ICTs + PAR = Improved Livelihoods?

An Exploratory Case Study
Of Information and Communication Technologies &
Participatory Action Research
in Tamale, Ghana

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TABLE OF CONTENTS

CHAPTER 1 - INTRODUCTION

INTRODUCTION

This report presents the findings of a case study conducted in Tamale, Ghana in 2004, which examined participatory action research as a method of increasing the reach and relevance of ICTs in local development. The Centre for Information Technology Research and Development (CITRED) was the telecentre hosting this research and four of its staff were active participants, organizing and supporting four small groups, each undertaking an action research project on a different theme. The four groups were, respectively, out-of-school youth, farmers, micro-entrepreneurs, and women in the final year of professional training in teaching, nursing or business studies. The research examined the experiences of these groups, the value and potential replicability of the process, and the implications of findings for the planning and activities of CITRED and other African telecentres.

BACKGROUND AND RATIONALE

The introduction of ICTs to development projects and processes is generally motivated by two separate problems. The first is the "digital divide" - the idea that those with the least economic power are those least likely to access and use ICTs, and that the use of ICTs itself confers social and economic advantage. Thus, explicit strategies to provide universal access to ICTs must be developed or else inequality between those able to access and use ICTs and those who are not will grow. The second problem is that of development itself - ICTs offer the potential to enhance current efforts and open new possibilities to address pressing development problems including health, education, food production, income generation, government transparency, natural resource management and peace-building.

Telecentres are shared ICT access centres that are intended to support and sometimes to spearhead community development efforts. They began in Scandinavia in the mid-1980s under very different circumstances, and the basic concept proved both durable and versatile and has been tested in various forms throughout the world. In Africa, telecentres began to open from about 1998, most with support from external funding agencies. Local interest in and expectations for these telecentres was generally high, but the resulting processes were mixed and often disappointing.

Telecentres in Africa have often failed to engage intended beneficiaries in development processes that draw upon ICTs, although this was usually one of the original intents. The reasons for this are not well understood, but are generally attributed to lack of capacity on the part of management and staff, lack of resources and lack of reliable and affordable ICT services. Dealing with more fundamental problems like establishing a working telephone connection can often take both attention and resources from development goals, especially when these problems are chronically occurring.

What this means in practical terms is that many fundamental questions about telecentres and how to realize their potential contribution to development in Africa remain unanswered. This research attempts to explore the potential development value of telecentres and then link this back to recent analysis on the current state of telecentres, especially in southern and eastern Africa.

RESEARCH GOAL

To describe if and how local actors within the case study can access and use ICTs to improve their livelihoods through participatory action research methodology, and to analyse the broader implications for local relevance and sustainability of telecentres.

RESEARCH OBJECTIVES

1. To identify and document a process by which the tools of a telecentre initiated by outside agencies might be appropriated by the community in which it is placed;
2. To test the validity of emerging concepts related to telecentres arising from earlier research by comparing them to local perceptions and experiences of research participants in Tamale, Northern Ghana;
3. To explore and identify ways that telecentres might facilitate access to ICTs amongst those who tend to be marginalised from ICT use (especially women, less educated and rural people) in a manner that can lead to improved livelihoods.

METHODOLOGY

The methodology combined analysis of previous research and relevant literature with a case study.

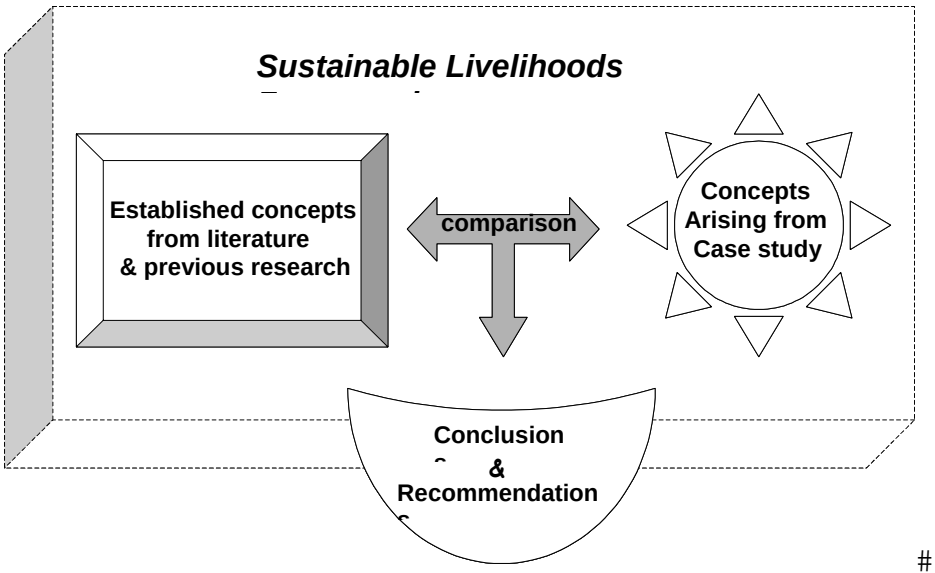

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Figure 2: Main components of research analysis

The application of the methodology can be broken down into three main stages. The first stage is the analysis of existing literature and research. The second stage is the case study itself. The third stage is the comparison between concepts identified between the two. All analysis is framed by the Sustainable Livelihoods Framework as described in Chapter Two.

Stage 1: Analysis of Existing Literature and Research

Methods:

Review of literature with focus on recent research, particularly the research I previously conducted in South Africa and Uganda.

Stage 2: Case Study of CITRED

Methods:

The field research lasted for a total of three months, from May to July 2004, and consisted primarily of active observation, augmented by participant entry interviews, review of project documents and discussion with staff. Analysis and knowledge generation occurred at two levels. The first level was within the context of the case study and was participatory, including input from all participants. The second level was the comparison between concepts generated through this first level of analysis and those identified from previous research and literature (Stage 1).

Participatory Action Research (PAR) Element

The participatory action research component is based on the premise that one of the best ways to apply ICTs is in processes that are themselves designed to generate knowledge and solve problems. Basic research techniques do exactly this.

I worked with four groups of between six to eight members each, organized by the CITRED staff. I then facilitated a process in which each group designed a small research project that could be completed within two months. Each group decided on the topic and research question through a collaborative process, and this then became the focus of their research. CITRED's facilities, augmented with other ICT services available in Tamale, were then resources at our disposal that could be used to help the group attain its research goals.

With the active involvement of CITRED staff and an additional person to provide translation and general support, I provided participants in each group with training in research methods, helped to manage and support the research, introduced the use of various ICT tools at our disposal as they become potentially relevant, and documented the whole process. The four groups operated autonomously and this provided for a range of comparison within the case. Patrons of CITRED's regular services offered another basis of comparison. The participants (from the groups) were aware of the larger research framework. The staff served as research assistants while also developing their own research and facilitation skills.

Regular staff meetings also allowed for the collective reflection as to the potential relevance of these activities for CITRED as an organization, and whether and in what form similar activities might be continued.

Ethical considerations

Because this research involved a large degree of participation from local people, a number of ethical considerations arose. In particular, it was necessary that the process and motivation behind it was transparent and people were free to participate or not as they choose, that the timeframe for the project was clear, that participants who contribute to the research were fairly compensated and credited for their contributions, and that any positive outcomes from this research should if possible be incorporated into CITRED's ongoing activities. These were achieved by a voluntary selection process, including an entry interview, a contract of mutual responsibility between myself and the participants, and the full involvement of the CITRED staff, who were also fully informed as to my intent and research objectives. The final contract (included as Appendix A to this report) was decided after discussion with the staff and accepted by participants. In the case of the farmers' group, the urgency of the planting season required additional compensation so that they could hire labourers to work throughout their absence. This was re-negotiated with the farmers as the issue arose several weeks after the contract was signed.

Stage 3: Comparison Between Emerging and "Local" Concepts

Methods:

This is a comparison of the concepts identified in Stage 1 and the concepts arising from Stage 2 of this research. These were both framed in terms of the Sustainable Livelihoods Framework. Specific points of comparison included whether the conclusions arising from earlier research were validated by the case study and whether new concepts emerged from the case study that did not exist in the literature.

Figure 1 A weaver from one of the community groups participating in this research

CHAPTER 2 - CONCEPTUAL FRAMEWORK

CHAPTER OVERVIEW

This chapter presents the conceptual framework for this study. The framework uses existing research to draw some initial generalizations about telecentre organization and services. These are further examined through the lens of the sustainable livelihoods framework. They have emerged from previous studies as potential principles that may be applicable to telecentres across differing circumstances. They are later applied and considered in the context of the experiences generated through the case study.

There are two sets of issues that are of relevance to the current research, both of which contribute to the overall development impact of telecentres. The first set relate to the organizational structure of the telecentre and include its goal and mission and the centre's sustainability, understood simply in terms of its ability to maintain itself financially. Sustainability and social goals can often produce an internal conflict within a telecentre, with its immediate need to survive relegating more ambitious and non-economic social goals to the realm of the insubstantial ideal.

The second set of issues focus on the services that the telecentre produces and who accesses them (reach), what people use them for and the relevance of these uses to their daily lives (appropriation), and finally the gap often perceived between the potential or expected value of ICT services for local development and the actuality. Staff at telecentres often remark that they wish their users would use the services for more valuable purposes than e-mail and entertainment.

The two sets of issues are related insofar as the organizational structure will determine the types of service, availability of service, fees, amount of support and the general atmosphere available to potential users. In turn, the public reaction to services available will shape and constrain the organizational structure of the telecentre.

The issues related to telecentre organization and services are shown in Figure 2-1.

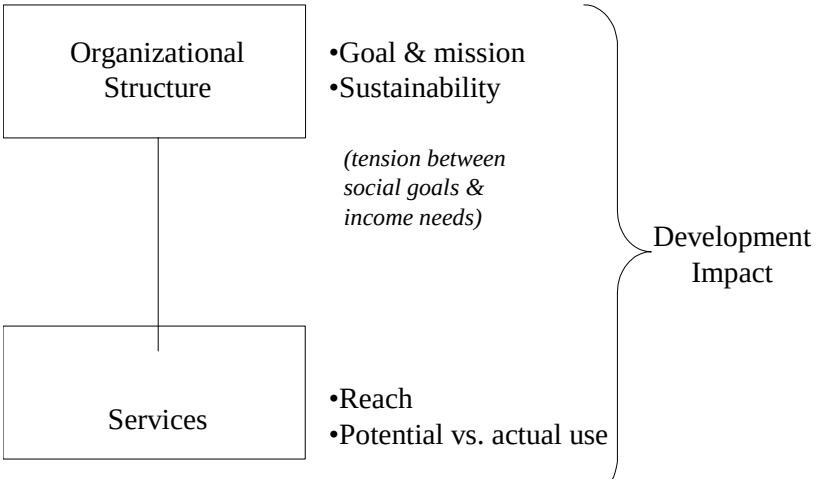

Figure 2 Main issues arising from previous research

THE SUSTAINABLE LIVELIHOODS FRAMEWORK

The Sustainable Livelihoods Framework focuses on intended development beneficiaries as autonomous actors who draw on various forms of assets to use in livelihood strategies that result in livelihood outcomes. In such a framework, a telecentre is a local institution that, if it can be drawn upon by local actors, may be applied in various ways to build on other assets and improve livelihood strategies and thereby livelihood outcomes. The existence of other assets (e.g. literacy, time, transport) may be enabling factors or necessary preconditions to the successful appropriation of the telecentre.

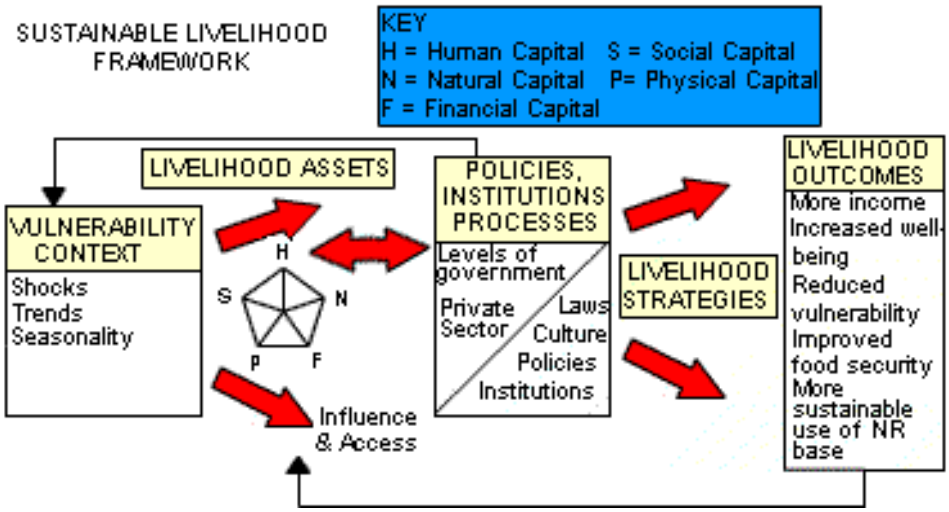

Figure 1 Sustainable Livelihood Framework (DFID, 2001)

The sustainable livelihoods framework (SLF) is also compatible with participatory methodologies and frames the situation in a way that puts the intended beneficiaries, and their perspectives, in prime focus. Much of the learning intended to arise from this proposed research will result from this focus. The premise is that the perspectives of proposed beneficiaries will usefully inform current understanding of the issues of telecentre sustainability, reach, ICT appropriation and development value.

SLF in this study is used primarily as a lens to examine the issues raised above and their contribution, or lack thereof, to development impact of the telecentre and ICTs accessed through it. It is particularly well suited to describing and explaining differences in use between groups of people in terms of both their available assets and their livelihood strategies. This can help to shape a richer understanding of reach and equity issues that are often at the core of a telecentre's mission.

RESEARCH REVIEW AND RATIONALE FOR HYPOTHESES

Telecentres began almost two decades ago in Scandinavia. In Africa, they have been discussed since the mid-1990s and implemented from 1998 onwards, in parallel with the rapid emergence of entrepreneurial communication centres, the equally rapid expansion of mobile telephony, and the restructuring of most national telecommunications markets. Since early telecentres were explicitly considered to be experiments and pilots as well as development projects in their own right, there has been much research attention placed upon them.

The five hypotheses presented in this chapter are drawn primarily from two earlier pieces of research – a 2003 comparative study of shared ICT access centres in five communities across Uganda and South Africa, and a 2002 case study of a telecentre in urban Columbia. These hypotheses are presented in summary in Table 2-2. Each hypothesis is then further described, including a brief rationale drawing upon the relevant research and literature and a description of the hypothesis from the perspective of Sustainable Livelihoods Framework.

Issue	Hypotheses
Organizational goal and mission	1. There is a naturally arising tension between social goals and the requirements of economic survival of centres - energy and activity tends to migrate towards a focus on the latter at the expense of the former. This can cause an "identity crisis" and result in poor differentiation of socially oriented centres from their commercial counterparts.
Organizational sustainability	2. User fees can actually impede the sustainability of telecentres by strangling the growth of demand; strategic periods of free access provision can increase long-term effective demand and the developmental value of the services.
Reach of services	3. User fees limit reach of services, 4. Lack of appropriate and supportive social structures and tools for applying ICTs limits reach of services.
Potential of services versus actual use	5. The potential value of public ICT services to local development is rarely realized - this is in part because of the limited reach, and in part because of people's limited conceptions of how such services can be used.

Hypothesis 1 - There is a naturally arising tension between social goals and the requirements of economic survival of centres - energy and activity tends to migrate towards a focus on the latter at the expense of the former. This can cause an "identity crisis" and result in poor differentiation of socially oriented centres from their commercial counterparts.

Through the SLF lens…	If the telecentre is committed to providing universal access or overcoming barriers, understanding current patterns of access and forms of awareness that may reinforce these barriers is necessary in (necessary to?) developing strategies to overcome them. SLF may prove to be a useful perspective in doing so.

Most telecentres have a “double bottom line” – that is, they must account both for their own financial well-being and for provision of certain social goals. Unfortunately, these two ends can often pull the centre in different directions. This has been especially true in many developing countries where private cybercafes run with very narrow profit margins and business failure rates are quite high (e.g. Kane 2002). This creates an environment of steep competition for socially oriented centres. They cannot count on diverting profit surplus towards “social investment”. Because of limited human and technological resources, there is often a pressure to compete head-on with their commercial counterparts for those customers who are easiest to attract. Such

customers are generally those who already have some experience with ICTs, and who tend to be well-educated professionals and students. Attracting new users, and thus increasing the overall market, may cost the centre more in the short term. The exception to this situation is when a telecentre is the first in an area, and the area turns out to have a lot of unmet demand. However, once the telecentre has demonstrated this to be the case, purely market-oriented centres will quickly follow. This poses a dilemma for the centre when the market absorbs the profit-making services but ignores "uneconomic" but important community needs, especially amongst its poorest members.

Form of input from case study…	The research explores a new way of applying ICTs at the telecentre while removing the economic imperative - albeit temporarily - by subsidizing the access costs of participants. The results are considered in terms of the centre's social goals, and if worthwhile, how they could be accommodated without violating the financial requirements of the centre.

Hypothesis 2 - User fees can actually impede the sustainability of telecentres by strangling the growth of demand; strategic periods of free access provision can increase long-term effective demand and the developmental value of the services.

Through the SLF lens…	Most telecentres depend on multiple financing strategies, including user fees. A better understanding on how fee structures, user support, marketing, location and operating hours affect accessibility and usability of ICTs amongst various groups will allow the telecentre to develop long-term sustainability plans that balance its financial viability with community needs.

The impact of user fees on telecentre sustainability will depend greatly on the local market structure. In the area of ICTs, this market structure tends to change very quickly. This is because telecentres are often the first into an area and can sometimes help to increase the local demand for ICT services. (Fuchs, 1993) However, new businesses may be in a better position than the pre-existing telecentre to implement improved technologies and benefit from these. For example, Nabweru telecentre in Uganda had to close down its dial-up Internet connectivity altogether after it was unable to compete with nearby cafes, which had begun to offer broadband wireless at lower prices. Where the new centres are providing better services to the same clientele, this may not be a problem. Fuchs (1997) argues that as "market makers", telecentres are not necessarily long-term solutions and the successful ones certainly risk making themselves redundant. However, not only telecentres, but also the local community, can lose out where telecentres compete for a limited clientele and fail to increase the reach of their services to a broader public. User fees combined with lack of knowledge of ICTs can deter first time users, since those with limited resources will not pay for a service when they are not sure of an immediate benefit from it. Exceptions are typically telephones and photocopying, where even those who have never used them can have an immediate desire and need to use them.

Form of input from case study…	This study will analyse whether the method of introducing ICTs to new potential users can create effective demand - i.e. will these previous non-users continue to use ICTs after the end of the period and how much are they able to pay?

Hypothesis 3 - User fees limit reach of services.

and

Hypothesis 4 - Lack of appropriate and supportive social structures and tools for applying ICTs limits reach of services - i.e. requires capacity to apply

Through the SLF lens…	Different people have access to different assets and face different forms of economic vulnerability, such as seasonality. Those who have limited financial resources and many demands upon them (school fees, transport costs, inputs for farming or business ventures) are not likely to spontaneously invest with experimentation with new ICT services unless there is a clear and immediate economic reason for doing so. Thus, user fees create an inertia amongst ICT uptake in low-income groups, even where there are mid-term economic benefits for them doing so. Alternatively, the presence of social structures can make it easier for those with limited resources to apply ICTs to their livelihoods.

These hypotheses are related to hypothesis two as described above. User fees tend to limit experimentation with new technologies and thus inhibit the growth of services. This is especially true of computers and the Internet, where some time is required before people gain proficiency. For these types of ICTs, some kind of formal or informal training and support is also required. Also important are the methods, which again may be informal or formal, by which people come to know about ICTs and discover ways of applying them to their own livelihoods.

There are numerous examples of telecentres in rural areas which have been underutilized, or where only certain services (especially telephone and photocopying) have been highly utilized while the remainder has not. Sometimes high costs or poor quality of connectivity have been inhibitors in the use of services. That is certainly the case for Internet in South Africa in 2003, which was essentially unaffordable for most communities. As an alternative example, RANET Uganda delivers seasonal climatic information via Worldspace satellite data receivers to rurally located World Vision offices, where farmer groups disperse the information amongst themselves and also receive information on how to respond to different climatic forecasts. They do not pay for this information and have also received training about how to interpret and respond to climatic forecasts – for example, what to do if a drought is anticipated. Those who have had several seasons to test this approach find that it has exceeded traditional forecasting practices and has improved crop yields and food security as a result. Because it is fully integrated into World Vision's regular operations and much of the cost is absorbed by the general overhead of running the office, this application of ICTs in development is both effective and economic without depending on user fees.

Form of input from case study…	This research tests an alternative and potentially more accessible form of promoting ICT access and use. Specific barriers encountered and potential solutions will be considered, as well as the sustainability of this solution: once the introduction period ends, will people continue to use ICTs?

Hypothesis 5 - The potential value of public ICT services to local development is rarely realized - this is in part because of the limited reach, and in part because of people's limited conceptions of how such services can be used.

Through the SLF lens…	Current preconceptions of ICTs strongly limit their use to certain types of people engaged in certain types of livelihood strategy - specifically those with higher levels of educational attainment. This is one factor that hinders the exploration of ICTs in meeting local development priorities amongst those without strong formal education, and operating outside the formal economic sector.

Broadly held preconceptions are that ICTs, and especially computers, are only for educated people in pursuance of formal sector jobs. These preconceptions limit the way in which people try to use ICTs, and were observed in studies in Colombia, Uganda and South Africa. The effect is pervasive – those who do not identify themselves in this category of people, whether because of age, occupation or lack of education, may not bother to learn more about ICTs since they fail to see the relevance. Those providing the services may often not market it by much other than word-of-mouth, and often do not attempt to attract people that differ from their typical users. The ICT for development perspective, in contrast, tends to perceive and promote the potential for ICTs to be used in direct enhancement of local development. Telecentres, from this perspective, should ideally promote not just awareness of ICTs themselves, but a broader concept of for what and by whom they might be used, challenging popular concepts that tend to reinforce existing patterns of use by more affluent populations only. Again, user fees can limit this role by limiting the ability of people, especially those with very scarce financial resources, to explore and experiment with unfamiliar technology. However, there are examples of places which have marketed themselves to a wider public with some success. Radio Lira in Uganda, for example, was publicizing its Internet café over the airwaves and emphasizing that no experience was necessary and the staff would support users. They were getting a steady stream of inquiries and visits from rural people who had never before used a computer.

Form of input from case study…	The research will analyse whether and how people's conceptions of ICTs, and especially their potential uses, changes over the course of their experience as research participants. In short - does this form of introducing ICTs challenge and expand people's limiting preconceptions?

CHAPTER 3 - RESEARCH CONTEXT

GEOGRAPHICAL CONTEXT: GHANA AND THE NORTHERN REGION

Ghana is a West African country of about 20 million people. Its population is 37% urban and 74% literate, with an average life expectancy at birth of 55 years and a per capita GNI of $270.[1] Although rich in natural resources, including gold, Ghana has had ongoing economic woes and high levels of debt, leading to classification as a "highly indebted poor country" by the World Bank. Most people have seen their standard of living stagnate or decline over the last 25 years and wages are low.

Tamale is a large town situated in the Northern Region of Ghana, and is the administrative headquarters for the region. It holds about 400,000 inhabitants, most of whom are from the Dagomba tribe. The region has been subject to frequent intertribal and political conflicts. In 2004, the time of this research, the region was in a State of Emergency that had been declared two years earlier following the murder of the Dagbon Kingdom's leader.

The North of Ghana is generally underdeveloped and poorer in comparison to the southern region of the country. For example, most industries are based in the south, even those that depend upon raw materials drawn from the North.

Cybercafes in Tamale, as in other Ghanaian cities, are now common, with VSAT emerging as the fastest and most cost-effective means of delivery within the current market environment. However, access to computers and the Internet remains very limited, especially within rural areas where rates of electrification are very low and much of the economic activity is focused on subsistence agriculture. The government's recent "ICT for Accelerated Development" policy commits the country to applying ICTs for economic and social development. The existing economic and political divide between the North and the South suggests that this region must receive special attention if such development is to be equitable.

BACKGROUND ON CITRED

CITRED was established in Tamale in 2000 as an NGO that could help lead the way in promoting and applying ICTs to social and economic development of the region. Although its focus was intended to be on research and educational activities, it also ventured into provision of public access to computers and the Internet via dial-up, partially because of the need for such services within the community, and partially as a means of income generation and survival for the centre itself. Public access provision, followed by training, has been the most visible and most time-intensive activity that CITRED has undertaken.

CITRED has also undertaken a number of other activities related to its mission. Early in its history, CITRED facilitated a schools-partnership project that partnered students in Tamale schools with counterparts in the UK via e-mail. It hosted a Northern Ghanaian version of the Accra AITEC conference - allowing for the first time a forum for the public to hear from and interact with actors from the ICT industry and government officials. Management appeared on radio on a number of specific issues, such as the little-known agreement signed between the Ghanaian government and Microsoft that the latter would support schools through provision of their proprietary software. It

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[1] All figures taken from World Bank 2002 figures.

helped ActionAid to develop a proposal to open a number of multipurpose telecentres in Northern Ghana, and it provided ICT consultancy to a number of organizations, including government departments.

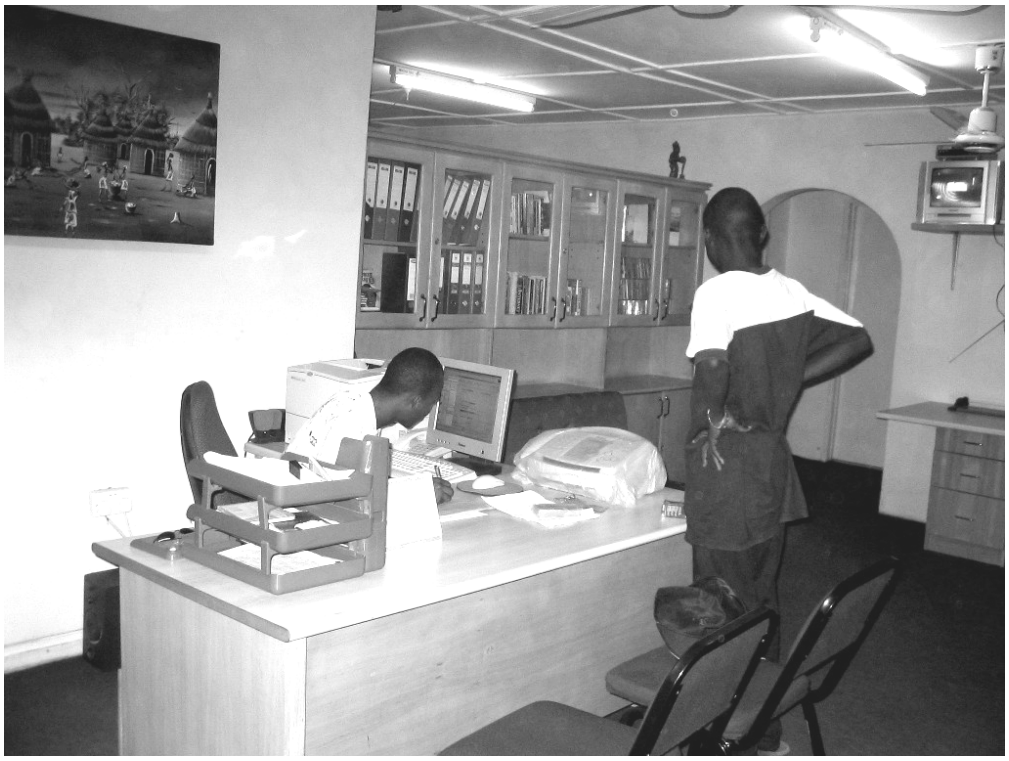

Figure 3 CITRED's reception area

CITRED operates from a converted residential house on the outskirts of Tamale. The building is well furnished and spacious and consists of a reception area, three computer rooms, a server room, an office, a staff kitchen, two bathrooms, and a meeting room. In 2004, it had 20 public computers, plus one computer at the reception desk and one in the office, the server computer, three printers, one of which was not being utilized, a scanner, a collection of over 200 DVDs (almost all western films), and a small library of IT-related books. Public computer/Internet access is governed by a computerized billing system that can be operated from either the office or reception computer.

In 2001, CITRED received equipment from USAID (5 computers, 11 UPSs and voltages stabilizers), and in 2002, it began to receive financial support from USAID. However, soon after this, AfricaOnline, CITRED's ISP, increased their rates from $50 a month to $250 a month, despite continually poor levels of service. CITRED cut its Internet and looked for another solution. It was without connectivity for over a year, and this seriously reduced its income levels and therefore its other programme activities.

In November of 2003, CITRED acquired and installed a VSAT (128/64 kbps). From this time onwards, it quickly began to regain its economic viability. The IICD appointed CITRED as a national ICT trainer for its northern regional partners. CITRED also "adopted" two schools by providing free training in a variety of computer-related topics to one class in each of the schools. In December 2003, CITRED partnered with the IICD-supported Ghana Information Network for Knowledge Sharing (GINKS) to offer a one-day ICT awareness open house targeted towards women's groups and youth groups within Tamale municipality.

The other major change that occurred during this time was in staffing. Prior to the installation of the VSAT, CITRED had only one full-time staff and a project leader who was based in Accra (a day's journey away) and kept in close communication with the office, sometimes staying on-site in Tamale for a number of months at a time. The manager was no longer available by the time the organization was able to offer her a properly compensated full-time position, so the assistant manager, who had been at CITRED since 2001, became the acting manager. A number of other staff were hired, including a technical support person, an accountant, another part-time front-line and outreach worker (who also held a job as a teacher), and a National Service[2] person secured for a eight-month contract period. The staff spent most of their time at the front desk and providing support to users. CITRED's Internet services were offered from 8am to 11pm seven days a week and use levels were high - logging over 3000 users a month and running at full capacity during peak hours.

Once the VSAT was in place, CITRED's leadership was interested in revitalizing its programmes, including community outreach and research. Plans included an ICT educational radio programme to air once a week for six months, research on ICT for social inclusion and livelihoods, organizing a seminar for government department and agency heads in the Northern Region, and developing a focus on three thematic areas of women and children, youth and culture, and rural development, as well as the finalization of planning around the "new" CITRED[3]. All of this was planned for the first quarter of 2004, while USAID and OSIWA financial support was due to end in July and September 2004 respectively.

It was in this context that the research presented in this report took place. Most of the staff were quite new within the organization, were young, and had limited management skills and experience. They all had ongoing customer service tasks. These included using and monitoring the billing software, sometimes typing up materials for customers, providing training to individuals and school members, and providing user support and assistance that was sometimes quite time-consuming - for example assisting first time customers and those who wanted to open e-mail accounts. It was still to be determined how they would balance these ongoing duties with the fairly ambitious new programming activities. This research project was hoped in part to support this transition, especially in building the staff's research skills and providing input into potential new community development initiatives.

COMPARING CITRED TO OTHER EXPERIENCES AND HYPOTHESES

The previous chapter identified two interrelated sets of issues to which the current research is intended to contribute a deeper understanding. Both sets of issues concern the organization and operation of CITRED as a telecentre. Thus it is worthwhile to consider how these issues applied to CITRED at the commencement of the study.

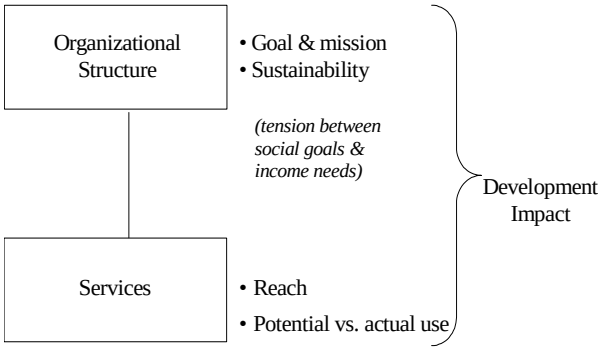

Figure 4 Main issues identified from previous research

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[2] Ghanaian university graduates are required to put in a year of "professional service" work to repay financial support from the government received during their studies. As an NGO, CITRED is eligible to receive those providing professional service.

[3] Based on the final quarter report of 2003 prepared by CITRED for USAID.

Organizational Goal and Mission

There is a naturally arising tension between social goals and the requirements of economic survival of centres - energy and activity tends to migrate towards a focus on the latter at the expense of the former. This can cause an "identity crisis" and result in poor differentiation of socially-oriented centres from their commercial counterparts.

CITRED's mission was "to serve as a centre of excellence for the provision of innovative, effective and efficient ICT education and research for the economic and social development of communities in the Northern sector of Ghana." How this mission was realized had in some sense been evolving over the period of CITRED's existence. Much of the staff's time and most of the resources were put into running the public Internet access, a service which was not in conflict with the mission statement, but which was not substantially different from what other nearby and purely commercial entities were offering. Other activities, including free training to selected schools and various outreach, had been successfully undertaken. This was mainly due to the centre's success in acquiring funding specifically allocated to these endeavours. Over the long term, the idea was that the centre could be self-sustaining, but it was not clear how this could be extended to those kinds of services which demanded resources but did not generate revenue.

Organizational Sustainability

User fees can actually impede the sustainability of telecentres by strangling the growth of demand; strategic periods of free access provision can increase long-term effective demand and the developmental value of the services.

Economically, there was little evidence that the system of user fees in place at the commencement of field research was doing anything other than strengthening the sustainability of CITRED. The cost of 20 minutes of Internet access was slightly less than the price of a drink of soda, a return trip to town by fixed route taxi, or a short mobile telephone call. The number of clients, and the gross income of the centre, had been on a steady increase since the VSAT services had been put in. At peak times the centre was packed to capacity. This was despite the fact it was out of the centre of town in a residential area, and that there had been little in the way of formal marketing. One area where user fees may have effected the number of clients was in the provision of computer training courses, where CITRED's rates were generally slightly higher than the competition's and would be a struggle for most people to afford. CITRED had offered free services for a brief period once the VSAT was first established and then offered a lower rate (c4000 an hour) in a bid to attract customers after an extended period without connectivity. This appeared to have been successful.

Reach

User fees limit reach of services,

Lack of appropriate and supportive social structures and tools for applying ICTs limits reach of services - i.e. requires capacity to apply

Those using CITRED's public computer and Internet services tended to be educated people, youth and foreign workers. Its location also affected the usership since it was in a relatively well-off residential suburb a short distance from the town centre. It bordered a lessaffluent village. Both people from the suburb and some people from this village also frequented the centre. Those coming from other areas had to address the issue of transport - to either take a shared taxi along the main road and then walk for just under ten minutes to CITRED, or to use a bicycle, motorcycle, or car. Students from neighbouring secondary and junior secondary schools were the most frequent visitors to CITRED.

The pattern of use appeared to be driven by social as well as economic factors. Many people came in with their friends and might come a number of times before becoming first-time users

themselves. According to staff, some people traveled to CITRED rather than going to a more conveniently located central Internet café because of the extra support given there. The rates and the service were favourable and the rooms were spacious and pleasant. It appeared to retain its clients and have a fairly loyal client base. CITRED had some signs prominently displayed on roads around town but otherwise most promotion was through word of mouth, and occasionally through visits and outreach to schools.

Insofar as the reach of the services, user fees were one limiting factor, but exacerbated by others. Compared to the cost of other basic commodities and transport, computer and Internet access was affordable, and it was quite cheap especially compared to the cost of mobile phone time. However, many people were already struggling to meet the costs of basic necessities so that any additional cost, no matter how low, was beyond their already exhausted means. Rural people still depended largely on subsistence activities to survive and had limited access to cash. Also, awareness of computers and the Internet in the area was generally judged to be very low. To use CITRED, one would have to know about it, to have some purpose for using it, to find a means of getting there (which itself might require some money), and then have money for the access time. The first time of use, one would need to pay c6,000. While the staff were able and willing to assist people, they were also often busy so there was a practical limit to the amount of attention they could devote to any one client. In other words, it appeared that while user fees provided additional inertia against first time use, they might not be the major factor in the mid to long-term. This was evidenced by the large number of youth in the place who were not yet income earners, but had to find resources from their families and friends to come.

As in other places, using the Internet the first time required some level of confidence, willingness to experiment and ability to invest in the part of the user. The geographic location of the centre in relation to the potential user also had large cost implications because of the transport issue, and the opportunity cost of time. This meant especially that those engaged in time-consuming activities far from the centre would be least likely to come, while nearby youth with plenty of leisure time could afford to come at least occasionally, even though their disposable incomes were not large. Also, for those who had no prior experience with computers, the first few hours at least were unlikely to be very efficient as the person struggled to navigate their way around the keyboard and to master the computer and the mouse.

Potential of Services versus Actual Use

The potential value of public ICT services to local development is rarely realized - this is in part because of the limited reach, and in part because of people's limited conceptions of how such services can be used.

One complaint from the management of CITRED, echoed by staff from other telecentres in other places, was that the type of use was not as relevant to local development needs as they would hope, or as the potential of the technology allowed for. E-mail was by far the single main application, used to communicate both with friends and family abroad and to make new connections through international penpal websites. Social and entertainment uses were predominant, although by no means the only form of use. The type of use also depended upon the type of user. As previously described, those who are often the main targets of development - the rural poor engaged in energy-intensive activities such as farming and domestic chores, were least likely to visit CITRED.

CHAPTER 4 - THE GROUPS

HOW THE GROUPS WERE FORMED

The groups were largely selected based on the group members' involvement with other, pre-existing groups, with two members selected from each group. The farmers were the exception, since they were not representing any group but all came from the same community.

The criteria applied to select the groups were fairly loose and was stated as follows:

- Able to commit requisite number of hours over the course of nine weeks (up to 16 hours a week, with some flexibility);
- Educational level - no fixed criteria but some should have low or no levels of education while some, about half, of each group should have basic English literacy;
- Participants should also be active members of a community group - formal or informal - preferably with a livelihood-related focus;
- The level of previous experience with ICTs is not important - lower levels are preferred since building capacity is one of the purposes of the research;
- Participants should be committed to and interested in the project, and willing to share their experiences with the members of their groups.

In addition, CITRED's staff had already some ideas of their own on formulating some groups for the purpose of outreach and ICT awareness building along a number of themes-- they had identified women in training colleges, small scale rural and peri-urban entrepreneurs, and underemployed youth as three key target groups. After discussion, we agreed that these targets could form the basis of three of the PAR groups. In addition, a fourth group was to consist of farmers so that the rural element was strengthened.

There were some practical constraints in selecting the group members. One was that CITRED did not have any means of transport available for outreach activities, and so getting in and out of rural areas was a difficulty. We were unclear as to what educational and language level the group as a whole would need to have to be able to participate effectively in the envisioned research process. The general idea was that those who understood English could act as "interfaces" for those who did not when using the Internet (since the main local language, Dagbani, spoken as a mother language by about 500,000 people, has very little representation on the Internet). I was insistent that education, or its absence, should not be a barrier to participating in the groups but the staff was quite skeptical about this. We reached a compromise in which the overall level of education in the groups was high in comparison to the regional average, but some group members had no education or only primary level education. The members of the women's group were all in tertiary training institutions.

The staff selected the group members based mainly through contacts with community organizations. In the case of the women, the training colleges were the main points of contact. Local NGOs informed us that there were relatively few farmers' groups in existence in the area, so the farmers convened were unaffiliated. In this case, we selected farmers from one area only to ease the logistical complexity of transport arrangements and encourage their free interaction and teamwork outside of meeting times.

In general, there was a high level of interest in the project and people were often anxious to participate, even before they knew the terms. Some were originally under the impression that it was a course they would have to pay for. While this interest was encouraging, the initial understanding of participants as to what exactly they were getting into was mixed, as the explanations were often filtered through several intermediaries, sometimes translated, recast depending upon the expectations and previous experiences of the recipient, and often distorted in the process. Most knew at least that it was some kind of learning process or class related to research and ICTs.

THE CONTRACT

Because of the high degree of commitment required by participants over the duration of the project, a contract was drafted up that outlined the mutual understanding and responsibilities between the participants and the project leader. These stipulated that all costs related to participation would be covered by the project, including access time, training, materials, transport, and a weekly compensation of c30,000 intended to offset the loss of their time. This latter was particularly important for the farmers, who were in planting season and who would not have been able to participate otherwise. In return, participants agreed to contribute actively, to attend six hours' of meetings a week and to carry out activities as required by the group for the purpose of the research, estimated at about two days' commitment per week, and to acknowledge any knowledge products arising from the research as a public good. They also committed to sharing their learning with their groups or peers.

This contract was reviewed carefully at the first meeting, where the participants' expectations and the purpose and overview of the nine-week research session were also described and discussed to bring the groups to some level of shared understanding. It was after this point that participants were asked to decide whether they wished to proceed and if so, to sign the contract. All agreed.

The contract is included as an appendix.

THE GROUPS

The Farmers' Group

The farmers' group consisted of six men from the same rural village, Cheshe. The village had no electricity and was located about 12km from Tamale. All were men, since farming in that area was predominantly a male activity. Also somewhat unusual for that area, which was predominantly Muslim, the farmers were also all Christians and one was a pastor. Another was also an assemblyman.[4] All but two had basic literacy in English and five had at least a basic level of spoken English. The remaining farmer was completely illiterate and spoke only Dagbani. One had no education, one had completed primary, and the others had completed secondary. They were between 33 and 44 years of age. Farming, sale of farm-produced foodstuff, and sale of livestock were the only source of income for all but one farmer, who also made money as the village photographer. They all lived with their families, usually extended families in traditional compounds. Household size ranged from 6 to 28.

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[4] An assemblyman is a local leader, usually, at the village level.

The farmers all listened to the radio, had very little or no experience of telephones, and knew little or nothing about fax, computers and the Internet. The latter, none of them had heard of before. Despite their complete lack of familiarity, all expressed curiosity about learning these things.

The Women's Group

There were six women in the women's group. Two were attending nursing college, two were attending teachers' college, and two were attending a Polytechnic Institute where they were studying accounting and secretarial studies. Most were in their final year of their programmes. Their ages ranged from 21 to 27. All had a high level of written and spoken English, since it was the language of instruction at the three institutions. Because they were all in boarding, only two of the women were from the Tamale area and spoke the dominant local language (Dagbani). Others were from various other regions of Ghana, mainly from the Upper East Region.

Most of the women reported that trade and business provided the main income sources for their families' households, while two also depended on income from household members' salaries. School fees, utility bills, food and clothing were the main household expenses. The students depended on a government-provided living stipend on the order of about c300,000 to c435,000 per month, sometimes augmented by money or in-kind supplies by their families.

Compared to all of the other groups, the women had much more experience with ICTs. All were familiar with telephones and four reported owning mobile phones. All reported listening to the radio on a daily basis. One had used a fax machine on a number of occasions. They all had some previous experience with computers, although for most it had been limited. Three had e-mail addresses, but only one reported using the Internet on a regular basis. She used it daily at a cybercafe for both social and educational purposes, including e-mailing and chatting with friends and relatives in Ghana and Canada.

About half of the women in the group had also had some previous exposure to research concepts, although none had actually conducted any research. For four of them, conducting research was a requirement of their final year, so they were interested in learning how to do it so that it would help them to meet their school requirements. Several of them also had involvement and interest in community development activities as well, largely through Christian associations.

The women had been recommended by teachers at their respective institutions. The teachers had been informed that previous computer experience was not a prerequisite. The main criterion the teachers used was that they felt these were committed students who were deserving of the chance to participate in the research and who would be likely to perform well.

The Micro-enterprise Group

The micro-enterprise group had eight members, four of whom were men and four of whom were women. They represented four different groups, with two members per groupThis group had the widest range of education and experience with ICTs.

The groups represented were:

- Yembitigra – a local community group whose purpose was to improve income generation opportunities for its members. The group was based on the outskirts of Tamale and had members in a variety of occupations. The two representatives participating in the ICT PAR project were the chairman and the secretary of the group.
- Maltiti Women's group – this was a local women's group organized for the purpose of promoting the welfare of group members. The two representatives of this group were normal members.
- Bonzali Weaver's Association – this was a self-help group consisting of local fogo weavers, who were all men. They lived in Jakarayli, a village located right next to CITRED.
- Nyeb-biyoona was a women's self-help group based in the village of Nyohini, a short distance away from Tamale. The two representatives from this group were the assistant secretary and an ordinary member, both women.

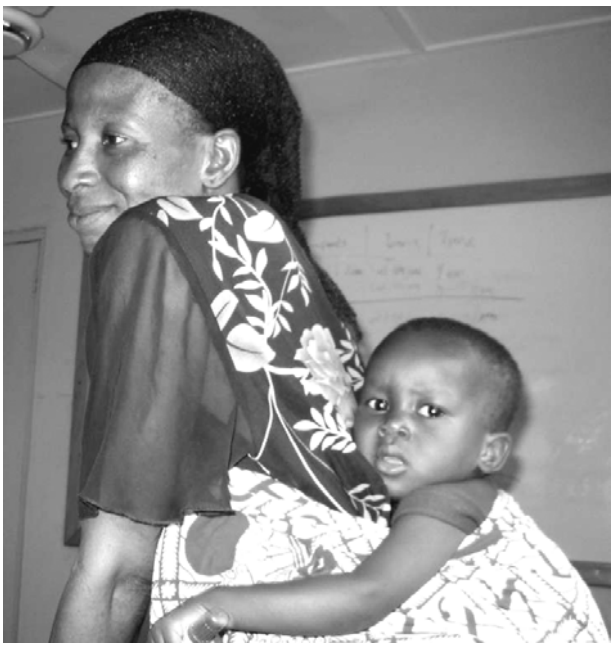

Figure 5 Micro-enterprise group participant with her baby

There was a clear divide between men and women in terms of education and previous experience with ICTs. Of the four men, three were in their mid to late 20s, two of whom were also students at the local polytechnic. The other had completed secondary school. All three of them had used the Internet at least a few times, although only one had any great level of familiarity and used it regularly. All had used the telephone and one owned a mobile phone and also presented a local radio show. The fourth man was in his mid-40s, had secondary school education, and had used a telephone but never used a computer.

All of the women in the group had husbands and families and associated responsibilities. They ranged in age from mid-20s to mid-40s. Two were illiterate, one had completed middle school, and the other had some secretarial training. They were involved mainly in trade, provision sales, and rice processing. Three had used the phone at least occasionally, and none had any prior experience with computers.

The Youth Group

The youth group had eight members, three of whom were young women and five of whom were young men. Their ages ranged from 14 to 24. They represented four different groups, with two members from each group. One of the women in the group stopped attending about a third of the way through due to sickness.

The groups represented were:

- TakingITGlobal: This is a global youth movement that began in Toronto, Canada. The Northern Ghana chapter focuses on increasing awareness and access to ICTs but also focuses on other development issues, especially environmental issues such as deforestation and afforestation. The two representatives of the organization were both new members, as we requested people with limited ICT experience.
- Youth Idleness Control Centre: This is a community-based organization started and run by a local pastor who felt that the lack of productive activities for youth was a prime social problem. The centre attempts to address this through providing job-related training and support so that youth, especially school dropouts, might be able to engage in their own enterprises or enter the job market.
- Yamaha Students Association: This association pairs students up with school dropouts so that they can support them in building skills, especially related to education.
- Kukuo Yupalisi Youth Association: This is a rural youth association that focuses on village development, improved farming, and general strategies to improve the standard of living.

The youth came from a wide variety of backgrounds and areas. Six were Dagomba, the predominant ethnic/linguistic group in the area (Dagbani speakers), and two were from other areas. Five were rural dwellers from the periphery of Tamale while three were urban. All had medium to high levels of written and spoken English. Three had completed junior secondary school and the rest had completed secondary school. Their current economic activities included occasional upholstery work, farming, housework, and helping their mothers with trading or retail. One youth was taking private classes to prepare for standardized examinations. Only one identified himself as a major contributor to household earnings, while their households depended upon remittances sent from fathers, monthly salaries earned by household members, and earnings from members working as traders, retailers, farmers, and fishmongers. Five lived in households with electricity, four had a television in their households, and all had household radios. Nobody had either a landline or a mobile phone in the house.

The range of ICT experience varied considerably among the youth. Six of the eight reported listening to the radio daily, while two were only occasional listeners. Five used the phone on at least a weekly basis, two had just used it a few times, and one had never used it. No one had experience with fax machines, but two (both members of TakingITGlobal) had used computers. Most knew something small about them, and four of the remaining six could name places, mainly Internet cafes, where they could get access, and three said other members of their households used them. One person used the Internet regularly to get information, music and games and to contact friends in Accra via e-mail. Another had an expired e-mail address.

COMPARISON OF THE GROUPS

Comparison of Participants and General Population of Northern Ghana

Although the people participating in the ICT PAR project had a wide range of education and ICT experience, overall they were more educated and more exposed to ICTs than the majority of people in Northern Ghana. This was due mainly to their relative proximity to Tamale, which is the most important town in Northern Ghana. Tamale offers greater educational opportunities and a greater density of ICT services, including communication centres, public phones and Internet cafes, than exist anywhere else in the North. Meanwhile, the majority of the Northern population lives in rural areas where there are very few and generally poorly resourced schools, and there is little electricity and very poor ICT infrastructure. This means there are very few landline or cellular

phone connections, and virtually no computers and Internet access, the exception being a few NGO projects.

Comparison of Participants and Regular CITRED Clientele

The typical patron of CITRED was a student in junior or senior secondary school, lived fairly close to the centre, and used the services primarily for web-based e-mail to friends, relations and online penpals. The Internet was used mainly for entertainment, including music sites, football, chatting and sending greetings cards, and online games. Some also used it to seek information related to their studies, or to explore the possibilities of studying or securing scholarships abroad. A significant minority of users were older professionals and foreigners. The latter were in generally in Tamale in association with one of the many NGOs, either as a volunteer, a consultant or a researcher. They also used the services for e-mail, and for working on and printing work-related documents, including CVs and reports.

The ICT PAR participants came from a broader range of backgrounds than the average CITRED patron and were overall more representative of the general population in Northern Ghana in terms of education and background, especially the farmers group and the micro-enterprise group. The youth group and the women's group were most similar to the average CITRED user in terms of education and age. Two participants were already customers at CITRED, both of whom lived very close to the centre.

One difference between those in the ICT PAR project and the general clientele is the gender balance. The project participants were almost evenly split between men and women.[5] Meanwhile, CITRED's records from January to March 2004 showed that on average less than 20% of clients were female. This appeared true both in the younger student population and in the older professional population. Amongst professionals, it may be explained since more Ghanaian men than women complete professional training. Although fewer girls than boys attend all levels of formal schooling, the difference is less pronounced at the JSS level and so it cannot fully explain the difference. Students tended to come to the centre with groups of friends as a social event, and it may have been that girls tended to have less freedom to roam away from their parents' supervision, or else that they saw it as a less interesting pastime than their male counterparts.

The vast majority of CITRED's regular users had been socialized to the Internet through either friends or siblings who had set them up with e-mail addresses. Most had begun to use computers and the Internet within the last few years. Acquiring e-mail addresses had been the main motive for their initial use and checking mail often was their main online activity. While some had friends and family that they contacted by e-mail, many more used it to make contact with new acquaintances around the world through penpal sites. A smaller minority had been introduced to computers at school or through work, and a few reported also having home computers.

CONCLUSION

One of the objectives of this research is to explore and identify ways that telecentres might facilitate access to ICTs amongst those who tend to be marginalised from ICT use, especially women, less educated and rural people. Even in the selection process, there were barriers to including these groups that ranged from geographic to social to psychological. Since CITRED was located in Tamale, which is an urban centre, it was possible to include rural populations, but not those who were very isolated. We were able to include women. They were willing participants and luckily their families were generally supportive of their involvement. Those with less education were also

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[5] Thirteen of the original 28 participants were female, although our one "drop-out" was a young woman from the youth group.

included but they were a minority, whereas people with little or no education are still the vast majority in many rural areas in the North. Had we included a larger proportion of illiterate people, the whole research process would have been quite different, as would have been the relationship between the people and the ICTs. Having a mix of illiterate and literate people in the groups meant that overall, reading and writing were skills that the groups had at hand and frequently drew upon, while there was sometimes the danger that those who lacked these skills were not as fully included in group processes.

Compared to the average CITRED user, the selection of the participants increased the reach of CITRED to include more rural people, people with low levels of education and women. One barrier to including people from these groups surprisingly came from the staff, who were skeptical that people with low levels of education (which characterizes most rural people and women) would really be able to use and benefit from ICTs. Thus, there was a tendency to prefer those with some proven experience of ICTs and with higher levels of education, even though this was explicitly not one of the selection criteria.

Happily, the staff discovered that all those selected were able to successfully participate and benefit from the process, and reflected that this had encouraged them to include a broader range of people in their future outreach efforts.

CHAPTER 5: THE GROUPS' EXPERIENCES WITH RESEARCH AND ICTS

This chapter describes what each of the four groups did over the course of the nine weeks and the role that ICTs played overall in the research process.

THE RESEARCH PROCESS IN CHRONOLOGY

The research process lasted for nine weeks, which was roughly broken up into the following schedule:

Week	Activities
1	Introductions, choosing a research topic and question
2	Developing the methodology and research plan
3	Basic training in relevant ICTs, developing the instruments
4	Data collection
5	Data collection, beginning of data processing
6	Data processing and analysis
7	Data analysis, producing outputs
8	Completion of data analysis, producing outputs
9	Completion of outputs, dissemination

All the groups met regularly for six hours a week, which for most groups was split over two three-hour meeting sessions. In addition, groups often came in an hour before the group meeting to use the Internet or perform another computer-related activity. From Week Four onwards, participants often spent a significant amount of time on activities outside of the scheduling meetings, including data collection, data processing, and typing up final reports. The amount of time varied by group and participant, since some people were more able to spare time for these activities than others, or else had a greater capacity and/or interest in doing so.

The general concept behind the way the groups were run was to provide them with the support and skills they needed, and to facilitate them through making most of the decisions themselves, including most importantly, the decision of what to research. This worked fairly well, although there was a tendency for the groups to see me as the *de facto* leader. Also, as the coordinator, I handled all financial matters related to the groups and provided financial resources towards the research on an as-needed basis. Some of this was due to the fact that the groups had been convened for the purpose of the project – if the groups had been long-standing, and had a longer relationship with CITRED, it may have been possible to pass off more of these coordinating and administrative activities that would ultimately allow for more group autonomy.

Each group developed its own characteristics and dynamics, and the process that unfolded was quite unique to each, although each group went through the basic steps outlined in the schedule above and managed to keep more or less on-schedule. By the end, all the research projects had been completed. The individual experiences of each group are summarized in the following sections.

The Women's Group

The working of the women's group was shaped by the fact that all the women were active students in fairly demanding courses. They met on Saturdays for six hours, since two weekly meetings were difficult for them to schedule. Of all the groups, this group had the highest level of absenteeism from meetings (which was extremely low in the other groups).

The women considered a number of potential research topics, all of which they felt to be of importance to national development – a criterion that emerged spontaneously as important to the group. They approached the issue of selecting a topic from a more abstract view of public interest than from shared self-interest as was generally the approach of the other groups. In this sense, they also went beyond their immediate experience, so that this research had a slightly more academic flavour to it. After some strong debate, the group decided to focus on the issue of poor drainage systems as a contributing cause of malaria. Their interest was principally in learning more about drainage systems, their design and maintenance, so that they could educate the public about the issue. They selected this since most felt sanitation to be a problem of national priority, and since they believed that much of the problem could be attributed to poor practices and to ignorance.

The group began their research with a literature review. This included documents found within the institutional libraries where the participants were studying, the Internet, and pamphlets and booklets obtained from the municipal offices. The Internet proved to be the best source of data, and there was very little of relevance to be found at any of the school libraries.

The group decided to focus their field research primarily on an area where the drainage was known to be poor. They identified the Central Mosque area of Tamale as an example of such a community. This community is located in the centre of town and is a dense settlement composed mainly of traditional compounds. There is also a lot of trade and pedestrian traffic in the surrounding areas. Later, another community was included to provide a comparison. This was the Russian Bungalows area, where CITRED is located. The Bungalows are a planned settlement and represent one of the wealthier residential areas of Tamale. The group designed a questionnaire to administer in both communities to assess attitudes and practices around maintaining drainage, the actual state of the drainage systems (through an observational checklist) and the recent health history of the household members. Altogether, they completed about 70 surveys through non-formal random sampling in the neighbourhoods. They also decided to conduct a physical survey of each neighbourhood to gain further observational data on the drainage systems. They used a digital camera to document this work, and these pictures were later used on posters and brochures they created to share the research findings. They also interviewed health and environmental officials working in the municipal government, a construction company building a new drainage system, and some local landlords.

The group analysed the questionnaire data using MS Access. We set up a simple database and entered the response data then ran queries to summarize this data. The findings from the queries, together with the notes from the expert interviews, literature review and physical survey, provided the basis of the material that the group could draw upon in presenting their final findings.

The group decided to create posters and booklets to publicize their findings. Their focus was on educating the public. They thought the booklets could be distributed to intermediaries such as

Figure 6 The women's group about to start surveying in the Central Mosque Area

community health workers, health inspectors, and teachers who could then use this as a resource when working directly with communities. They also planned to present the findings to several of their classes in their respective institutions, to distribute the posters to schools, hospitals and other public places, and to do some direct outreach themselves in the Central Mosque Area where the bulk of their field research had been done, and where they felt there was a need for education. The posters and booklets had been printed and were in the process of being disseminated at the end of the nine-week project, and the final stages were being coordinated by Sonia Salem, the CITRED staff member who had been assisting with the group.

Of all the groups, this group had the least direct interest in the content of the research, while learning the research process was of value since they were all required to conduct research within their courses. Because of this, the process at times resembled an “extra class” that they were taking. They were also very interested in the extra exposure they got to computers and the Internet. At their schools, computers were often a scarce resource and most didn’t have access to them and had not used the Internet. They generally used the extra time they were given to explore the Internet to establish e-mail accounts and participate in online chatting sessions rather than to conduct any further information searches related to the research project or to their other course work. The social dimension of the Internet was of great interest to them. One of the group members was already a regular and enthusiastic Internet and chat room user and had a foreign boyfriend whom she had met via the Internet. She taught the others how to chat. While the group showed a strong interest in ICTs, the purpose of the research did not provide any great inspiration for exploring them further.

The Youth Group

This group quickly found that they all shared an interest in computers and they wanted to learn more about them. Framing this in terms of a research topic, they decided to look at the lack of computers in Northern Ghana and the associated low awareness of and capacity to use computers, which they felt was a serious problem. In relation to this, they also explored whether those who had computer skills had increased job opportunities compared to those without. As youth, most faced some challenges in achieving further levels of education and all of them felt that if they managed to master computers, this could improve their futures. In this sense, the topic they focused upon was one they saw as being of direct relevance to their own lives.

Of all the groups, the particular interest that the youth identified might best have been served by a process more hands-on and experimental than the research process outlined at the beginning of this chapter. That is, the youth could have focused their time and energies on mastering computer skills and devising ways to then further share these with their peers. While this was supposed to be a sub-theme of the project, it was overshadowed by the requirements of the main research. In retrospect, if I as the coordinator had showed greater flexibility and creativity at an early stage in this group's planning, they could have gone much further with their own obvious interests in exploring computers. Nonetheless, the group showed high levels of energy and enthusiasm throughout.

The youth decided to focus on the level of access to computers within secondary schools, as this was to them the obvious place where broad based access and training could make a difference. From personal experience and that of their friends, they felt that there were disparities amongst the schools and also that some students who did have access to computers failed to take full advantage of this. They selected a school in Tamale (BISCO) and a school in the village of Savelugu, a thirty-minute drive from Tamale. In each, they conducted two focus groups, student surveys with 60 students and interviews with the computer masters. In addition, they spoke to teachers and students at two private institutions that provided computer training. They interviewed a variety of people with and without computer knowledge to find out about their experiences with the job market, and also reviewed the requirements of jobs advertised in newspapers and over the radio. Finally, they conducted additional research on the Internet where they found a variety of materials describing government and NGO efforts towards increasing access to computers within the country.

The information from some of the surveys was entered into Access where it was then analysed by running queries. I set up the databases with some input from the group, and the group did the data entry and the queries. The survey on computer knowledge and employment was coded and analyzed using Excel. I set up the spreadsheet and coding, and the group did the data entry. At that stage, I led them through the summary of the data.

Youth Group Personal Expectations

These were generated in the first meeting session. Those mentioned by more than one person are listed first – the number in brackets indicates how many people mentioned it.

1. Learning more about ICTs (4)
2. To get a certificate after completion (4)
3. Having the ability to help teach others, especially about ICTs (3)
4. To learn how to use computers (2)
5. Know how to use Internet (2)
6. Have knowledge about radio
7. To acquire skills
8. To get knowledge
9. To make friends
10. Be willing to work for the organization
11. To be a committed person to the organization
12. To get a computer

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The group decided to share their findings by making a small research book which they would distribute to about forty local schools and by making a presentation on the radio. By the end of the nine weeks, the radio presentation was scheduled for the end of July and required a few more practice runs, while the 16-page booklet had been printed and was ready for distribution. A CITRED staff member took over responsibility to ensure that these last steps unfolded smoothly.

The group was quite proud of their research findings and what they had managed to accomplish, although they wished they could have developed their computer skills further. While they had managed to "taste" a wide variety of computer applications, including word processing with Word, data analysis with Excel and Access and Internet searching with Netscape and Internet Explorer, they had not developed a strong level of confidence in these, with the exception of the Internet and for some, word processing. Also, those who had a greater sense of independence had been able to learn much more than those who were more timid learners, so there was a fairly high level of disparity within the group.

Figure 7 The youth group in a meeting

The Farmers' Group

The farmers' group was unique since all the members previously knew each other and came from the same community. The group also faced a particular challenge of bad timing. The process commenced right at the beginning of planting season when the farmers had the least amount of time available. Although we tried to plan around this, ultimately the best solution would have been to reschedule such a project to the dry season.

This group conducted meetings in Dagbani and I interacted with them through a translator. Most group members understood English, but a few did not. Most members were also able to write in English, which they did whenever they made notes.

The group decided that the focal topic of their research should be farming, for the obvious reason that this was their main economic activity. They brainstormed the various problems that they faced in farming and came up with an extensive list, which they then prioritized. The top problem was agreed to be the lack of tractors in the area. Due to declining soil fertility, the farmers said they

needed to plough greater areas of land than had been traditionally required, and it was not possible to do this through hand ploughing. Tractors could be rented to plough land by the acre, but the cost of doing so was high, and more importantly, one could not be assured of access to a rental tractor at the appropriate time. Waiting for a tractor could have disastrous consequences if one delayed their planting for too long. The obvious alternative, being promoted by many NGOs operating in the area, was the use of oxen. However, the farmers preferred the notion of owning a tractor for a variety of reasons. A tractor is faster than oxen ploughing, is less labour intensive for the farmer, and can be used to plough larger amounts of land, allowing for the possibility to expand farms.[6] Thus, the main focus of the research was to examine whether and how a group of farmers could buy a tractor, producing a plan describing their findings, which could potentially be implemented by themselves or any group of farmers. Of course, at the outset it was not at all certain that we would in fact find a viable way that farmers could purchase a tractor. This was a point I tried to emphasize to the group, as I was worried about raising false expectations that we would somehow magically manage to produce tractors as a result of the research.

Of all the research topics, this was the most practically oriented and so it was fairly straightforward to determine what needed to be done in order to meet the research objective. Since it was generally anticipated that a tractor would be out of the budget of most farmers, the approach was to look into collective ownership and also to seek potential sources of outside support, mainly amongst locally-based NGOs, credit agencies and banks. In addition, the farmers wanted to explore ways they could increase their own ability to purchase a tractor by improving farm yields and management, and to research exactly what kind of tractor would be best to purchase and how much it would cost.

The farmers proved to be very enthusiastic users of the Internet and from a fairly early stage most of them came in an hour earlier than the regular meeting time so that they could use it. Their main interests were in looking at sites related to tractors and farming, and in establishing e-mail accounts so that they could get e-mail penpals. Originally, they thought that international penpals might be a useful source of support in purchasing a tractor. This was based on experiences of other people they had known, and because they knew of an NGO operating locally which used a “foster family” system to pair some of the local families with supporters from developed countries. Their discovery of Internet penpals extended from this. By the end, all had e-mail accounts and practiced sending messages to each other but only one or two had gone so far as to write to penpals whom they had found through the Web. While my own first reaction was to discourage their pursuit of penpals for these ends, I finally left them to it. This is because there was nothing dishonest or fraudulent in their actions and it seemed better for them to experiment and learn for themselves. While I felt doubtful about it, it was also possible that

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[6] When pressed on this point, the farmers said that there was no shortage of land available to be ploughed if the capacity to do so was there. There are also environmental implications to the various options that were beyond the scope of the research.

Figure 8 Two members of the farmers' group meeting with a bank official

they would develop friendships with foreign counterparts who would want to provide them with financial support. In the meantime, their discovery that one could quickly and easily communicate with people all over the world electronically was interesting to them for social reasons as well.

The farmers conducted a variety of field research mainly in the form of semi-structured interviews. Group members spoke with other farmers in the community about their farming practices, storage and selling of produce, and their potential interest in forming a group for the purpose of acquiring a tractor. They spoke to a credit agency and a bank about the potential for acquiring a loan. They spoke to a number of NGOs about the potential for support and their own experience and knowledge about farmer groups that had purchased tractors. They also spoke to tractor owners, operators and mechanics about their experiences with tractors and to get their advice. They spoke with a number of tractor dealers about the tractors they carried, prices and purchase plans. They also tried to speak with representatives at a local agricultural research centre and the Ministry of Agriculture but were unable to do so, mainly because of organizational bureaucracy. This was unfortunate because they had wanted to obtain further information that they could use to improve their farming practices and increase their yields. Also, there was at that time a rumour circulating that the Ministry of Agriculture was importing a large number of new tractors that it would probably resell at favourable rates to NGOs and farmer groups.

The farmers used telephones more than the other groups. We distributed phone cards to them, which they used to set up interviews with agencies and also to keep us updated as to their progress throughout the week. Most had very little previous experience with the phone, and while they improved with practice, they sometimes forgot to introduce themselves. This may have been one reason why they had more difficulties than the other groups in setting up appointments with many of the institutions they wished to talk to.

The analysis was done mainly through group discussion and brainstorming where we drew on the interviews plus their general farming experience to compare the costs and benefits of buying a tractor with other options, including ploughing by hand and ploughing with oxen. Because of the

strong demand for tractors and the possibility of renting them out to other farmers, buying a tractor turned out to be quite a favourable option, with the disadvantage that it required more up-front capital, although this could be reduced to a level that would be manageable for many farmers if they acted as a group. This was quite an interesting finding since the attitude of most NGOs was that farmers should be discouraged from buying tractors because it was too capital intensive. Meanwhile, those farmers who did own tractors unanimously declared themselves satisfied and recommended tractors to other farmers. The other potential problem was that of group organization. Most people did not know of any groups of farmers who had purchased tractors, but the few who were able to cite examples also said that the groups had run into management difficulties and sometimes fallen apart.

The data collection and analysis took longer for this group than the others, leaving the time for planning how to share the findings fairly rushed. I typed up the findings so that their work was documented and gave each group member three copies to keep and distribute as they chose. They planned to share the information informally with other farmers, and also to produce a half-hour radio show. This show was still being put together – the final meetings were being coordinated by a CITRED staff member. The farmers were also considering putting the findings into action and, with some additional people, attempting to form a group that would save to purchase a tractor. If they were successful in this, they argued that this would be the best way they could share their findings – by being a positive example that others would then come to for advice.

Micro-Enterprise Group

The micro-enterprise group began, as did the others, by discussing their expectations for the process and then choosing a topic that they all felt was of interest. They generated a wide range of potential topics, many of which were related to their economic activities, and some of which were of more general social interest – such as teenage pregnancy. They decided fairly quickly that they wanted to choose the issue of micro-credit default, and particularly to examine why default occurred and what could be done to reduce it. This was a topic that the members were quite close to, since some of their groups were receiving loans, and the remainder were interested in trying to get loans and generally learning more about the issue. They identified from their own experience that the failure to repay micro-credit loans was a widespread problem with negative consequences for the defaulter, her family and the broader community.

The rich first-hand experience of the participants with micro-credit lending meant that the initial analysis of the problem, which formed the basis of the research plan, was quite detailed and far-reaching. The problem turned out to be very well suited to the group since the women, who had lower levels of education and thus were in some danger of being relatively excluded from group processes, had the greatest first hand experience of micro-lending and thus became crucial participants. The group developed a very inclusive dynamic and a high level of enthusiasm that became quite infectious. One woman had to bring her young son to all of the meetings since he was still breast-feeding. One of the nicest things to observe about the group was the way everybody would cheerfully take turns holding and entertaining him.

The group developed quite an ambitious research plan that included a literature review, interviews with micro-credit lending agencies, individual and collective interviews with members of groups receiving loans, interviews with small businesses in and around the Tamale market, a review of prices in two different markets, and regular monitoring of and discussion on a community radio programme devoted to micro-credit issues. The literature review included Internet and print sources. Everybody had a turn on the Internet, with those who could not write and read English paired with someone who did. The print sources turned out to be quite limited, although after an extensive search, the two team members tasked with it found two relevant books at a library that charged user fees. One of the books, incidentally, was published by IDRC.

The research went quite smoothly overall. Much of the data was captured through tape recorders (also used by the farmers group). This was especially important for the illiterate participants. The group did most of the data analysis by reviewing the taped or written data and discussing in a variety of small groups. This worked very well in integrating the new information the group gained with previous

Figure 9 Me and a member of the micro-entrepreneurs' group interviewing members of a local community group about loans

experience, and again the analysis was very rich. The closed-ended questions from the interviews with the individual members of the groups receiving loans were coded and entered in Excel by the group. I summarized the information and printed out copies for everybody.

By the end of the process, the group had managed to answer all their research objectives in great detail. They decided to produce a full research report that they would share with different agencies they knew to be involved in micro-lending, and to create a radio drama that they would broadcast a number of times to reach potential beneficiaries of such lending programmes. They broke into two groups to work on these, with mostly the illiterate people working on the drama, which they had rehearsed to the point that it was ready to air by the end of the ninth week. They had handed out all the report copies to the lending agencies and aired the drama within several weeks after the last formal meeting.

One interesting finding from this group's work emerged from the radio listening activity. They found a disparity between what they heard on the radio, which was mainly sponsored and organized by NGOs, and with what they were hearing from the beneficiary groups. While the radio programmes tended to emphasize the benefits that one could get from receiving loans, they did not describe or explain loan terms or interest rates. Meanwhile, many loan recipients did not have a clear

understanding of the terms of their own loans and in some cases were not benefiting from them. The radio drama they produced emphasized that there were differences in loan conditions from agency to agency, and that these had important consequences for the lives of the recipients. It also emphasized that recipients needed not only to follow good practices when investing their loans, but also they should not be afraid to ask questions and make suggestions to the lending agencies. Group members emphasized that they would be able to implement these findings in their own groups and that most importantly, they would be selective in deciding whether or not to take loans rather than assuming that all loans were worth taking.

THE ROLE OF ICTS IN THE PROCESS

The various groups incorporated a number of ICTs into their projects - especially the telephone, computer, Internet, radio, tape recorder, and digital camera. These were useful in finding, organizing, recording, analysing and presenting findings. For the illiterate participants, the tape recorder was extremely useful to record interviews. The digital camera was also a nice way of documenting the process and the pictures were then incorporated into the findings. It also did not require any literacy to operate and most people enjoyed it. Only the women's group formally used it in their research process, while they were documenting various drainage systems. Radio also played a role in data collection for two groups, and in disseminating findings to the public for three groups.

Computers were used to type up questionnaires, search for related information online, enter and analyse data with Access and Excel, and to prepare final report booklets and posters. Participants were led through these processes and achieved some level of independence with the word processing and Internet-related activities. The Internet was of great interest to participants, although the amount and quality of relevant information they managed to discover varied, and they were often not able to use it to full advantage unaided. Given the limited print resources available in town, it was extremely useful as a resource for gaining further background information on the various topics. Access and Excel and the analysis work remained on the periphery of understanding for most participants, as the amount of time they spent with these was quite limited and the programmes are relatively complex. While these were useful for summarizing the findings of quantitative survey questions, interpreting these summaries was often challenging for participants, whereas simply discussing qualitative findings in groups tended to lead to a much greater depth of analysis.

Because there was no public telephone at CITRED, providing support on its use was a bit difficult. The one group which used telephones with some regularity was the farmer's group. We provided all the groups with a basic introduction to making phone calls and calling directory assistance provided by Ghana Telecom. However, we found that some groups had difficulties using this service because the operators were not always cooperative – in one case they refused to give out a number, and they sometimes failed to answer the call.

One aspect of the process that became obvious from the outset is that all participants were interested in ICTs entirely apart from their potential utility in achieving the group's purpose. This was especially true of the youth group, but in general everyone was anxious to have the opportunity to gain ICT, and especially computer, skills. However, since we were packing a lot into a fairly short amount of time, the ICT exposure was focused on pragmatically achieving the tasks required, with extra free time given for those who wanted to further explore ICTs. However, the amount of support in this free exploration was limited, simply because we did not have the human resources to provide more. The result was that while participants got a fair amount of exposure to ICTs and developed some basic skills, very few claimed to be satisfied with their skill levels by the end of the project. Also, those who were illiterate felt that, while they had been very interested in the computers and often claimed that these were the highlight of the whole experience for them,

they were not able to use them so much as observe others using them, and they did not see any reason to continue trying to use them from what they had seen.

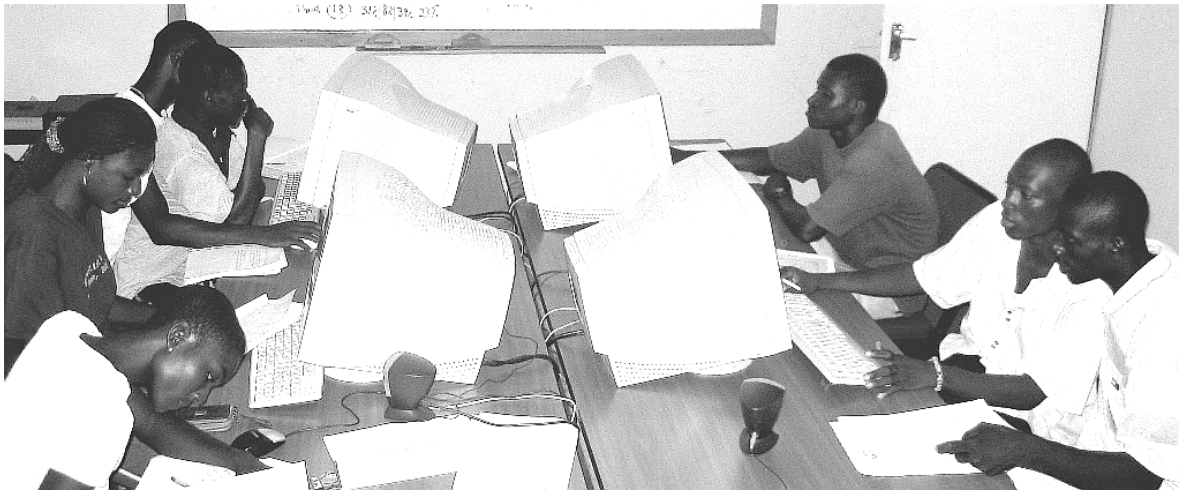

Figure 10 The youth group analysing some of their survey data with Access

CHAPTER 6 – EVALUATING THE ICT PAR PROCESS

INTRODUCTION - ASSESSING THE PROCESS

This report has documented the ICT PAR process as one that may increase the reach and relevance of ICTs for community development. This chapter seeks to identify the benefits and beneficiaries of the process and consider whether it could be replicated elsewhere. The main questions to be answered are:

1. Does ICT PAR methodology help to improve local livelihoods?
2. Is ICT PAR methodology inclusive of all people, including women, less educated and rural people?
3. Can ICT PAR methodology be adopted by telecentres?
4. What does this experience tell us about the concepts identified in earlier telecentre research?

The short answers are something like:

1. Yes it can – especially where it is applied to a practical problem. There are also numerous contingent benefits through sharing the information and building skills in the participants.
2. Yes, it can be – although social and cultural practices may reinforce certain roles, and rural and illiterate people face additional practical obstacles to fully engaging in this process, and may need more resources and support.
3. Perhaps, but it would take some effort, good management, research capacity and probably some form of external funding.
4. Quite a bit!

The rest of the chapter is dedicated to providing more detailed answers.

DOES ICT PAR METHODOLOGY HELP TO IMPROVE LOCAL LIVELIHOODS?

Since the research period was only three months long, it is not possible to state conclusively the effects of the project on the livelihoods of the participants and their respective communities and groups. However, the potential for positive influence was generally quite good and occurred on a number of levels. These were:

- The benefits of the knowledge gained through the research the participants conducted – for the participants, their respective groups and others with whom they shared the information;
- The research and ICT skills that the participants gained as a result of the process which benefited themselves and which in some cases they could share with others and/or use for the benefit of others;
- Other benefits that occurred because of this process and which were less direct but still recognized and valued by the participants. These included getting to travel to new places (for some participants – depending on the field research they undertook), meeting new people, gaining confidence in public speaking and in approaching strangers, seeing themselves as “educated” people with valuable opinions, learning to work together in a group, gaining status and respect in their respective groups, communities and families.

On the other hand, there were some negative consequences on people's immediate livelihoods as well, because of the time commitment required by this process. This was most serious for the farmers, since it was farming season and their land required their constant attention. Secondly, the micro-entrepreneurs also had various responsibilities with respect to their families, work and groups and many of these were neglected because of their involvement in the group. Their degree of commitment to the process was exceptional given the compromises and sometimes sacrifices that they made because of the various meetings and field research activities that they carried out. The weekly compensation was fixed at a flat rate and was low, since it was not supposed to be taken as any sort of wage. The idea, as agreed upon in the contract, was that people should neither gain nor lose financially from this process. In practice, determining how much their lost time cost them was exceedingly difficult, and it was further complicated since it was hard to predict at the outset how time consuming it actually would be. There was a great need to be very transparent and upfront about all issues regarding compensation, or else the project was in danger of becoming viewed as a means of financial gain. Although the farmers were compensated an extra amount that was supposed to allow them to hire day labourers who would make up for the lost time, in practice their various responsibilities meant that this usually did not happen. For example, at the end one farmer reported that he had given the money to his brothers, since they were annoyed with him that he had neglected his duties on the parents' farm. However, his own farm also suffered and he had nothing to cover the loss. Another pooled the money from the various weeks together and managed to buy himself an old second-hand bicycle. Ultimately, the process should not have been carried out with farmers at this time. They generally felt that they had sacrificed something to be part of the research, although they had foreseen this at the beginning. Most reported being satisfied with their participation, although one farmer felt the sacrifice had outweighed the benefits. If the project had been carried out in dry season, this need not have been an issue. One of the weavers also said that he had not understood at the outset how time-intensive the field research would be, and that it had resulted in his work piling up.

Two obvious lessons emerge from this – one is that many livelihoods are seasonal and any PAR process should be scheduled with sensitivity to the occupation of the participants. Secondly, the possible demands of the workload need to be discussed extensively and clearly agreed upon by all participants from the outset. Doing this will minimize the negative consequences of the process on participants' existing activities and create transparency about the requirements of participation.

Most participants were very positive about their involvement and said they would have welcomed the chance to continue. The specific benefits and the way that they valued them depended upon the person and the group. Those in the farmers' group had discovered that it was possible for a group of farmers to buy a tractor. They had already made most of the connections, with banks, NGOs, and tractor dealers, that they could use if they wanted to try and do so. At the end of the research project, they were seriously considering trying to organize a larger group and purchasing a tractor. Our research had focused on analysing the benefits of doing this, and it indicated that if they could manage to acquire the capital necessary to guarantee the loan (25%), the financial benefits of having the tractor would be quite high and they would begin to see profits after the first harvest. They had also learnt more about alternatives to tractors, such as ploughing with oxen, and about other farm practices. Before the research, they had never gone to a bank or approached NGOs. For them, learning how to approach these institutions and being able to ask questions was one of the most valuable immediate benefits, since many of the NGOs also offered a number of programmes designed to assist farmers.

The micro-entrepreneurs' group also felt that they would receive some immediate benefit from their research. Not all had taken loans, but all were interested in the potential of taking them, and they felt that they were in a much better situation to judge and negotiate loan conditions – an idea that had never occurred to them previously. They had also found the process of approaching institutions and community groups an empowering one, and by the end of the research they felt like experts on the topic of micro-credit. They had the confidence to put their findings into action, and

were also pleased by the idea that they could act as advisors to other groups. However, while it seemed very likely that the research had improved their ability to take loans judiciously and use them well, it did nothing to ensure that they would have an opportunity to receive a loan. The two group members in polytechnic school were also glad to gain research skills they could apply in their studies. They got quite a positive response from many of the NGOs to whom they gave their research report. The response of NGOs to the findings could represent the single largest livelihood benefit arising from this process. The group had identified numerous problems in the present practices of NGOs giving out loans. If creating greater awareness of these problems helped to address any of them, this would help all loan recipients.

The youth group was quite enthusiastic about their research findings and the report that they produced, but the immediate benefit of the findings to their livelihoods was not apparent. Their findings had supported their initial idea that knowing computers was very important in getting a job. This may have strengthened the resolve of individual members to acquire more computer skills in the future. Besides that, their other findings related mainly to computers in schools, and none of them were attending. Thus for them the main benefit was in the research and ICT skills they gained. Since they were young and still establishing what they wanted to do, building these types of skills was probably quite useful, but it is not possible to say what role it would play in their future livelihoods. It is not apparent that this process was more valuable to them than the equivalent amount of time and energy spent in straightforward computer training, or training plus figuring out a way of passing their skills to their peers. Since they were young, did not already have established economic roles, and did not have as much experience to draw upon, the ICT PAR process did not appear as well-suited to the youth group as it did to the farmers' and micro-entrepreneurs' groups.

Finally, the women's group was also in a fairly unique category, since they were all attending post-secondary education and were required to conduct research as part of their studies. The experience in the project helped them to gain both research and ICT skills that would immediately help them to succeed in their studies. The completion certificate might also help them in improving their paper credentials. The research findings were quite superficial. They were mainly oriented towards other communities and did not go much beyond stating that it was important to clean one's drains regularly. If the community outreach that the group planned was carried out smoothly, this would have helped to raise some general awareness about sanitation issues in the target communities, contributing to a less disease-prone environment. However, any community level impact is likely to be quite modest. It would have been interesting to see what findings would have emerged if the same research had been undertaken by members of a community with poor drainage.

IS ICT PAR METHODOLOGY INCLUSIVE OF ALL PEOPLE, INCLUDING WOMEN, LESS EDUCATED AND RURAL PEOPLE?

From the selection process, as described in Chapter 2, there were certain challenges to including less educated people. The initial barrier came from the staff's perception that such people were unlikely to be able to participate effectively in the project. Some people without education were nonetheless included, but they made up a minority of participants. The women's group and youth group all had at least some secondary school education and these groups worked in English. Another practical barrier to the participation of rural people was transport. We covered transport costs as part of their participation, so the further people came from, the greater the overall costs for the project. Transportation was one of the highest project costs. This also increased the time required on the part of the participants and made it more difficult for them to visit outside of meetings if they wanted to, for example, spend extra time using the Internet.

The presence of illiterate people in the research groups changed the way the groups worked. Often this turned out to be very positive for the research, although it was also slower. For example, there was a need to focus more on qualitative research and to analyse findings through listening to

tapes and through extensive discussion. This form of analysis turned out to yield much more substantial results than attempts to summarize survey data, which for example, we did with the youth group. Although they were able to summarize the findings of their surveys, the youth never managed to interpret their findings in any depth.

Since in the groups with illiterate people, they were a minority, there was sometimes a tendency to leave them out on certain aspects. And of course, there were certain things that they just could not do without reading and writing – looking up information on the Internet, for example. They could work with a partner who operated the computer, and then the degree to which they were able to participate depended a lot on the partner's disposition and willingness to include them.

While women were able participants, they tend to have lower levels of education than men and this may make it more difficult to speak out and be heard. Traditionally, women have less authority than men at most levels of society, including the household, and this thinking can translate into the research group. However, since the group is a new social formation, talking about expectations at the beginning and creating a certain internal culture can change a lot of this. Where the group already has a history and settled into a certain pattern of behaviour, things might be more difficult. For example, men who have identified themselves as more capable sometimes decide to make decisions without consulting the women. This was occasionally an issue in the micro-entrepreneurs' group. In our situation, it helped that the facilitator was a woman and could work consciously to legitimize their input. Small group and pair work also helped a lot in allowing everyone, whether shy or less educated, to have a say.

All participants were able to contribute and gain from their involvement. While illiteracy was an inconvenience, these same members who could not read or write often had a wealth of experience in the subject of research and a valuable perspective that added greatly to the analysis. Illiterate people used tape recorders, digital cameras and telephones. It was more difficult for them to use computers, although they apparently appreciated any opportunity to do so, even if it was largely symbolic. Some, at the end, recalled the computers as the highlight of the whole research.

CAN ICT PAR METHODOLOGY BE ADOPTED BY TELECENTRES?

There is no standard telecentre – in fact, telecentres are supposed to be very responsive to the local context in which they operate. For this reason, it is not possible to say that the process outlined here would be appropriate to all telecentres. But there are certain circumstances in which it could help meet the goals of a telecentre. Implementing it would require the sourcing of necessary financial resources and expertise, but if the need and desire exist, should be possible.

Where a telecentre is aimed at increasing community awareness of and demand for ICTs and for information more generally, the ICT PAR methodology can be very useful. While youth and educated people tend to be the groups who spontaneously take up ICTs (or else have opportunities for exposure in places other than a telecentre), this methodology actually appeared to work better with groups of older people who had already developed experience in their livelihoods.

Amongst CITRED's usual customers, informal social networking was the method by which most people were first introduced to the telecentre. Most often they had heard of e-mail from their friends and then asked them for an account, or their friends had directly taken them to an Internet café and set them up with their own e-mail address. These people were most often youth in secondary school. The ICT PAR participants, although they came from different segments of society, were also introducing friends and family to ICTs, most often the Internet and e-mail, by the midpoint of the project. This implies that, through the ICT PAR process, the same form of technology diffusion had been carried over into populations where overall awareness and use was much lower. It meant that more people, and more types of people, were having a chance to learn

about ICTs. Both community members and the centre stand to benefit from this (assuming that their use is a benefit to themselves).

The ICT PAR process also helped to build research and some ICT capacity in participants and to contribute in a meaningful way to community development and solve some problems of importance to the groups studying them. This particular project was quite short in duration, but more long-standing and ambitious projects could also be undertaken and yield more benefit in terms of the research produced. This again fits with the stated objectives of many telecentres.

During the short ICT PAR process, there was no partnership with other local organizations. However, there is clearly the potential for such partnership. In fact one organization, upon receiving the micro-credit group's report, was impressed enough that they decided to contact CITRED and learn more about the work they were doing. Tamale, where this project took place, is home to a large number of NGOs, and is sometimes referred to as the "NGO capital of Northern Ghana." Two of the groups found that their research involved interviews with the NGOs. For the participants, this marked a very new and proactive approach to interacting with these organizations. From the micro-credit group's research, it also became apparent that research and evaluation capacity was lacking on the part of many small NGOs, and that intended beneficiaries were sometimes suffering as a result. Such problems are probably not limited to Tamale alone. Where a telecentre has the ambition to work as a capacity builder with both NGOs and their intended beneficiaries around areas of information, knowledge and understanding, there is great potential for the ICT PAR methodology to contribute.

There are two obvious challenges facing any telecentre adopting ICT PAR methodology. The first is financial support and the second is staff capacity. While the process does have economic value and may even serve to increase demand for the telecentre (where it is currently lacking), it does not itself generate income and it will take some resources to fund. The primary expenses are staff time, time using the equipment, and any research related expenses such as travel, printing and photocopying, and phone calls. Some expenses may also be incurred so that people can participate – for example, if their own time and transport costs are covered, or/and if there are any refreshments to be provided at lengthy meetings. The actual amount required will depend upon the local cost of transport, where the participants are coming from, etc. Assuming the telecentre already has the necessary equipment, many of these costs can be kept fairly low. Staff time required for this process can, however, be considerable. Our process took one full-time person to plan, coordinate and facilitate the four groups, plus some additional support by other staff which amounted to an additional ten hours per week in total. At this, we were sometimes limited in the amount of support we could give to group members, who were very independent in the field, and who would have liked more hands-on support in their ICT use.

There are two possible ways that a telecentre might finance such an activity. Firstly, they could seek an external donor to fund it. Secondly, they could offer it as a service to some NGO or other local organization, which could help to offset costs and also put some of their own staff time towards it. The participants would likely be representatives of community groups working with that organization.

The person facilitating and coordinating the ICT PAR process needs strong research, facilitation and project management skills if the process will succeed. These skills are unfortunately not very common. Most telecentres are likely to find that they do not have anyone on hand able to shoulder the responsibility. There are several options, however. In Ghana, for example, recent university graduates must complete national service placements that last about six months. A telecentre could put in a request to the government for someone with the appropriate skill set. Otherwise, it may be possible to request a short-term international volunteer from an agency that places such people. In both cases, the aim should be to pilot the ICT PAR process at the centre and to build up staff capacity to undertake the process. In our pilot, three months was a bit too short for the staff to

gain skills to a level sufficient to undertake the process independently. Six months might be long enough. Also, while it is good to spread the training across a number of staff people, one person should be given primary responsibility for carrying the process forward after the short-term volunteer leaves. A final option might again come from partnering with a local NGO or educational institute and sharing expertise. Some NGOs do have staff on hand with good participatory research experience, and they could work with telecentre staff and resources.

WHAT DOES THIS EXPERIENCE TELL US ABOUT THE CONCEPTS IDENTIFIED IN EARLIER TELECENTRE RESEARCH?

In chapter 2, five hypotheses were identified based upon previous research, three relating to ICT services offered at the telecentre (reach and potential versus actual use), and two related to the organizational structure of the telecentre itself (goals and sustainability). These hypotheses are considered in light of the experiences and findings from the group PAR process described in chapters 4 and 5.

Hypothesis 1 - There is a naturally arising tension between social goals and the requirements of economic survival of centres - energy and activity tends to migrate towards a focus on the latter at the expense of the former. This can cause an "identity crisis" and result in poor differentiation of socially oriented centres from their commercial counterparts.

Much of CITRED's efforts had been focused on providing public access to the Internet, although there were many other ideas and projects also underway. The former tended to take the most attention of the staff since it was an ongoing activity and the one with which they were most familiar. Also, the customers often required the presence of at least two staff – one to monitor the front desk and the other to provide on-call assistance. Without the presence of a full-time manager, scheduling was often erratic and last-minute absences and substitutions were often required, lending other activities a degree of uncertainty and instability.

The ICT PAR project, although it was separately financed and brought some additional people on board, also put additional responsibilities upon the staff. They sometimes found it quite difficult to meet all their previous job requirements plus engage with their groups. The whole process itself was also quite energy-intensive and often extended beyond the meeting times. We knew it to be a short-term project, but had this gone on a long-term basis, adjustments would have been required in their overall job duties to reduce this ongoing conflict and maintain a manageable workload.

The project was also intended to build the capacity of the staff in conducting research and in potentially running such an activity themselves. While they undoubtedly developed their capacities in these areas, the short time period and the wide range of experience and skills required by the coordinator meant that they were not yet fully independent by the end. To sustain this type of activity would require some medium-term funding before it could be incorporated into the regular activities of the centre. Even at that point, it is doubtful that it could be fully financed by regular user fees from Internet access since there was plenty of competition in the area and profit margins, as already noted, were quite slim.

Hypothesis 2 - User fees can actually impede the sustainability of telecentres by strangling the growth of demand; strategic periods of free access provision can increase long-term effective demand and the developmental value of the services.

CITRED already enjoyed strong demand for its services and was able to compete with commercial cybercafes in Tamale. Its main clients were students who used the services for e-mail and

entertainment. As long as it could offer a good connection, comfortable environment and competitive rates, it was likely to continue attracting its customers.

From a purely financial point-of-view, then, the ICT PAR method was not necessary to attract new customers to CITRED and was certainly not the most cost-effective way of doing so. However, it did succeed in increasing CITRED's reach, at least over the course of the project. The long-term effects of the project were harder to judge. Over half of the participants anticipated continuing their use of ICT services and felt that they were affordable. They might do so at CITRED or else at an Internet café more convenient to where they lived. A number of participants explained that they were introducing others to computer and Internet services, including setting them up with e-mail. One woman had brought along a teacher she had met and helped him to set up an e-mail account. Another man said he had already set up three other people with e-mail accounts by the end of the project. Many were interested in further ICT training, and would consider CITRED as a potential trainer. However, those who anticipated continuing their use of computers and the Internet were also those most like CITRED's existing customers – they tended to be younger and have higher levels of education.

Overall, the experience in the case study supported the hypothesis. The free access did appear to increase demand and also people's capacity to use ICTs for development-related purposes. However, those with no education generally did not expect to be able to continue using ICTs other than the radio and occasionally the phone. Although CITRED did not face any urgent financial need to increase demand for its services, this technique could be useful to centres in places with little pre-existing demand.

Hypothesis 3 - User fees limit reach of services.

And

Hypothesis 4 - Lack of appropriate and supportive social structures and tools for applying ICTs limits reach of services - i.e. requires capacity to apply

This research tested whether ICT PAR methodology could increase the reach of ICTs by temporarily creating free access and by creating an appropriate social structure for applying them in ways that could improve livelihoods. The findings regarding these issues have already been described. In summary, the methodology did increase reach within the project duration. For those with no education, however, the use of most ICTs introduced in the project was probably not sustainable. They did not foresee continued use of computers after the end of the project since, without being able to read and write English, they lacked the capacity to use them independently.

Based on the experience with this project, both hypothesis 3 and hypothesis 4 are supported. That is, free, socially-supported access increases the accessibility of services to a broader range of people. This is not particularly surprising. Of greater interest might be the fact that many participants, when asked to comment on how to improve CITRED's accessibility, did not see user fees as a major problem. In fact, compared to other options, they felt that the price of access time was affordable. In contrast, most participants did not consider computer classes affordable (or not those at CITRED, at least).

The exposure participants had to computers allowed them to increase their familiarity and their typing speed to a point where many of them could use computers independently. Being familiar with the keyboard allowed them to type at a faster rate, which reduced the amount of access time they would have to buy if they, for example, wanted to write an e-mail to someone.

According to participants, low awareness, low capacity and geographic isolation were the main access barriers that their communities faced. The first could be addressed through more aggressive marketing, especially through radio. However, person-to-person interactions were often more relevant and trusted. The ICT PAR methodology could help to address the first two barriers and could only address the third to a limited degree, since transport subsidy over the course of the project was not sustainable afterwards. User fees most often deterred first time exploration of technology, especially where prior awareness about ICTs was very low.

Hypothesis 5 - The potential value of public ICT services to local development is rarely realized - this is in part because of the limited reach, and in part because of people's limited conceptions of how such services can be used.

Through the SLF lens…	Current preconceptions of ICTs strongly limit their use to certain types of people engaged in certain types of livelihood strategy - specifically those with higher levels of educational attainment. This is one factor that hinders the exploration of ICTs in meeting local development priorities amongst those without strong formal education, and operating outside the formal economic sector.

Form of input from case study…	The research will analyse whether and how people's conceptions of ICTs, and especially their potential uses, changes over the course of their experience as research participants. In short - does this form of introducing ICTs challenge and expand people's limiting preconceptions?

Preconceptions about ICT use and ICT users were evident throughout this case study, and were shared by staff, participants and the general public. Because young male students were well known as the main users of the Internet, some adults had further come to associate the Internet with time and money-wasting games and pornography. Older adults with less education and non-formal types of employment generally felt that ICTs, and especially computers, were not for them. However, given the opportunity to use them, they were immensely curious. By the end, many felt that ICTs were within their grasp and they could continue to use them. However, the most popular area of use amongst the participants, as amongst the general population, was e-mail. Even where people did not know others with e-mail addresses, they were anxious to get their own and find people they could write to. Looking up information on the Internet was also interesting to some of them, but sometimes they found this time consuming and difficult, depending on their fluency in reading English. Skim reading is a necessary skill for anyone trying to do much research online, but was not intuitive to the participants. Perhaps more time spent on formally teaching and practicing this would be worthwhile. They had clearly made an association between ICT use and research, and some would continue using computers for word-processing needs related to their groups' activities.

The biggest preconception that was overcome through this process was the participants' perceptions that they could not use or benefit from ICTs. By the end, most felt they could use them and saw value in such use. There was still much room for further experimentation, and arguably a tendency to stick to the known. Ideally, the role of the staff could be to question this and to expand people's experiences over time. Probably the inclusion of a wider range of people at the centre would also encourage a broader range of use and a greater awareness of the various potentials of ICTs.

CONCLUSIONS

The ICT PAR methodology tested at CITRED appears to be a promising approach to applying ICTs in community development while simultaneously building ICT awareness and capacity in a wide range of community members. This is a potential niche for community telecentres to explore, and can encourage a culture of information-seeking and problem-solving.

The main challenge in applying such an approach is in finding resources, since it is not self-funding, as well as in acquiring the capacity to undertake it, since it requires research, facilitation and project management skills.

The outputs from our short project were quite impressive, including four booklets, a poster, and three radio shows. Printed outputs were given to various local community organizations, including NGOs, schools and community groups. The participants' existing ties to various community groups also created an automatic channel for sharing the results back through group meetings. These immediate outputs were also accompanied by the increased awareness and capacity of participants in terms of research, ICTs and other skills such as public speaking.

While it has yet to be tested in other contexts, this preliminary study can conclude that the ICT PAR methodology is a useful addition to the toolkit of methods that can be used by telecentres and other community ICT initiatives.

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