse communities suggest that the community is highly interested in IT, although many (99%) of the respondents have not heard of the internet. Even though many have heard (81%) and seen (74%) computer, about 91% have never used a computer. A few have used computer, but mainly for word processing (7%), and less than 1.5% have surfed the WWW.

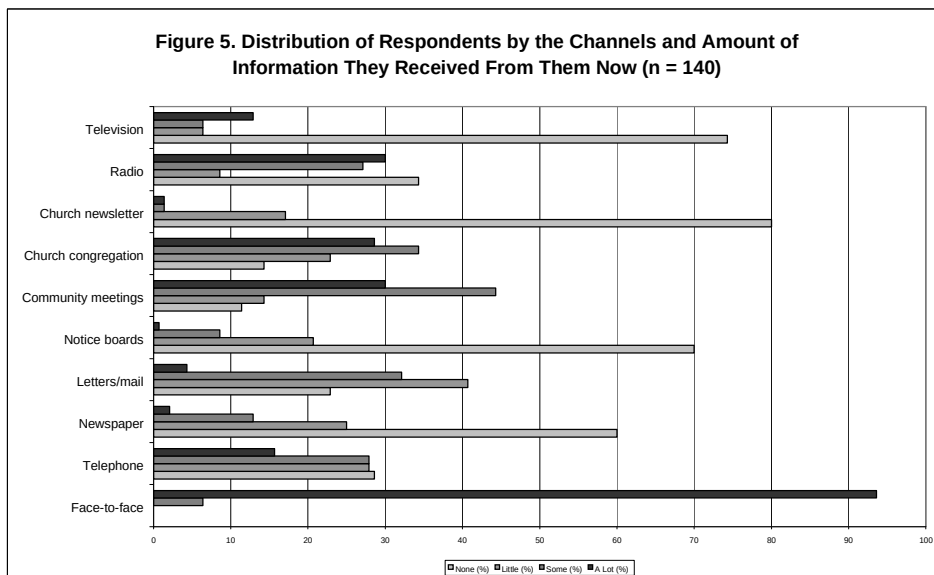
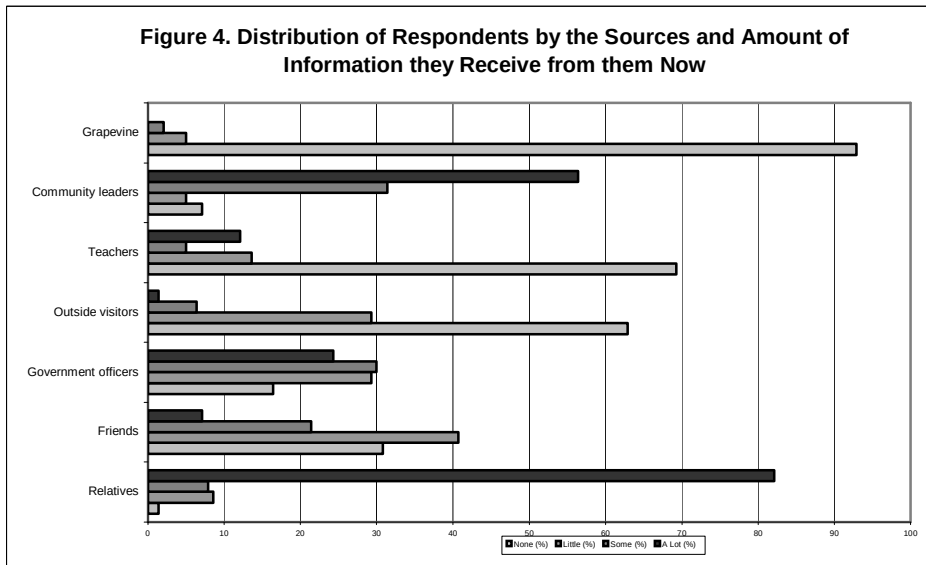
6. Patterns of Information Use in Bario

The following figures (figures 1-5) depict data gathered from the survey on patterns of information use in the community. These data include:

- the type and amount of information they would like to receive
- the type and amount of information they are receiving now
- the type and amount of information they are sending now
- the sources and amount of information they receive from them now







Discussion

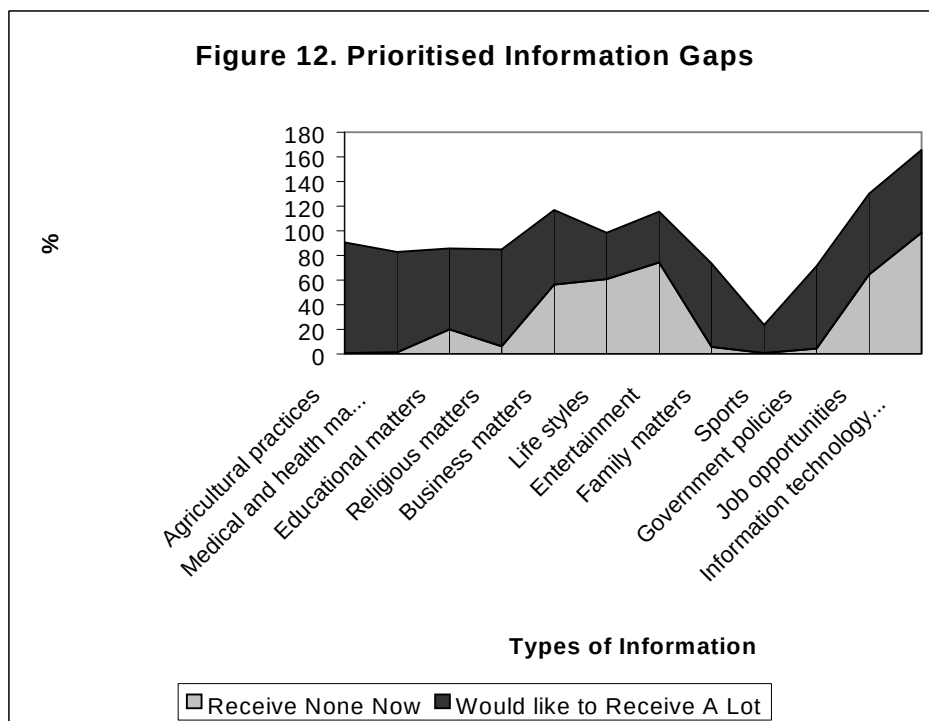
Figures above indicate that the community consider information on agricultural, medical and religious practice as to be important. Information technology, job opportunities, government policies and family matters rate slightly less important. Current patterns of information actually received are dominated by religious information, with agricultural and family matters ranking next. Most information that is sent outside of the community concerns families, with religious information ranking closely behind. Relatives are the major source of information, outranking others in terms of the amount of information received by the community, with community leaders next. In this respect, face-to-face contacts outweigh all others as channels of incoming information, with the radio, church congregation and community meetings ranking about equally next.

In relation to the use of channels by which information transferred internally, a number of additional observations were derived from interview and focus group discussions. In summary, they are:

- 1) Sending of memos/letters to make an announcement of a visit, or even to call for leaders' meeting, for example, is a common feature of the local information system. The person in charge will send a memo to all people involved, and these memos or letters are usually sent through another person. For instance, if the *Penghulu* (village head) wants to call for a meeting involving all the community leaders from the surrounding 12 longhouses, he has to draft 12 memos to be sent out. He will have to look for a person from each of the longhouses to carry the memo back to the longhouse for the headman. Another example is if the Agriculture officer wants to announce his annual visit to each of the longhouses in the Highlands, he needs to draft a memo and send it through a person from each of the longhouses.
- 2) Contrary to findings from the survey, which indicate that 92.9% of the household surveyed suggest that none of the respondents see the grapevine as a source of information, observation and experience indicate that rumors and gossip seem to be an important source amongst the locals in the Highlands.
- 3) Communal meetings, whether during Church services or community meetings called by community leaders, do play important roles in disseminating information locally. This is particularly so when new projects are implemented or introduced, for example, by the government.
- 4) Working together through Group work such as *Kerja Sama* (communal work), *Kaum Ibu* (women's group), *Baya* (reciprocal group) are also important situations where those involved pass and received information. These are important groups that are actively involved in many community development projects and in the Agriculture Rotation and Reciprocal System in the Highlands.
- 5) Many express frustrations over the ineffectiveness of relaying important messages particularly to people outside Bario. This is particularly so for government servants who work in different government departments in Bario, for example the Health Department, Agriculture Department, Forestry Department, Immigration Department, etc. Most of these workers need to report to their supervisors and bosses in Miri, Marudi, Kuching or even in Kuala Lumpur. Many times their reports and messages are delayed.

7. Information Gap

An analysis of current information gaps derived from data that relates to the types of information the community now receives and how much of it is received will help to highlight the gap between proportions of respondents would like to receive, currently receives no information on the topics. Figure 6 spells out the situation clearly.



Examining both the sizes of the gaps and the position at which they appear along the x-axis sets the priorities. Although almost nobody receives no information about agricultural practices, still around 90% of respondents would like to receive a lot of information about them, while 68% of respondents currently receive no information about information technology but about 98% would like to receive a lot. This shows that more respondents need to know more about IT than agricultural practices.

8. Recommendations:

Based on data collected on need and skill assessments through interviews, observation, survey, dialogues and focus group discussions as discussed above, the following are some recommendations for the development of Telecentre in Bario.

1. It is proposed here that provision of ICTs services, particularly the Internet at the Telecentre represent a logical extension of the trend towards technology that the Bario community has experienced in the development of its communications capability. In fact the community has depicted a progressive readiness and enthusiasm for technology-induced improvements in their communications resources (for example radio, radio-telephone and the airport). For instance, one of our respondents, Ribuh Balang, commented that most information facilities in the highlands are basically a one way flow. He says, "we cannot respond to those voices from the radio and television. We cannot say yes or no to their comments, suggestions and so forth." He desires a more interactive communication. He went on to say, "what you are hoping to introduce will help us to at least say yes when we agree with their stories and to say no when we do not agree. Besides that, it will be very beneficial for those whose relatives, especially their children who live very far away, in foreign lands."¹ Therefore, it is suggested here that the development of a telecentre in Bario will serve the community basic

¹ From a personal communication with Ribuh Balang in October 1999.

communication needs ---to be able to communicate with friends and family members who migrate to urban areas or overseas for work and education.

2. Since many people express frustrations over the ineffectiveness of relaying important messages particularly by the government servants to their bosses and supervisors outside Bario, in many cases their reports and messages are delayed, the development of the telecentre should take into consideration of providing reliable communication and information facilities. Perhaps providing a variety of applications from e-mail to fax machine might help. If one application fails to function, the community can still use other applications at the telecentre.
3. The survey data paints a very clear picture of a community that has heard of computers, have seen them, but have hardly used them and have never heard of the internet. At the same time, the survey (e.g. Figure 6) depicts that 98% would like to receive a lot of information on Information Technology. This suggest that the community is intensely interested in IT, yet have very little direct experience with it. As such, training in computers as well as the Internet is of essentially important. This require a development of an IT and computer literacy training programme for the community, which will not only raise community awareness of ICTs, but also to introduce them to ICTs capability to enhance opportunities to improve users well-being.
4. Since the percentage of respondents who are able to speak, read and write English is below 40%, there is a need to implement a mechanism that will not deny access to those that cannot read and write English. A suggestion is to provide “infomediation” services or mediate access to Internet services, particularly for the elderly who are illiterate.
5. The development content of ICTs applications at the Telecentre should focus on the community’s need to get more information on agricultural practices, medical and religious aspects.

Conclusion

This paper has outlined the circumstance of a remote community that has rudimentary capability of communication with the outside world compared to urban and other less isolated rural communities. Existing patterns of information usage and demand were described. The survey results provide a background for continuing research into the effects of introducing ICTs capability into the community through the telecentre. Base-line data from household survey coupled with data from interviews and focus group discussions provided the research team with a socio-economic profile of the community as well as contributing towards an understanding of the priorities that the community places of new forms of information provision. This knowledge is very useful for the team to develop content for the new information system to be introduced through the telecentre.

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