

**NEW INFORMATION COMMUNICATION TECHNOLOGIES (ICTS) IN
HEALTH COMMUNICATION INTERVENTIONS: PERCEPTIONS AND
PROSPECTS OF THEIR ADOPTION**

BY

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DECLARATION

I do hereby declare that the work presented in this report is my original work and has not been submitted in part or other form for a degree in any other university

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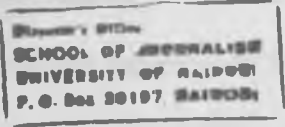
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LIST OF ACRONYMS/ABBREVIATIONS

ADF	African Development Forum
AEGIS	Aids Education Global Information Systems
CD ROMS	Compact Disc Read Only Memory
FTP	File Transfer Protocol
G 8 DOT FORCE	Group of 8 Digital Opportunities Task Force
HDN	Health and Development Network
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Syndrome
IDRC	International Development Research Centre
ISP	Internet Service Provider
ITU	International Telecommunication Union
KANCO	Kenya Aids NGOS Consortium
NACC	National Aids Control Council
NEPAD	New Partnership for Africa's Development
NGONET	NGOs Network
PATH	Program For Appropriate Technology in Health
PLWHA	People Living With HIV / AIDS
RAISA	Regional Aids Initiative of South Africa
RATN	Regional Aids Training Network
RINAF	Regional Information Network for Africa
WHO	World Health Organisation
WWW	World Wide Web

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May God bless you.

DEDICATION

To all level-minded personalities with an insatiable thirst for knowledge and who would appreciate this to be a piece of intellectual creation meant to broaden their perceptual and ideological horizons.

Special mention for Lieselotte.

ABSTRACT

The HIV/AIDS pandemic is recognized to be the most devastating scourge in history. As the global community begins to comprehend and acknowledge the immense impact of this monster, there is an increasing urgency to respond in a way that will reverse the devastation and destructiveness caused by this disease.

New information technologies, especially the internet, has been seen as one major potential vehicle, among others in the global mobilization and response to the pandemic.

With the promise of providing vast amounts of quality information and creating networks of researchers, health care providers, NGOs among others in the fight against HIV/AIDS, many organizations have taken the plunge in the adoption of such technologies.

While acknowledging that internet technologies cannot provide the same kind of direct benefits such as health care and drugs, the value of such technologies in the campaigns (through focused applications and appropriate policies) has been seen to empower most organizations engaged in concerted efforts to stamp out the disease.

This study investigated the adoption levels of internet (and its associated technologies) among NGOs believed to be actively involved in Information Education Communication interventions in the fight against HIV/AIDS and other reproductive health concerns.

Through e-mail questionnaires and selected interviews to key informants, the study sought to unearth the adoption patterns, the perception and attitudes held by the various respondents about internet technologies as used in the HIV/AIDS campaigns. The factors incidental to adoption and non-adoption of the technologies were also explored.

The study also made an evaluation of the other alternative channels of communication to examine the premium placed on them especially when compared with the new technologies. Policy recommendations on the way forward were also sought from respondents.

The investigation revealed that most of Non-governmental organizations were positive about the new technologies evidenced by its adoption at least at the basic level (18%). The perceptions given to the internet were also encouraging especially with regard to its potentialities in such campaigns. Internet technologies were perceived seen as a strong networking tool that provided qualitative and quantitative information on the latest news on HIV/AIDS and other reproductive health related concerns.

The value of the internet notwithstanding, respondents cited several major hindrances to its full adoption and effective use in the campaigns. These included inadequate technical/operational skills, high costs of use and maintenance, poor technological infrastructure and to a lesser extent, some organizations deliberately failing to hook up to the bandwagon of technology for frivolous reasons.

A significant observation was that those who mostly favoured the technology were drawn from the international category, something that can be attributed to a sound financial exposure and skills.

A major recommendation given was the need to marshal resources among organizations and integrate ICTs into the overall organizational policy so that internet technologies can be seen as integral to effective communication planning and implementation of HIV/AIDS campaigns in organizations.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background information

Communication is the heart of all social intercourse. It is the blood stream of any society. (Orewere, 1991) In the context of health communication, it is 'the systematic process of packaging and distributing accurate risk factors and behaviour change information with a view to influencing positively the health practices of individuals and groups of people'. (CCS, 1988 :7)

Health communication, therefore, seeks to persuade people to view certain of their behaviours in a new light, to redefine them (as risky or protective as the case may be) and to act in concert with others on the basis of these new definitions and meanings.

The link between health and communication became clearer when member states of the World Health Organisation, (WHO), Kenya included, accepted the Primary Health Care (PHC) communication concepts as the logical strategy for achieving the social good of Health-For-All by 2005. Communication was appreciated as an important ingredient for a society's health status.

The challenges faced by developed and developing countries in addressing HIV/AIDS and other reproduction health concerns require critical efforts from all members of a society in addressing them.

The impact of HIV/AIDS (currently the single-most threat to mankind) in Kenya and the rest of Sub-Saharan Africa has been and continues to be devastating, with 21.8 million AIDS deaths since the beginning of the epidemic in the 1980s¹.

¹ At the end of 2000, 36.1m adults and children were living with HIV/AIDS and there were 3m deaths due to AIDS. - Driscoll, 2001. (Final report on ICTs and AIDS commissioned by IDRC)

UNAIDS estimates that between US\$ 7-10 billion are required annually to effectively address the epidemic in low and middle-income countries and this excludes the cost of improving and expanding health Information Education and Communication, IEC infrastructure.

Reproductive health campaigns have seen the adoption of numerous communication approaches ranging from the more “traditional” ones – group communication through seminars, conferences, etc; campaigns on TV, radio, theatre presentations, print materials (brochures, leaflets, posters) to the newer approaches employing “new” Information Communication Technologies (ICTs)² such as internet, E-mail, CD-ROMS, mobile computing, online journals, teleconferencing among a host of other channels.

In view of the enormity of the pandemic and the urgent need to make the best use of all resources and tools available, it is but natural that the new ICTs are seen as one major potential tool among others in the global mobilisation and response to the HIV/AIDS campaigns.

The promise of ICTs is based on the feasibility, at relatively low cost, of providing access to information for those working on the health problems, to those who are suffering from the diseases or their effects and those who need to take preventive actions.

Though the Internet is not a panacea to the pandemic, the information superhighway holds much promise for breaking down some of the traditional barriers that have limited access by developing countries to colleagues in other parts of world and to the information and literature or information sources that would allow them both to stay current in their field of interest and to share their ideas for the sake of solving the society's problems. (Graham, 1997)

² *The promise of ICTs is based on the feasibility for provision of low cost networks the potentially link thousands of distant HIV/AIDS campaigners at relatively low cost.*

A practical approach suggests ICTs may not be the critical single element to address health issues but can make useful contributions within an appropriate framework. The use of such technologies serves to complement other Information Education and Communication (IEC) campaigns designed to reach the targeted audiences. (Bloome, 2002)

A search of the relevant literature produced several general reports that argue that ICTs are important tools for development in all sectors including health. But there is very little material addressing the current gaps; discussions on sectoral uses of ICTs and the perception of users on the need to adopt and expand their use if warranted; or how ICTs can be or are being integrated into health campaign strategies and current efforts.

A number of examples, especially in the developed world, demonstrate efforts of internet use to facilitate the works of individuals and organisations involved in reproductive health campaigns. Such countries have fully embraced high level internet technologies in their campaigns.

1.2 The Statement of the problem

In spite of the net's growth, most organisations remain on the sidelines hearing media reports but staying a cautious distance away from the 'time-consuming' forays of this medium.

This study sought to investigate and unearth the current adoption levels of these internet technologies by selected organisations, how they perceive the new technologies, efforts to adopt or not to adopt it, lessons from its use and factors that hamper its successful application in the planning, design and execution of such health campaigns.

It endeavoured to highlight how the technologies were being used or could be used to directly address the information, communication and knowledge requirements of those working on problems related to HIV/AIDS and other reproductive health issues.

The technological adoption perspectives that were investigated included two levels viz : Entry-level internet technologies (E-mails, WWW and Website presence) and Advanced internet technologies (teleconferencing technologies such as video/computer conferencing, remote logins (TELNET³) and file transfer protocol, FTP⁴.) The rationale of this was the fact that such technologies were and have become continuously available cheaply from the developed countries, donor agencies, etc.

The pertinent questions, therefore, were: To what extent have the organisations embraced these new technologies in their HIV/AIDS campaigns? At what level of adoption are they ? Why and why not? These would form the basis of the study's investigation.

This research sought, therefore, to investigate the perception and attitudes held by the organisations in deciding whether they should adopt the internet technologies or not.

It also served to illuminate on the status of internet adoption in reproductive health campaigns (with particular emphasis on HIV/AIDS) and factors held to be key to successful application of the new technologies.

1.3 Objectives of the study

The research aimed to investigate the current status and perceptions of internet technology's adoption in HIV/AIDS campaigns.

³ Telnet refers to computer communication to remote sites/databases of remote machines (without physical connection of computers through cables) through authorised login keys.

⁴ Through established protocols, computers can share loads of files/directories (download) from distant locations.

Specifically, the study pursued the following objectives:

- i. To investigate the perception and attitudes held towards the use of internet technologies in reproductive health/HIV AIDS campaigns.
- ii. ✓ To investigate the factors that influenced the use of internet technologies in the HIV/AIDS communication interventions by organisations.
- iii. ✓ To examine the impact of the use of such technologies in the campaign activities.
- iv. ✓ To identify and assess the alternative sources of information used by such NGOS in an attempt to effectively pursue their campaign efforts.
- v. ✓ To obtain appropriate policy recommendations that would foster internetworking in such HIV/AIDS campaigns among organisations.

1.4 Questions to guide the study

Several main research questions were aligned with the study's objectives. These included among others :

- i. What factors have hindered the organisation from connecting to the internet ?
- ii. What motivated you as an organisation to adopt internet technologies in your programmes ?
- iii. Do you have a policy dealing with the acquisition and installation of technologies for your organisation ?
- iv. How have internet technologies impacted your HIV/AIDS campaigns ?
- v. ✓ What other sources of information do you utilise for your campaigns and how do you compare them with the new technologies ?
- vi. How do you perceive adopting internet as a technology even when most organisations believe their priorities are drugs, home care, etc. Is it worth championing for ?

vii. What policy recommendations can you suggest for the application of internet technologies in the HIV/AIDS campaigns by organisations ?

1.5 Significance of the study

The relevance of Internet technologies in development is no longer disputed. ICTs are important tools of “informatisation”. They are drivers of development.

(Wilbur Schramm, 1989)

This study sought concurrence from the various viewpoints on the value and use of internet in health campaigns – how they can support health information and communication needs.

This study, therefore, served to fill the gap (due to scanty literature on the subject) on the internet technology use in health sector especially in the fight against HIV/AIDs in Kenya.

It was considered to immensely contribute to sensitize organisations about the relevance of such technologies in their campaigns. It would act as an an eye-opener to the alternatives available for the “old” communication approaches.

The factors hampering the adoption of such technologies as well as the perception held on them would be a pointer for a strong case in ICT policy formulation in this sector. The study also served to provide a conceptual framework for understanding the link between the awareness of the value of internet technologies in health campaigns and action resulting in their adoption.

1.6 Justification of the study

While internet technologies have been eagerly embraced and adopted by many developed and some developing countries in their health campaigns especially in HIV/AIDS activities, there has been no systematic attempts to assess the situation in Kenya among the NGOS involved in such efforts. An evaluation on the impact of the internet technologies on the

capture, manipulation, repackaging and sharing of information in the campaigns efforts has largely been lacking.

Making generalizations about the place of internet technologies in Information Education Communication, IEC activities would be premature until an in-depth study has been carried out with organisations dealing in such activities. (Odebiyi: 2001)

An assessment of the ICTs use provides a barometer to measure their effectiveness. This study presented one such barometric reading.

1.7 Study assumptions

The study assumed that the organisations had an appreciation of what a computer could do (they either possessed it or were in close proximity to use it, for example, in cyber cafes).

It was also assumed that organisations that were not connected to the entry-level internet technologies could not possibly be connected to the advanced ones.

These assumptions were instrumental in the design of the questionnaire.

1.8 HYPOTHESES

a) It was hypothesised that there would be no significant relationship between internet adoption and the type of organisation (categories). By implication, it was presumed that a high internet adoption rate would be found among health-related organisations that are international in nature due to their assumed close proximity to sources of funds and technological support from their strong donor relations.

b) It was also hypothesised that there would be no significant relationship between

perceptual differences on several internet attributes (channel speed, quality and quantity of content, relevance, cost of use, etc.) as used in the campaigns and the various categories of respondents.

1.9 OPERATIONAL DEFINITIONS AND EXPLANATIONS

1.9.1 Perceptions and Attitudes (these could be positive or negative)

Perception is the process through which one gains an understanding of what is happening and forms an opinion about it.

This would mean the way respondents viewed or perceived Internet technologies as tools for communication in the campaigns against HIV/AIDS and/or other reproductive health concerns.

1.9.1.1 Possible Indicators

Positive indicators

1. Availability of an ICT policy. (This shows an appreciation of the positive role that ICTs, e.g. Internet, are believed to play in such health communication campaigns). Such a policy would outline the place of technologies in the organisation, acquisition decisions, costs, training and related issues.
2. Appreciation of the values of internet technologies demonstrated by their actual adoption and application in health - related activities. Adoption in this case meant the decision to take up the technology for trial or full-scale implementation.
3. Use of internet technologies in attempts to network with other organisations (share experiences, views, ideas...) and an appreciation that internet serves to pool resources to a common platform.

4. Appreciating that the internet, for example, is like a one-stop shop for all information needs.
5. Participation in meetings and conferences that discuss issues of ICTs adoption, etc. It was assumed that there would be high likelihood that such fora would discuss the various channels through which campaigns can be conducted.

In Kenya, the Kenya Aids NGOs Consortium (KANCO) and the National Aids Control Council (NACC) are instrumental in these efforts, though to a lesser extent for the latter.

Negative indicators

1. Non-adoption of ICTs due to institutional rigidities such as fear of unknown, not prioritising it, lack of leadership and good will in its take up, technophobia, etc.
2. Lack of appreciating ICTs roles in communication campaigns [seeing them more of unnecessary technology at the expense of the more urgent need for provision of health care, drugs, etc.]
3. Not appreciating the value of having own websites as avenues for sharing of information.
4. Non-adoption for no clear reasons, procrastination of the plans to implement, etc.

1.9.2 Factors that influence adoption of internet.

These are issues that are directly or indirectly in charge of a decision either to go into internet technologies or not. They may act alone or in combination. For example, cost factors may not be the only cause of non-adoption. Even availability of information about their perceived usefulness. Such factors would demonstrate the level of organisational innovativeness.

1.9.3 Gains/benefits of adopting the technologies in the interventions

These would mean any positive changes that were observable and explained by the participating organisations arising out of the use of such technologies. Such gains should portray the technology to be superseded as less effective. (Rogers, 1995)

Improvements in the way campaigns are designed and executed arising out of shared ideas and experiences from far and wide would be an indicator of the role played by technology in bridging the knowledge gap.

1.9.4 Information seeking behaviour (any alternative sources of information?)

Apart from internet technologies, what other sources of information for decision-making, design of communication strategies, comparing and sharing ideas, etc did they utilize ? what problems did they face in accessing such materials ? Any delays ? how they obtained such information (any social networks and their nature) ?.

The essence of this point was to determine the role Internet technologies could play in the effective capture, storage and dissemination of information to users on demand or in need.

1.9.5 Institutional and channel factors of adoption of the technologies.

This dealt with investigating answers to the following questions :

1. What organisational issues (skills, policy, philosophy, donor pressure/ activities, funds, etc) are incidental to adoption of ICTs?
2. What characteristics make the channel favourable to adoption, (ease of use, cheap, convenience of use, any information is available, collaboration/ networking needs...)

1.9.6 Inter-organisational networking

This meant how the different organisations in the health campaigns collaborate through sharing of ideas, research results, literature exchanges, links with scientists and researchers in the health field, community organisations, donor agencies, etc.

Did the organisations use the technology for their own benefit or do they share the information with others ? Is theirs an open or closed system?

The aim was to assess the level of internet use across organisations and the efficiency of using electronic networks to save time and space (facilitate the speed of delivery of information for decision making.)

N:B The operationalized terminology were instrumental in designing the questionnaire and a guide as to how responses would be analysed and interpreted. They acted as a guide in the formulation of questions to ask.

1.10 Study constraints/limitations

It was anticipated that constraints of time, limited financial resources and access to some respondents may hinder a concrete research process and outcome. This turned out to be rightly so.

Just as any other study, this study could not be considered as perfectly representative of the rest of the population since it was small and the sampling frame is continuously being updated so by the completion of this research, more NGOs would have been enrolled thus creating a room for imbalanced generalisation of the findings. Any major generalisation, especially regarding whether an organisation had adopted or not, would just be made on the basis of the sample investigated.

It was also noticed that a few respondents did not comprehensively answer the questions (given that these were E-mail questionnaires⁵ and the respondents may not have had the time or felt persuaded enough to provide details). This notwithstanding, efforts were made to identify and reach a few selected cases with self-administered questionnaires and interviews which took a lot of time to conduct.

1.11 THEORETICAL FRAMEWORK

A theoretical basis must underlie any research undertaken to study a phenomenon. This theoretical underpinning determines to a great extent the kind of knowledge that is likely to be gained from an inquiry and also determines the limit of knowledge. (Vreede, 1995)

A study of adoption of new technologies draws from a strong theoretical background and models used to explain the circumstances of their adoption and their perceived impact on knowledge creation and dissemination.

The current research drew its theoretical/conceptual framework from the following theories/models:

- i) Adoption of innovations theory (Rogers, 1995)
- ii) The Knowledge Gap theory (Donohue, et al. 1970)
- iii) Modernization theory/hypothesis (development communication) – that new technologies are drivers of development in all sectors of the economy including health. (Schramm, et al. 1970)⁶

The above theoretical approaches or models are hereunder explained.

⁵ The fact that these interviews were conducted by E-mail automatically skews the responses.

1.11.1 Adoption of innovations (read 'new technologies') hypothesis

Getting a new idea or practice adopted even when it has obvious advantages is often very difficult. An innovation is any idea, object, practice, technology etc. that is perceived as new by an individual or other unit of adoption. (Rogers,1995)

The perceived newness of the idea for the unit of adoption determines its reaction to it. Newness need not just involve new knowledge. A development of a favourable or unfavourable attitude or perception towards it (to adopt or reject it) may be expressed as 'newness' in terms of this decision or attitude. (Ibid,1995)

The adoption of internet technologies by organisations is important to their own survival. Internet enables these organisations to 'compete' with other organisations as well as provide a cost-effective way for them to market their business, launch new products, improve communications, gather information and identify potential business partners. (Kaplan, et al, 1997 ; Coccia,1997 ; Hawking, 1997)

The benefits and opportunities of internet technologies notwithstanding, Forrester Research (1997) found that many organisations could be rated as 'stragglers', falling behind others (especially in the developed world) and registering a slow rate of internet technology adoption.

It would be difficult for organisations to envisage the benefits associated with using Internet technologies without being familiar with the internet and World Wide Web (WWW). (Akkeren,1999)

The Yellow Pages Small Business Index (1999) of Australia support this with findings that the number one reason given by 49% of non-adopters of internet technologies is their lack of interest, and perception of a lack of business benefit.

⁶ Wilbur Schramm, et al. viewed new technologies as the panacea to third world development. With these technologies, the LDCs would 'catch up' with the developed countries in development and civilization.

One suggestion by Iacovau, et al. (1995) is that future research should measure factors that explain adoption or non-adoption of Electronic Data Interchange (EDI) technologies such as the Internet.

Issues concerning the adoption of prior internet technologies could provide valuable knowledge in this area. Cragg and King (1993) also suggest that research needs to address internet growth in organisations explaining the drivers and barriers of the technologies growth or adoption.

Diffusion models, may in many cases, be said to be concerned with information seeking. When seeking information, an individual may choose among different strategies. A broad focus strategy would involve the individual first making an inventory of possible information sources, reviewing it then making a choice of which source to use. The narrow focus strategy takes one source as a point of departure. (Rogers, 1976)

Given more than one potential information source, one has to make up one's mind about what information strategy to choose. (Donohue and Tipton, 1973)

The notion that 'good' innovations sell themselves has the inherent mistaken perception that 'good' is an absolute and objective term. (Adhikarya, 1996)

1.11.2 Internet technologies and Knowledge Gap hypothesis

1.11.2 Internet technologies and Knowledge Gap hypothesis

The Knowledge Gap hypothesis (theory) seems to have benefited immensely from the American political philosophy of realism. This is still called a hypothesis though this does not imply the concepts are less methodically worked out. (Okigbo, 1987)

The theory posits that :

'as the infusion of mass media information into a community increases, the segments of this community with higher socio-economic status tend to acquire the new

informatrion at a faster rate than those in the lower status segments, so that the net effect is an increasing gap in knowledge between these segments'.

(Donohue, et al, 1970).

The theory is based on the following principles :

- a) Over time acquisition of knowledge of a heavily publicised topic will proceed at a faster rate among better educated persons than among those with less education.
- b) At any given time there should be a higher correlation between acquisition of knowledge and education for topics less highly publicised.

Different interpretations have been given to this hypothesis by different scholars. Some studies have even failed to validate the claim that gaps in knowledge widen. (Ettema and Luepker, 1981)

Furthermore, reformulations of the original hypothesis to specify under what conditions gaps occur and widen have been entirely successful. Geneva and Greenberg (1979) suggested replacing 'education' with 'interest'.

Access to advanced telecomputing technologies and services can no longer be considered a privilege reserved for those who can afford it. Instead, such access will come to determine rather than reflect one's socio-economic status (SES) and potential for upward social mobility. (Patricia lewis, 1996)

Knowledge gap in the terms of OECD is equated to the present day 'digital divide' which creates a gap between individuals, households, businesses and geographical areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies and to their use of the internet for a wide variety of activities. (OECD, 2000 :4)

The increasing flow of information through new information technologies such as internet ought, theoretically speaking, to benefit everyone in society since every individual gets a

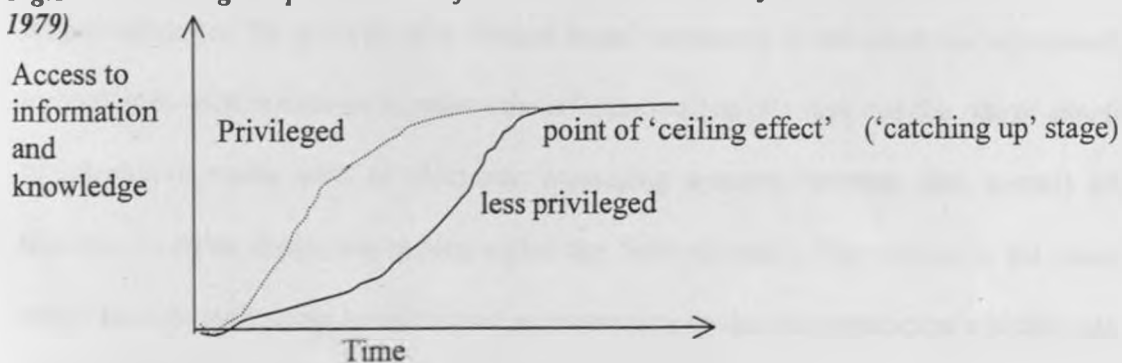
possibility of finding his or her bearings in the world around them and may perhaps, more easily enlarge their horizons of knowledge. (Okigbo, 1987)

Information results not only in decreasing knowledge gaps but also in gaps concerning behaviour and attitudes. (Rogers,1976) But mass media is not the only cause of the gaps, gaps need not be caused exclusively by different levels of education, other factors may also contribute to the creation of such gaps. It is often claimed that the gaps tend to increase as time passes. This may be true in some cases, but Thurnberg, et al (1979) consider that they often acquire the aspect shown in Figure 1.1 below.

The dotted line would constitute the readings-off relevant to those economically endowed to hook to the internet(those with a high communication potential). The thick line corresponds to the less privileged ones (those with less communication potential). Where the two meet represents a 'catching up' termed by researchers as 'ceiling effects'.

The question to ask here is: How can the 'ceiling effect' be reached in health communication campaigns involving internet technologies ?

Fig.1.1 : Knowledge Gaps between 'information-haves' and 'information have-nots' (Thurnberg, 1979)



The Convergence model expounded by Rogers and Kincaid (1981) defined communication not in terms of source and receiver (as in the linear model Source-Message-Channel-Receiver, SMCR)⁷ but in terms of participants or partners engaged in a continuous and

⁷ As opposed to the non-linear multi-directional models, messages in the SMCR model are passed linearly with participants sharing information on one-to-one basis (the 'action-reaction' style).

Receiver, SMCR)⁷ but in terms of participants or partners engaged in a continuous and common course, a meaningful relationship to 'create and share information with each other in order to reach a mutual understanding'.

This model emphasizes on the audience and communication planner as equal partners in the communication process who are seeking a mutual understanding on a specific issue.

The convergence model allows all participants to forge alliances with a view to seeking understanding and sharing experiences, views and meaning. Since each communication problem is unique, it would appear the model offers a suitable and highly dynamic conceptual framework to health communication educational planning and execution. The model is thus far from being an assembly-line-like model.

A concurrence of view is observed in the homophily-heterophily⁸ communication networks explained by Rogers (1995). Groups of people performing similar functions (homophilous) will readily share knowledge, meanings, experiences, etc. Through well established networks, homophily and effective communication 'breed each other'.

Rogers advances the concept of a 'critical mass' necessary in the adoption of interactive technologies such as internet to reduce the information gap. He says that the rate of adoption of interactive media such as electronic messaging systems (internet, fax, e-mail) often displays a certain distinctive quality called the 'critical mass'. This occurs at the point at which enough individuals have adopted an innovation so that the innovation's further rate of adoption becomes self sustaining.

The interactive quality of the new media creates a certain degree of interdependence among the adoption decisions of the members of a system. An interactive innovation is of little use

⁷ As opposed to the non-linear multi-directional models, messages in the SMCR model are passed linearly with participants sharing information on one-to-one basis (the 'action-reaction' style).

⁸ Homophilous communicators exhibit similar communicative characteristics, qualities and orientations while heterophilous communicators have diverse characteristics which may hinder effective communication.

to an adopting individual unless other individuals with whom the adopter wishes to communicate also adopts. With each additional adopter, the utility of an interactive communication technology increases for all adopters. After a critical mass has been achieved the rate of adoption accelerates. (Rice and Rogers, 1988)

The distinctive aspect of interactive communication technologies (like the internet) in a diffusion sense is 'reciprocal interdependence' in which adopters influence each other. (Markus, 1990)

1.11.3 Modernization theory (New information technologies for development)

The argument about internet technologies being a bridge to the gap between information poor and information rich supports the modernization theory of development which holds that communication and media are the conduits for the spread of modernization (defined as 'things Western', therefore 'good' or 'better'). (Schramm, 1988)

Wilbur schramm felt that electronic media could carry mass mobilization messages for national transformation. Internet was seen as a modern mass media which could expeditiously 'diffuse' modern scientific ways of acquiring and disseminating knowledge.

Mody (1990) confirms that in any communication campaigns, mass participation is the 'means and the end', that the media are useful to the extent that they share information on health, education, food etc. with populations in remote locations.

Internet technologies have the capability to bridge geographical distances between message senders and receivers who are physically separated from each other.

Technological determinists believe that the use of such technology would guarantee that remote communities would begin to live more informed lives due to information 'capsules' distributed expeditiously through communication pipelines accessible to all.

In the manner in which it was used by its originators, Pye and Schramm, development communication facilitated by technology referred to technology-based communication networks which, regardless of message and content, tended to create a suitable climate to facilitate development (the means to an end). (Oliveira, 1993 :103)

From the analysis of the models and theories discussed above, this study would benefit to illuminate on the status of internet technology adoption and use by NGOs in health campaigns. It would illustrate the extent to which internet access inequalities (and attendant factors attributing to such) impact on the knowledge gap to players in such campaigns.

In line with the above theoretical framework, it was important to bear in mind the following issues during the study :

- a) To what extent have internet technologies managed to bridge or widen the knowledge/information gap in the perceptions of the health communicators? Can we say that we have reached the 'critical mass' stage to be complacent about internet adoption in the HIV/AIDS and other health campaigns in Kenya ?
- b) Why are many organisations still 'stragglers' (as the Forrester Research, 1997 established) despite the obvious advantages of the new innovations? Or is the notion of a 'good' innovation selling itself indeed an inherent mistaken perception as confirmed by Adhikarya (1996)?
- c) What are the perceptual differences regarding internet technologies as conduits of mass mobilization for national development and transformation (as Schramm, et al. felt) especially in addressing the AIDS scourge in Kenya?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Communication and health

The goal of health communication education efforts is to improve the health status of individuals and communities by facilitating changes in their health related practices. Such programmes can help increase awareness of a particular health issue; influence attitudes and beliefs to create, support and build alliances for individual and community action ; facilitate the acquisition of specific skills to solve specific problems and sustain these skills and knowledge to maintain newly adopted behaviours. (MHCW, 1989)

With increased incidences of disease, health education practitioners, international health agencies and governments have begun to look for workable frameworks in which the practice of health communication education would have appreciable effects on the health of individuals and the community.

Using development principles and methods, the practice has begun to shift its emphasis from knowledge and attitudes to actual 'behaviour change'. (Yankah, 1992)

The 1978 UN Conference at Alma-Ata in Russia pointed that to realize health for all, knowledge about protecting the health of the whole society 'must be put at the disposal of the majority through all possible channels.'

Through a multiplicity of communication channels, health communication has made successful in-roads in some developing countries. Notable examples include the Honduras and Gambia Communications and Marketing for Child Survival Project (Rasmuson, 1992) and the Zaire Mass Media Entertainment for HIV/AIDS Communication Project. (Convisser, 1992)

The reproductive health sector has long realised the value of IEC and given it attention in policy formulation and programme implementation. Infact, in its current global strategy, UNFPA highlights IEC activities for programmes in the Africa region. (UNFPA, 1989)

Reproductive health has been defined as 'the health and well being of men and women in terms of sexuality, pregnancy, birth and their related conditions, diseases and illness.'⁹ (Adamchak, 2000)

Many programs reaching the general population are trying to achieve reproductive health goals that relate to critical sexual and reproductive health outcomes such as fertility, abortion, HIV/AIDS, family planning etc. (Vinayaka,1999)

The HIV/AIDS scourge, a particular reference to the subject of this study, has become a scourge in the global scientific and physical reality, its potential as a 'time bomb', capable of wiping out the human race, or a large proportion of it, has been widely recognised and feared. However, more unsettling is the fact that, no known cure has yet been found for it .

The public health, socio-psychological, economic and political implications of HIV/AIDS are widely recognised, providing a justification for the massive research investments and campaigns all geared at preventive and curative measures designed to check its devastating effects. (Soola, 1991)

Responding to the needs challenges of an Aids infected society calls for a wide ranging new perspectives on research, a greater commitment to multidisciplinary and collaborative research within and between institutions, a wider sharing of knowledge and insights, the establishment of databases and information sharing networks. (Kelly,2001).

Many parts of the HIV/AIDS and other reproductive health issues have not been explored. There are new developments sorrounding reproductive health issues everyday, whether in

research, prevention and care programs, epidemiological trends etc. that require concerted efforts from all affected and infected. (Beamish,2001).

Close collaboration between professionals working on those reproductive health issues in different settings (research centre, hospitals, home care facilities and other health care providers such as community workers health communicators,health documentalists, NGOs among others need to be structured. (Kelly, 2001)

2.2 'Old' and 'New' technologies in health communication

As Meyer (1987) notes, a multiple-channel system approach is to be stressed because only multiple but mutually reinforcing channels can effectively perform the task of mass outreach and influence required for appropriate knowledge and targetted behaviour change.

Meyer particularly notes that public health communication especially on reproductive health and HIV/AIDS issues must exploit the resource of mass communication, instructional design, health education and social marketing. This is supported by the view that 'communication and education programs requires the active collaboration of communication experts using modern and traditional media, as well as instructional communication designs and operation'. (Soola, 1991)

In the context of communication campaigns 'old' technologies comprise : TV, radio, telephone and print documentation while the 'new' technologies are synonymous with internet technologies (E-mail, teleconferencing, internetworking, usenet/Bulletin Boards¹⁰, File transfer protocol (FTP), Remote logins (Telnet) and the World Wide Web (WWW). (Junker, 2002)

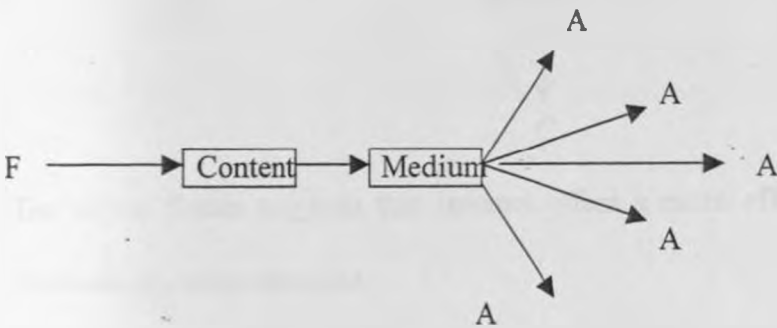
⁹ *Reproductive health especially with regard to HIV/AIDS has occupied centre stage due to the threat posed by this scourge to humanity. Aids is t currently the single-most monster threatening to decimate man from the face of the earth.*

Whatever the linkage mode between specialists and lay persons a ‘brokerage’ system needs to be put in place to ensure ‘equivalent enlightenment’ is achieved between knowledge generations and knowledge consumers. The use of media of mass communication is almost inevitable in achieving such ‘popularization’ of the health messages. (Ibid : 2002)

Anecdotal evidence suggests that internet-based communication efforts are more efficient and possibly even more effective than efforts in traditional channels. (Hoffman, et al. ; 1995)

The traditional one-to-many communication model in any communication encounter is depicted by Hoffman as shown by Figure 2.1 below :

Fig. 2.1 : The traditional one-to-many communication model (Hoffman, et al. ; 1995)



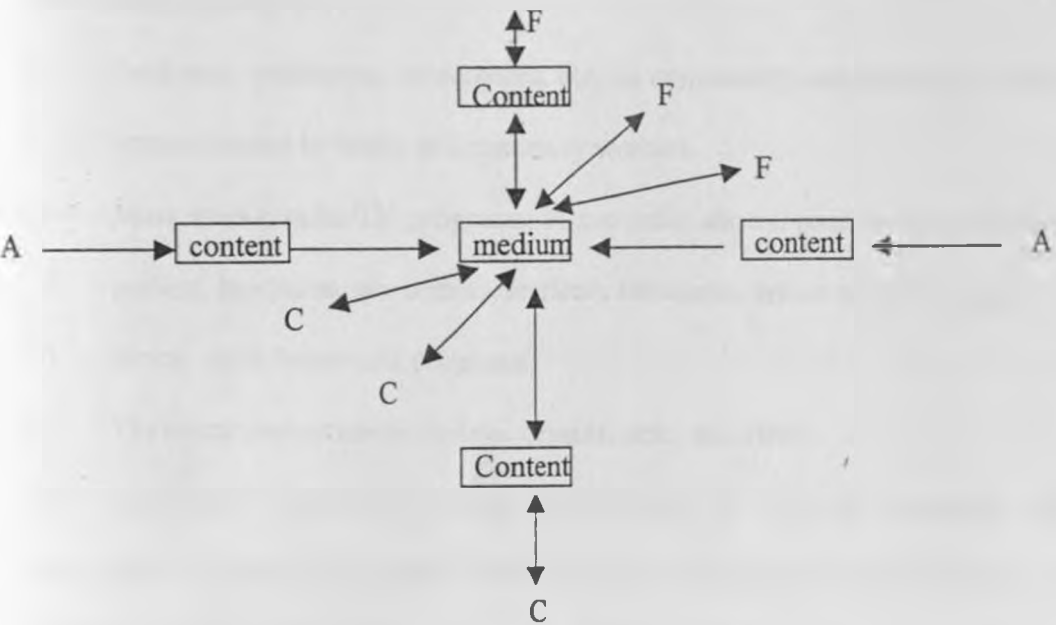
In this passive model, firms/organisations (F) provide Content, through a channel (Medium) to a mass audience, A. The persuasive function necessary for differentiating a message is limited by the unidirectionality of traditional media.

Hoffman asserts that internet is a revolution in distributed computing and interactive multimedia many-to-many communication, that is dramatically altering this traditional view of communication. He presents a new model of internet which offers a radical departure from traditional communication.

¹⁰ Usenet/bulletin boards or net chats enable participants to subscribe to and engage (hook on) in online interactive live discussions (from distant sites all over the world) on topical issues.

This is shown in Figure 2.2 below :

Fig. 2.2 : The modern media of many-to-many communication (Hoffman, et al. ; 1995)



The above figure suggests that internet offers a more efficient alternative to traditional channels of communication.

For public health information and communication programs, particularly intervention programs, an account of both modern and traditional (indigenous) forms of communication should be considered. (Megwa, 1994 :95)

A participatory communication approach/model of development is in tune with the current thinking in IEC where audiences are no longer perceived as amorphous and ready to be injected with any kind of messages ('hypodermic needle' effects). Rather, audiences should be accorded a media, in their various segmentations, their opinions sought, planned with and allowed to be participants in all facets of a campaign if they are to be useful beneficiaries. (Servaes and Malikhao, 1994 :18)

There is an increasing use of modern approaches primarily aimed at satisfying the interest of what is known as the 'source' and 'destination' in the linear model of communication. (Yankah,1992).

The activities and other intervention efforts or components of the 'traditional' efforts in health campaigns include :

- i) Seminars, workshops, conferences, etc. on community mobilisation or health related topics directed to health or community workers
- ii) Mass media: radio/TV programs, Films/video shows, print documentation (such as posters, brochures, newsletters, leaflets), billboards, transit advertising, etc.
- iii) Home visits (home care programs)
- iv) Theatrical performances – plays, dramas, skits, etc. (Ibid)

New technologies represent a strong informational or learning component and those researchers who report null media effects are biased with 'sterile research designs and poor definition of key variables'. (Donohue, et al, 1972) According to Donohue et al, people learn and obtain information from the media and that should seem as rewarding media effect by itself.

Robey (1995) confirms that HIV/AIDS is an issue that requires urgent (immediate) attention. He asserts that the dissemination of new study findings such as the incidences and patterns of infection, the launch of new programs of interventions, new documentation on the scourge, ratification of new convention/plans of action, policies etc. require interactive media such as internet technologies that will reach the whole population.

Internet technology's role in public awareness, discussion and debate in health issues is significant as explained hereunder by Beamish, (2001):

- i) It can generate public and policy discussion of health issues, which further encourages and leads to action by political, community and other leaders.
- ii) The media influences public opinion and attitudes towards HIV/AIDS, including attitudes towards infected people. When the media focuses on a particular issue, there is a higher degree of public awareness and support to tackle such an issue.

- iii) The media can also point to healthy behaviours through social learning or incidental learning, the dissemination of methods of prevention of HIV/AIDS, protection of those who are most vulnerable (through electronic advocacy campaigns), etc.

One goal of media advocacy in HIV/AIDS communication is to empower people to increase their participation in defining the social and political environment in which decisions affecting the disease are made. (Elisabeth, et al, 1998)

Elisabeth asserts that the understanding of the AIDS virus is growing but many behavioural aspects of the epidemic remain incompletely documented and poorly understood leading to a gap in knowledge on the impacts of prevention campaigns thanks to un co-ordinated and often incomplete data and no reliable and modern channels of communication.

Schramm felt that electronic media such as the internet could carry mass mobilisation messages that could bridge such knowledge gaps. He particularly cites the internet as a modern mass media that could expeditiously 'diffuse' modern scientific ways of capturing, repackaging and disseminating knowledge to vast numbers of the population.

2.3 Incidences of internet adoption in reproductive health/AIDS campaigns

There is lack of good evidence on the scope and scale with which government and Non-Governmental Organisations in Kenya and elsewhere use internet technologies in responding to the challenges of HIV/AIDS and other reproductive health issues.

However, before examining such evidence as is available, the potential of the internet technologies to respond creatively to imperatives originating with HIV/AIDS can be gauged from what is being done or proposed on the wider scene (Africa and elsewhere).

According to a research by IDRC¹¹, there is scant literature and evidence on attempts to adopt internet technologies in the fight against HIV/AIDS especially in Africa. But there have been breakthroughs in some countries like South Africa, Zimbabwe and Uganda.

Internet technologies (Internet technologies) in Africa are a recent innovation but their growth is unprecedented in several sectors like business, tourism, education and health.

Africa became the first region in the world to define a vision for an information society. Such a society according to the first Africa development forum (ADF '99) in October 1999, would help the countries leapfrog stages of development providing new communication opportunities in education, health, agriculture and trade.

The Africa new ICT's initiative was further galvanised with the inclusion of a chapter on the digital divide on the NEPAD development agenda.

Studies on the adoption of internet technologies by country, sector, region and activity have been and continue to be done mostly by donor agencies to assess the impact of the technologies on sectoral development like in the area of health (IDRC, 2001).

A 2001 survey by the IDRC yielded impressive progress of internet adoption (in a variety of sectors including health) in Africa. The survey ranked the sub-saharan countries according to a range of data communications criteria related to development of the internet. The criteria were :

- i) Full internet connectivity or very soon to be connected.
- ii) Presence of international internet link greater than 9.6 Kbps.
- iii) Presence of low-cost Store-and-Forward E-mail services
- iv) Presence of a cellular telephone network
- v) Teledensity (the number of telephone lines per 100 persons)

¹¹ At the time of collecting data, the research learnt that IDRC has stopped investing in 'ICTs and health' projects due to diminishing funds and other logistics.

- vi) Local dialup access to internet in most of the country.
- vii) Presence of active cross-sectoral national internet working teams and ;
- viii) The number of ISPs and presence of an X.25 packet switched network.

By assigning one point to each of the criteria and ranking according to the total score in each country, a very rough guide to countries and regions in greatest need was developed.

The study, however, could not identify critical path problems or barriers that may change the ranking of a particular country or sector. Even the presence of these positive factors did not necessarily indicate a lack of need for development. Many countries are largely populated with people who have never made a phone call, let alone accessed the internet.

Further, some criteria like local Point Of Presence (POP's) or bandwidth greater than 9.6 Kbps are dependent on the presence of others (which assumes the presence of an ISP in the first place and this results in accentuating the differences).

The other factor not accounted for is the presence of appropriate change factors with which to form effective partnerships.

The survey indicated that thirty (30) of the 49 countries (61%) scored less than the available points, with South Africa, Kenya, Mauritius, Senegal leading in that order.

Other studies like the African Internet Forum country studies (AIF), The World bank initiated multi-donor programme, Infodev, USAID-SADC initiatives for Central and Southern Africa and ITU reports on its internet consultancy reports have been done to determine the level of knowledge of the effectiveness of Internet in multi-sectoral strategies. East and Southern Africa countries came in for the most attention.

Similar studies have been done on infrastructure building initiatives (projects) in Africa to gauge the level of activity contributing to internet development.

Examples of initiatives studied were: Existing ISP starts ups, either already operating or in the process of establishing; ITU'S advisory role in planning Internet services, UNESCO'S RINAF project to universities and colleges, The World Bank's national capacity building initiatives and the ODA (UK'S overseas development programme).

It was found that over 50% of the countries had 4 or more of such initiatives taking place (including Kenya).

User building projects expressed future and continuing plans to assist NGOs and governments to develop Internet connectivity to accelerate their operations.

To provide an estimate of the type of activities taking place and the sectors of society they are aimed at, projects were categorised into a half-dozen major areas under "activity type" (see Box 2.1 below) and sectors of focus(see Box 2.2 below) and tabulated accordingly.

Box 2.1: Internet Activities in Africa by donor agencies (IDRC survey, 2001)

<u>PROJECT TYPE</u>	<u>NUMBER</u>
Donor/development agency collaboration	2
Local Internet service startup	17
Telecommunications reform and policy development	2
Developing use of ICTs for education health	8
Development of local information resources	10
Information sharing and research on ICTs	14
Internet connections assistance for NGOs	27
National and regional electronic network development	19

Internet connection assistance for NGOs took top position in the activity ranks (28% of the projects) followed closely by assistance of national electronic network development (19%).

Box 2.2 : Internet projects by sectors. (IDRC survey, 2001)

<u>PROJECTS BY SECTOR</u>	<u>NUMBER</u>
Rural	2
Religions	1
Media	4
Infrastructure	29
ICT's	15
Health	14
Government	11
Environment/Development	19
Commerce/trade	3
Agriculture	6
Academic/research & education	18

It is clear that general internet infrastructure was responsible for the largest number of projects.

Kenya became a hub of internet connectivity from 1990s, when the Environment Liason Centre International (ELCI) established NGONET¹² (an electronic network targetting

¹² *Internetworking among NGOs is gaining wide acceptance in sharing knowledge and experiences. This is especially a welcome move by many HIV/AIDS organisations who need to obtain up-to-date information in their campaigns.*

NGOs) and began to offer E-mail services to NGO's in East Africa, thus making Nairobi the first city in sub-saharan Africa outside of south Africa to go online.

The year 1991 saw the establishment of SatelLife by World Bank which launched Healthsat (a Satellite communication facility on health issues). Other satellite projects were later established in Zimbabwe, Tanzania, Zambia and Mozambique.

This was to test the capability of E-mail transmission using computers, special modems and aeriels to connect to the University of Surrey Low Earth Orbit Satellite. (Sadowsky, 2001)

Nairobi has developed the most dense concentration of dial up service provides (about 40 currently) on the continent outside of south africa. Nairobi is also the focal point for the East African Internet Association, the first African regional grouping of infrastructure operators which is planning to develop a shared Internet hub facility for its members in Kenya, Uganda and Tanzania, a model that could be readily replicated elsewhere in Africa.

The economic union of Kenya, Tanzania and Uganda has resulted in telecommunication links between these countries not being tariffed at international rates. This could encourage the development of sub-regional internet links between ISPs in these countries (Ibid).

In a recent development, one of the local ISPs, Form-net, has offered free internet accounts for all government departments in return for access to government information to publish online. (Mike Jesen, 2000)

As a result of the rapid internet connections in Kenya, there have been initiatives such as *AfriAfya* established in 2000 which endorsed the formation of the Africa Network for Health Knowledge Management and Communication to emphasize dialogue with communities and involve them in decision-making regarding the content, context and packaging of health messages to be delivered. HIV was being used as the pathfinder topic at the Network's inception.

The famous IDRC Telemedicine project in Uganda is an example of the growing co-operation between medical and health workers to access and share health information on various issues including HIV/AIDS using the internet in the rural and urban areas.

2.4 Other examples of HIV/AIDS internetworking among organisations

A number of examples demonstrate that internet technologies can facilitate the work of individuals and organisations involved in reproductive health/HIV/AIDS campaigns.

The ICT against HIV/AIDS Coalition : This is an initiative of the G-8 Genoa Summit in July 2001. This was a coalition convened by UNDP, with the G-8 Dot Force¹³ and the UN's ICT Task Force. The aim was to build on the recommendations of G-8 Dot Force, UN's ICT task force and work with the WHO initiative, Health Internetwork. The coalition is a catalyst for expanding the application of internet technologies in HIV/AIDS interventions. It also serves as a global forum for knowledge sharing, advocacy, provision of advice and facilitates the formation of public-private initiatives.

PATH (Program for Appropriate Technology for Health) – Kenya : Its aims are to initiate electronic communication among peer educators on the issues of Aids and other reproductive health concerns.

The Regional Aids Training Network based at the University of Nairobi is a collaborative venture between the university and university of Manitoba. It offers HIV/AIDS training

¹³ *The Group of 8 Digital Opportunities Task force comprises 8 UN member countries whose initiative is to work on the WHO HealthInternetwork initiatives by championing ICTs in global forums and encouraging their application.*

online through internet (teleconferencing and CD-ROMS¹⁴) to members from East and southern Africa where all are connected electronically.

Af-AIDS- these are internet forums that outline a discussion reflecting how the greater involvement of people living with HIV/AIDS can enhance response to the scourge. Such fora enable people to speak openly and share experiences and ideas thereby breaking down barriers of fear and prejudice on those affected. (see Appendix 1 for other selected net chat forums)

Global Aids Alliance is a lobby alliance for increased attention to the scourge in terms of funding, ICTs, among governments and NGOs and the private sector.

Health Development Network, HDN has country-based contributors all over Africa who use the internet to communicate any new developments from those countries, share views and ideas from those affected and infected.

There are also other projects that use internet technologies to address the problem of HIV/AIDS. Such include : **World Links**, an initiative of World Bank and World Links Organisation, a non-profit NGO ; **Center for Disease Control and Prevention (CDC)** which has operations in several countries in the developing world ; the **IDRC telemedicine**¹⁵ projects in Uganda, Zimbabwe and South Africa.

¹⁴ CD ROMs have been used to download internet material on AIDS and distributed to sites without internet connection.

¹⁵ The Telemedicine initiative offers video conferencing and E-mail services to the rural centres through strategically established telecentres coordinated by health personnel such as community health workers.

2.5 Factors of internet technology adoption in health campaigns

Researchers have identified a variety of factors that affect technology adoption in any type organisations. (Julien and Raymond,1994 ; Brooksbank, et al, 1992 ; Kirkby and Turner, 1993 ; Iacovou, et al 1995 ; Thong and Yap 1995 ; Harrison et al 1997 ; Fichman and Kemerer,1993).

Many writers use differing models in determining factors of the technology's adoption.

Many of the earlier adoption models looked at behavioral characteristics like perception and attitude and often integrate innovation literature with other constructs to develop a new model.

It is obvious that internet as an innovation may be of key importance but it must be perceived to be desirable, an improvement over the present state of technology, and worth of time or efforts (including social, opportunity and financial costs) required for its adoption.

Rogers (1995) supports this fact by outlining the characteristics of good innovations thus :

- a) The new technologies (innovations) purported to replace the old ones should be perceived as better than those to be superseded ;
- b) Compatible (consistent with the needs of the potential adopters) ;
- c) Easy to use and comprehend (within the available skills and expertise) ;
- d) Triable (implementable) and;
- e) With clear benefits observed.

The good quality and benefits by itself, however, is only a necessary condition, but not a sufficient condition for the successful adoption of such innovation. Equally important as the innovation itself is an effective extension and communication programme to disseminate and share relevant information regarding the innovation to target beneficiaries and to demonstrate the benefits of adopting innovations or applying its recommendations.

Non-adoption may not have any bearing on quality or worthiness but can be due to poor communication and non-technological factors such as social, psychological and economic constraints. (Adhikarya, 1996)

The diffusion and adoption of ICTs implies a critical adaptation such as the ability to deal with computers. It also calls for special skills and a rich supply of financial resources to ensure good quality connections and affordable telecommunication costs which are problems developing countries have to contend with. (Karembu, 1996)

The Technology Acceptance Model (TAM) put forward by Davis (1986) addresses IT adoption, implementation and diffusion in terms of its perceived ease of use and perceived usefulness.

Gefen and Straub (1997) suggest that belief about the new technology, its perceived use and perceived ease of use directly affects attitudes towards use. However a limitation of the TAM is that the model excludes the influence and personal control factors on behaviour.

In addition economic factors or outside influences (suppliers, customers, competitors, etc) are not specifically addressed in this model.

A model proposed by Kirby and Turner (1993) identifies adoption factors as the computer literacy of the owners in such organisations, the lack of knowledge of benefits derived from using such technologies and dependency of the organisations on those who supply the new technology (of course including any strings attached!). However, constructs measuring technology adoption and acceptance are limited.

Julien and Raymond (1994) use similar constructs and identify three other factors thought to influence new technology adoption in organisations :

- i) Structural sophistication of the organisation in terms of centralisation (the manner in which decisions, procedures, rules, etc. are made from a common focal point of

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authority) and complexity (the level of skills, expertise, extensive networks of operation etc. that the organisation is involved in.

- ii) The level of assertiveness, rationality and interaction in business decision processes.
- iii) Size, sector and status of the firm (independent or affiliated to another for example a donor, collaborating partnerships, etc.)

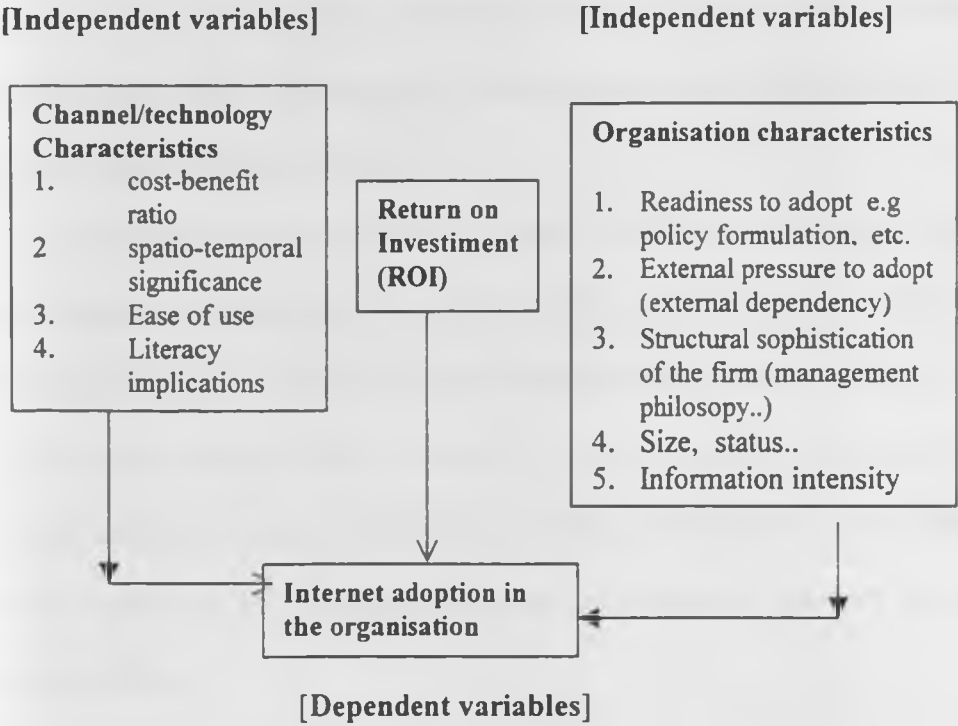
Again this model is limited with many factors not included in the research design for example perception, attitude and economic factors.

The factors identified in the studies outlined above can be separated into two main categories :

- i. Channel /technology characteristics and the ;
- ii. organisations characteristics of adoption with the addition of Return On Investment (ROI) as a hypothetical influencing factor.

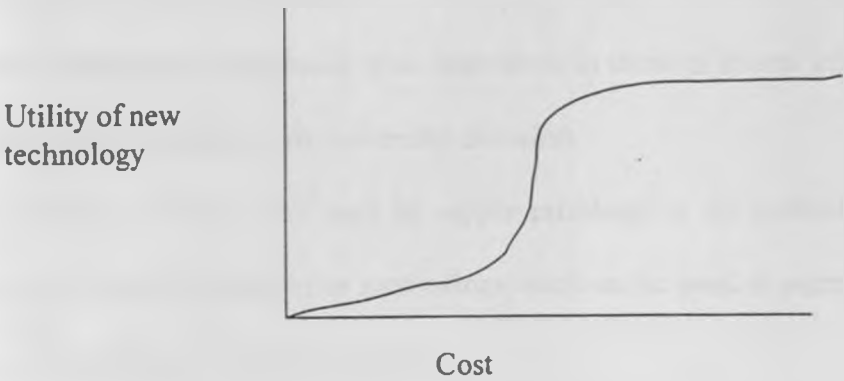
Figure 2.3 below summarises the above scenario :

Fig. 2.3 : Factors of technology adoption (Julien and Raymond,1994)



On the cost-utility ratio, the Market penetration models aim at predicting the diffusion patterns of new technology in the market and are usually expressed by an S-shaped logistic curve as shown by Figure 2.4 below. (Fischer and Pry, 1971)

Figure 2.4 : Cost-utility of technology shown by the S-shaped curve (Fischer and Pry, 1971)



Such a curve assumes that if the cost and utility comparisons do not reach some minimum level, the technology will not be adopted. (Stern, et al ; 1975) The curve reflects that when costs are favourable, more innovators will adopt the technology.

One contribution of the penetration model to understanding of the diffusion process is in explaining the influence of competing innovations in terms of cost and utility comparison and also in offering a system of assessing and predicting the impact of interventions such as incentives on the adoption of innovations.

This view is supported by the ‘Substitution’ model which argues that the ‘path’ of substitution (innovation adoption as a function of time) tends to take the form of an elongated S-shaped curve, the slope of the curve before the first inflection point is rather flat. This reflects that during the first few years of a new technology adoption one must overcome such factors as ignorance, resistance to change, performance ‘bugs’, financial constraints for installation and maintenance as well as learning to use new processing equipment and methods.

A major contribution of the substitution model is the understanding of diffusion rate being a function of the level of the technology development, the role of supporting institutions such as donors, government, etc and the organisations' level of knowledge or information about the usefulness of such innovations. (Mbindyo, J ; 1981)

One drawback of the Market penetration model is its assumption that competitiveness produces market acceptance. Excellence of an innovation in terms of its cost effectiveness in an ideal setting does not guarantee its successful diffusion.

Many other factors come into play such as supply problems in the technology delivery system and non-economic incentives or motivations, such as the need to partner with other adopters for easy exchange of ideas and views.

The components of internet rollout and use in health organisations include organisational needs, technology, people/skills, capital resources (costs of training, etc.) and management of the technology adoption and diffusion process. (Bayaarma, 1997)

It is evident that the emergence of internet technologies heralds a new era in communications of all kinds. Communication scholar, Tehranian (1990) argues that new technologies, like the old should be viewed neither as technologies of freedom nor of tyranny, but basically as technologies of power that lock into existing or emerging technostructures of power. (Mcquail, 1987)

But the new technologies that do not address immediate human needs are not quite useful to human society no matter how effective. In Africa, the central question revolves around priorities. Can we ignore the basic needs and hop onto the bandwagon of internet technologies? (Jegade, 1995)

Despite the flurry of internet activity within and around health communication, successful adoption is yet to be realised. Many organisations rely on private networks, for example,

leased lines due to high connection costs. But one underlying reason is a lack of demonstrated value in the internet technology to solve health problems.

(Mittmer and Cain, 1999)

Other reasons include the uncertainties about the technical capabilities needed to support such health applications. Such concerns as security and safety of patient data when it is in the public domain also cause fears about this new technology. (Siwicki, 1999)

In view of the enormity of the HIV/AIDS pandemic and the urgent need to make the best use of all resources and tools available, it is but natural that internet technologies are seen as one major, potential tool among others, in the global mobilisation and response to the scourge. (Driscoll, 2001)

Driscoll further argues that reducing the impact of HIV/AIDS can be assisted by the generation of knowledge and its wide dissemination.

It must be said at the outset that ICTs cannot provide the same kind of direct benefits in HIV/AIDS interventions such as drugs or care, to those currently afflicted nor can they meet some of the most pressing needs of the surviving members of families who may be without food or shelter. Thus to many people who are working in poor countries, in poor neighbourhoods and communities and having few resources, any discussion of ICTs in relation to HIV/AIDS can appear to be ethically challenged.

But IDRC suggests focussed applications of such technologies and appropriate policies that empower intermediary groups such as community based organisations, healthcare providers and those working with the poor and vulnerable groups.

Driscoll supports this view by saying that 'ICTs cannot miraculously solve the HIV/AIDS pandemic but they are useful tools that can be employed to support discreet activities being carried out by organisations at various levels and with different functions.'

A member of Kenyans Abroad (UK) once remarked :

'I hate to see groups of HIV positive persons participating in western funded research where HIV medicines are not offered...Home based care programs without drugs, powerfully mounted campaigns yet nothing to heal the wounds of the monster.' (*Kenyans Abroad Discussion Forum, October 2001*)

In view of the magnitude of suffering and shortage of resources for care and treatment for even the most basic drugs for syndromic treatment, the discussion of resources for technology is contested.

But *Medicins Sans Frontieres (MSF)*¹⁶ points out the importance of taking note of the links between treatment and prevention : 'treatment and prevention efforts are both necessary and complementary strategies for combating the HIV/AIDS epidemic...'

The World Health Organisation argues that all health campaign efforts need multi-sectoral strategies and communicative partners between players in the health industry and new technologies such as internet provide such a link to provide health information and publicly expose activities that lead to risk. (WHO, 2001).

WHO projects that by 2005, health communicators should have installed information and communication systems and dissemination of knowledge to support health for all.

Extrapolating the statement of Marshall McLuhan (1967) 'the medium is the message', to 'the medium is the information', computers and internet are seen as a means of acquiring knowledge as well as the knowledge themselves. Simply surfing the internet or exchanging e-mail is teaching the user new skills but watching the TV does not add any new skill to the individual. (Louvrich and Pierce, 1984)

¹⁶ *Medicins Sans Frontieres assert that people may have little incentive to get tested for HIV without the possibility of treatment, though once they know their status they can modify their behaviour. (Driscoll, '01)*

A study by the RAND corporation (Anderson, et al, 1995) reports findings of computer and internet access use by income, education, race/ethnicity, age, sex and location of residence. The two most significant factors were education and income.

Odyssey, a San Francisco-based technology research firm found, not surprisingly, that higher income homes are more likely to own a computer.

Electronic networking (internetworking) will not only enable African access global data on HIV/AIDS and other health issues but will also help the entire world to access related information on Africa in Africa. (Djamen, et al ; 1995)

Technological gaps have been seen to lead to considerably increased gap between western and developing countries. (Bazar, Bayaarma, 1997)

Japanese authors Esaki and Kaneko (1993) echo a view supporting internet technologies in health campaigns as internet would make multimedia interaction easy. But not everyone is enthusiastic. Some have counselled caution over expectations from the new technology.

Kryish (1994) equates the current 'revolutionary' predictions with the cable TV in the US two and half decades ago. Advocates predicted the technology would radically transform work, play, commerce etc.- it would provide answers to all problems !. It however, did not develop as expected. Kryish cautions against heavy arguments that seek to promote internet technologies as autonomous, revolutionary and utopian.

Knowledge about care and treatment, education and prevention efforts are prime areas for the effective use of such technologies.

These are being used in disseminating information through websites and internet chat to ensure that evidence from research on the most effective approaches to each of these areas is available to those who need it.

If internet is to be used in an equitable way in addressing the AIDS pandemic, the integration of the information needs of those workers on the front lines and in communities must be a priority. (Driscoll, 2001)

According to a UNAIDS report, the role of internet technologies is to ensure that UNAIDS and cosponsor field staff have access to high quality and up-to-date technical advice and support by :

- i) Developing regional technical resource networks
- ii) Identifying and promoting best practices at the regional level.
- iii) Information networking and ;
- iv) Developing partnerships with regional entities or cosponsors.

Internet technologies could be used to improve family planning, reproductive health and HIV/AIDS issues through diffusion lists, developing specialized websites for diffusing and promoting informational resources, setting up internet access points and CD-ROM consultation points in clinics, health service systems, public access facilities, etc. and reducing the costs of telecommunications services.

A paper by IDRC (1996) reviewed the adoption of Internet technologies in the health sector of Africa and found that while internet access was generally poor in Africa, there were examples of health projects that had successfully integrated the technologies. One of these was HealthNet, a project of satelLife which, in addition to E-mail, provided access to electronic medical publications, medical databases and teleconferences. (IDRC, 1996)

Barriers to full adoption of internet technologies among many countries were identified as loss of electricity, poor telephone connections, lack of human resources, no technical backup and legislation i.e strict regulation over the development of electronic communications.

But motivation as a factor in the knowledge gap has been quoted as contributing to low adoption of internet technologies. 'Lack of motivation, that is, people finding no salience in the channel used makes people demotivated to use the technology'.

(Louvrich and Pierce, 1984)

Mclellan cites the UNDP's Human Development Report (2001) and its submissions that new technologies can have a positive impact on reproductive health and HIV/AIDS communication campaigns. He suggests that such internet technologies can overcome disparities by 'linking health and medical professionals to the information they need to solve local problems through information exchange and telemedicine consultation with remote experts'. (Mclellan, 2001)

While the idea of internet in developing countries is considered controversial, Kate Raworth submits that the innovations provide excellence in developing countries and it is expected that a critical mass of successful innovations will emerge over the next couple of years.

2.6 The role of a policy in internet adoption in organisations

Many organisations increasingly recognise the place and rationale of implementing policies to deploy computers and internet access for their communication efforts. Such policies often state as their goal the desire to prevent a society of 'information haves' and 'information have-nots' but rarely include a thorough investigation into the theoretical underpinnings of what drives technology use. Policy makers seem to believe that if they build it, the poor will come. (Ibid)

Compaine (1988) has suggested that there is no need to set policies to encourage deployment of new technologies to close up the knowledge gap. He does not believe these findings confirm the existence of information haves and have-nots.

Instead he believes those findings are a manifestation of the diffusion of innovations theory which he explained thus :

"Innovations do indeed start with a vanguard of adopters who tend to be better off economically than the population at large but the market created by this vanguard often starts a process that leads to greater interest, higher volume, thus lower cost reduced skill levels needed, and ultimately mass utilization". (P.184)

Compaine counters claims of information gap by saying that new technologies such as the internet simply take longer to 'diffuse' to those of lower Socio-Economic Status (SES). He uses a number of examples to illustrate his point such as telephone, electricity, automobiles, radio and T.V.

These technologies, he asserts, had no public policies to promote their diffusion as some would have the government and other NGOS do in the case of computers and the internet, yet they still gained popularity and became staples of American life.

Compaine (1988), obviously, does not believe in proper information technology policies to narrow such rich-poor gaps. Unfortunately, while his argument may be interesting, his comparison of the computer to previous (traditional) or 'old' technologies can be challenged in a number of ways. The computer offers far more possibilities to its users than the 'old' technologies he mentions.

One does not learn new skills by switching on the light, turning on the television or radio or video or owning a car. The computing technologies are inherently interactive and as such require the users to participate. The technology is itself information and transfer of technology is basically the transfer of knowledge or information. (Bowie, 1990 :136-7)

CHAPTER THREE

3.0 RESEARCH DESIGN/METHODOLOGY

3.1 Scope of the study

The survey was carried out on Non-Governmental Organisations (NGOs) that dealt with reproductive health and HIV/AIDS Information Education Communication (IEC) activities, that is, advocacy, research, information and documentation services, training, seminars/conferences, IEC material development, media liaison, legal assistance, etc)

Four (4) organisation innovativeness characteristics were investigated as basis for finding important predictors for organisational internet technologies adoption behaviour.

These included :

- i. **System openness** – the degree to which an organisation interacts and links up with external players in similar HIV/AIDS campaign efforts (collaborative efforts, sharing of ideas, experiences, etc). These would be checked alongside its size (networks, branches and intellectual composition - professionalisation). It is acknowledged that partnerships between organisations provide the multi-faceted approach required to address the digital divide (and by extension, the knowledge gap, in a society).
- ii. **Formalisation** – the way in which internet technologies were held within the organisation's plans and policies. Were there any policy guidelines on ICTs ? This could also be looked at in terms of the leadership openness to new ideas and technologies (dynamic leadership).
- iii. **Organisational slack** – the degree to which uncommitted resources were available to an organisation especially for costly innovations like the internet.
- iv. **Status seeking** – Did organisations go into internet connectivity simply because of the need to join the bandwagon ? To gain status ? what were the reasons ?

- v. **Cost–benefit** – were there any perceived (real or imagined) benefits attached to adopting internet technologies in such campaigns ? Did respondents give a high premium to internet technologies despite the more urgent needs of providing health care, drugs, etc by supporting its implementation ?

On the basis of the above factors and suggestions arising therewith, it was hoped that the findings would go a long way in structuring the right framework for understanding the value of internet technologies in such campaigns and designing appropriate policy strategies for the implementation of the ICTs by policy makers and those involved in campaign planning.

3.2 Population and sampling procedures

The sampling frame for this research was the current (2002) Directory of the Kenya Aids NGOs Consortium (KANCO) listing all the NGOs in Kenya (in categories of National, International and Local NGOs) dealing with HIV/AIDS and other reproductive health activities such as Family planning, abortion, etc. The sampling unit was, therefore, the individual organisation.

The organisation was treated as a single unit of analysis but reduced to the equivalent of an individual (Key Informant) who responded to questions on behalf of the organisation.

Everett Rogers (1995) argued that organisational innovativeness is similar to individual innovativeness in many respects but structural characteristics, policies, etc.

The directory further listed the NGOs in terms of their specific activities such as Home Care, Information Education Communication (IEC), research, etc. The main focus of the study was on those NGOs dealing with Information Education Communication activities.

It was noted that the directory lists all organisations dealing with an aspect of HIV/AIDS prevention though this may not be the main pre-occupation. A purposive decision was thus

made to deal with only those organisations dealing with HIV/AIDS as a component of other reproductive health pre-occupation. (KANCO, 1998)

From the total population of 300 NGOs (in the IEC category) a selection of only those who are based in Nairobi was done. This was purposeful due to time factor and proximity in case interviews were to be conducted as the case turned out to be.

The sample size in a descriptive research (as this one) should be 10% of the accessible population (Gay:1981). Therefore, the sample size was 30 NGOs.

A random sample of 10 NGOs from each category of National, Local and International organisations was selected to form the basis of the research and to determine whether there were any attitudinal or perceptual differences among the organisational categories.

3.3 Why NGOs?

Instead of passively leaving prevention campaigns to the medical professionals or public health authorities, groups of NGOs, CBOs etc have been at the forefront of the campaigns since the world became aware of the AIDS epidemic and other health concerns two decades ago. They have built hope where there was none complementing the efforts of the medical fraternity.(Vinayaka:1999) A study of their efforts is therefore worth investing in.

3.4 Data collection

3.4.1 Instrument (s)

Data addressing the research questions was sourced from both primary (questionnaires) and secondary sources. (books, journals, internet, CD-ROM search, etc)

Data on each of the selected organisations was gathered through survey questionnaires which were mailed (through E-Mail, where available) and hand-delivered to key contact persons (Key Informants) as indicated as the contact persons in the directory listings. These

were believed to be individuals who were at structurally similar positions within each responding organisation. These would respond to a fixed/structured questionnaire whose questions were formulated to capture themes expressed by the objectives of the study. Questionnaires were used because they could enable the respondents to respond at their convenience, think through the answers and therefore give concrete responses. It would also be a bit time-consuming if the researcher were to interview each respondent given the short duration of the investigation.

3.4.2 Pre-testing/validation of instrument (s)

To ascertain the validity and accuracy of the questionnaires to capture the necessary data, a preliminary sample of organisations (4 from each category for a total of 12) was E-mailed an abridged version of the questionnaire for a pre-test. The accuracy of responses would then be checked later after receiving the feedback to enable a better draft for the final questionnaire to be distributed to the actual subjects. A total of 7 organisations responded.

3.4.3 Variables of the study

3.4.3.1 Dependent variables

The dependent variable was the adoption of internet technologies measured as a discreet variable where organisations who have a policy in place or planning to have one and are actively using the technology were considered adopters. Adoption was also conceptualised as acceptance of the technologies both in attitude and actual practice – connecting the organisation to the internet.

3.4.3.2 Independent variables

These were the factors that would influence the decision to adopt or not the internet technologies in the campaigns. These were operationalised as organisational and medium/channel factors concomittant with the technology's adoption.

The conceptual framework later in the literature review illuminated on these variables.

3.5 Data analysis

Data analysis was done using both quantitative and qualitative approaches. This approach adds scope and breadth to a study and ensures that biases inherent in one approach are countered by the other. (Green, et al:1989)

The Statistical Package for Social Sciences (SPSS) Version 10 package was used to conduct the analysis through cross-tabulations that enabled chi-square tests of the hypotheses to be determined.

For closed-ended questions, data was coded by assigning numbers to available categories. The Questionnaire responses would then form the categories.

Data was tabulated to determine frequencies and percentages of responses. In addition, cross tabulations was done to identify any relationships between the chosen factors of study.

Data from open-ended questions was sorted into themes and repackaged into a code sheet. These themes were based on the perspectives held by the respondents as well as pre-assigned coding schemes. Major ideas that surfaced were noted. The researcher would then eventually identify relationships and offer plausible explanations and interpretations about the research responses.

CHAPTER FOUR

4.0 DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

This chapter presents the results of the study in relation to the objectives set out. Results are presented in the order of specific objectives summarised thus:

- a) Perceptions and attitudes to the Internet technologies in HIV/AIDS communication campaigns
- b) Factors incidental to adoption or non-adoption of the new technologies in such health campaigns.
- c) Value/benefit of the internet technologies in the communication interventions.
- d) An evaluation of the alternative sources of information for the campaigns.
- e) Policy recommendations on the adoption of such technologies in the HIV/AIDS campaigns.

4.2 DESCRIPTION OF FINDINGS BY STUDY OBJECTIVES

OBJECTIVE ONE: PERCEPTIONS AND ATTITUDES TOWARDS THE INTERNET TECHNOLOGIES IN CAMPAIGNS.

This sought to describe and compare the perceptions of respondents concerning the Internet technologies as used in HIV/AIDS and other reproductive health campaigns.

The findings illustrate that adoption by the organisation is dependent on the way they perceive the innovation in terms of several organisational and socio-personal factors.

As Van den Ban and Hawkins (1992) argues, innovations which are perceived highly are adopted quickly and with ease.

This would imply that adopters of Internet technologies had a high perception about the same than those who have not adopted. An important determinant of adoption behaviour by organisations was the way they perceived attributes of the innovation.

The technologies may have good inherent characteristics but these would only be real in so far as the potential adopters perceived them.

In this study, several major themes about Internet technologies as used in HIV/AIDS communication interventions were written down as perception statements and respondents (from the three categories of organisations) requested to express their opinion about the statements. Table 1 below outlines their opinions.

Perception on HIV/AIDS content / information from the internet medium

This sought to investigate the premium placed on research materials, ideas, current news, etc on HIV/AIDS downloaded or consulted from the internet sources across the various categories of respondents.

The main questions were: Does the content always meet the researchers needs in terms of quality, quantity? Can the materials be relied on wholly or is it meant to supplement other source of ideas, experiences?

The rationale behind this investigation was to test the oft held notion among scholars that sometimes internet content lacks in quality (is suspect in substance) and too shallow to be relied on for meaningful information or decision making – that it is a dumping site for junk information from all quarters.

From the open-ended responses, the content perceptions were put into the following categories:-

- i) High qualitative content
- ii) High quantitative content

- iii) A low quality source of information
- iv) Internet as a complementary source of other information from other traditional channels of communication.

Table 4.1 below shows the responses from the various categories (N = 30):

Perceived channel HIV/AIDS content

PERCEPTION OF INTERNET CONTENT	National NGO	Local NGO	Internat'l NGO	Total
Qualitative/valuable	10 (33%)	8 (27%)	10 (33%)	28 (90%)
Quantitative	6 (20%)	6 (20%)	6 (20%)	18 (60%)
Low quality content	-	1(3%)	-	1 (3%)
Supplementary content	3 (10%)	1(3%)	3 (10%)	7 (23%)
TOTAL	19 (63%)	16 (53%)	20 (66%)	-

TABLE 4.1: Organisational perception of internet HIV/AIDS content

Out of the 30 respondents, 10 (33%) from the national category, 8 (27%) from the local category and another 10 (33%) from the international category confirmed that the internet content consulted or down loaded for use in the campaigns was highly qualitative. This implied that such materials could be relied on while designing and implementing HIV/AIDS communication strategies.

The concept of qualitative content could mean a well researched and presented piece of information, from credible sources and easily comprehensible for use by the communication planners.

All categories of respondents also concurred that internet as a communication medium provided vast a mounts of HIV/AIDS information (highly quantitative content) from which to choose subjects or areas of interest for the campaign purposes. This would imply

adequacy of search results or a wide range of sources of desired information to rely on during the communication planning strategies.

Only one respondent from the local category perceived internet content as lacking in quality and quantity.

The internet medium as a source of information for the HIV/AIDS campaigns was also viewed to provide supplementary content to other existing channels of communication. This was reported by 10% of the respondents from each of national and international categories while only one respondent from the local category confirmed this perception.

Perception of channel (internet) attributes among respondents (as compared with other channels of communication)

This investigation sought to find out the way respondents from the various categories perceived the internet as a channel of communication in terms of:

- i. Its speed of search and retrieval of information for campaigns decision making ;
- ii. Its complexity (ease or level of difficulty in using it in terms of skill requirements) and;
- iii. The perceived level of costs of using the medium as compared to other channels of communication.

The responses are tabulated in Table 4.2 below (N=30):

(see next page)

Perceived channel speed of search and retrieval

CATEGORY OF ORGANIZATION	Very Good	Good	Moderate	Low
National NGOs	1(3%)	8 (27%)	1(3%)	-
Local NGOs	1(3%)	6 (20%)	3 (10%)	-
International NGOs	4 (13%)	6 (20%)	-	-
TOTAL	6 (20%)	20 (67%)	4 (13%)	-

Table 4.2: Perceptions about speed of the internet medium in searching and retrieval

From the table above, it was clear that more than 80% of the respondents believed that the channel was fast in its search and retrieval of desired information materials by users.

The international category of respondents contributed most to this response with all of them (10) evaluating it as generally good.

By implication, most of the organizations considered the internet medium as a fast and convenient way of searching information. Only 4 (13%) of the organizations thought internet was moderate in its speed of search and retrieval of information.

Ease/complexity of use of the internet medium in such campaigns

The complexity of use of the internet as a communication channel impacts on its perceived convenience by users. Complexity can also be interpreted as the need for adequate conceptual and technical skills in order for the users to benefit from the medium.

The question sought to find out whether users perceived internet as easy to use in their campaigns or difficult and to what degree.

Table 4.3 below illustrates the categorical responses (N = 30).

Ease of use of the internet medium				
Organization category	Very easy	Easy	Difficult	Very difficult
National	2(7%)	5(17%)	3(10%)	-
Local	-	7(24%)	3(10%)	-
International	2 (7%)	7(24%)	-	-
TOTAL	4 (14%)	19 (66%)	6 (21%)	-

Table 4.3: Perceptions about the ease of use/complexity of the internet medium

The table above shows that most of the respondents (66%) evaluated internet medium to be easy to use. Four (14%) of the respondents considered the channel to be very easy to use while six (21%) were of the opinion that internet was complex to use.

By implication, the six would need a grounding on internet navigation skills in order to appreciate its capabilities in facilitating their communication campaign activities. However, ease of use, many not necessarily mean that such organizations used the internet more than others.

Perceptions on the cost of internet use by respondents

Apart from the initial installation costs, usage costs can be quantified in terms of machine access time (depending on whether the organization uses a dial-up or leased-line connection), run-down costs (when the infrastructure was not properly functional) and even training costs.

For a small cash-strapped organization, the costs may be too prohibitive to warrant internet connectivity. To determine the perception about the costs of using internet for the

campaigns, respondents were requested to evaluate the costs in terms of very high, high, moderate or low.

The responses are tabulated in Table 4.4 below (N = 30).

Category of organisation	Perceived costs of internet use			
	Very high	High	Moderate	Low
National	3 (10%)	1 (3%)	5 (17%)	1 (3%)
Local	5 (17%)	2 (7%)	1 (3%)	1 (3%)
International	-	3 (10%)	3 (10%)	4 (14%)
Total	8(27%)	6 (20%)	9 (30%)	6 (20%)

Table 4.4: Perceptions about the usage costs of the internet medium

The findings showed that majority (30%) of the respondents considered the internet medium to be of moderate cost in usage. But it was also noticed that majority of the local organizations considered the medium to be prohibitive in usage costs.

This can be attributed to poor infrastructure and skills (as explained elsewhere in the report), considered to be the main hindrances to internet adoption in such organizations. Respondents from the international category did not perceive the costs to be very high possibly explained by assumed better financial standing and support than the other two categories of organizations.

Presence/absence of an ICT policy in organisations

An Information Communication Technology policy is the framework on which decisions to integrate new technologies in such health communication interventions would be based.

The findings indicated that only 4 (21%) of the organizations under study had an ICT policy in place. Of these, one was a national organisation while the other three (16%) belonged to the international category.

An ICT policy was virtually non-existent among the local organizations studied. This is by no means an indication of a low priority given to the integration of information technologies in health communication interventions. However, it can be partly explained by the low premium placed on investing in information communication technologies by many organizations (as seen elsewhere in their report), giving more urgent attention to the immediate needs of health care provisions – drugs, home care, advocacy, etc.

Lack of an ICT policy implies that, even among those who use internet technologies in the HIV/AIDS campaigns, such technologies are perceived just as any other working tool, that is, no so integral in the campaign efforts.

Perceptions about Internet as a valuable internet working tool

All respondents acknowledged that internet technologies were a vital networking tool among organizations in such HIV/AIDS campaign efforts. But the drawback was the financial capability and skills to install and maintain it.

Is internet a priority despite pressing health care needs?

Respondents were asked whether they perceived internet technologies to be worth, considering the most urgent needs of health care and provision of drugs. The rationale of this question was to investigate whether such technologies were given priority even in these hard economic times among most organizations.

From the responses, there was agreement among most of the international respondents (60%) and national respondents (54%) that internet was worth in such campaigns. But the local category registered only 8% who agreed with this point of view.

Such a view can be explained by the fact that most international organizations have a strong funding base and have utilized such technologies for a change time. They have come to appreciate the role of communication using the latest technologies.

The local and national categories are however, still reeling from severe financial straits occasioned by lack of funding. For such, the provision of the basic needs to those who are sick or affected may take first priority.

OBJECTIVE TWO: FACTORS AND LEVELS OF INTERNET ADOPTION AMONG ORGANISATIONS

This objective was aimed at identifying the factors that respondents considered incidental to making decisions on whether to take up the internet technologies in their campaigns or not. For those who had adopted, the researcher also sought to examine the level of technology the organisations had reached. Higher levels would indicate advancement in Internet applications thus more appreciation of the various complex ways through which internet can be employed in communication.

Table 4.5 below illustrates the responses (N = 30).

(See next page)

ORGANISATION CATEGORIES WHO HAVE ADOPTED INTERNET

INTERNET SERVICE/Level	National NGO	Local NGO	International NGO
BASIC LEVEL TECHNOLOGIES			
Browsing/surfing	7 (38%)	2 (11%)	8 (44%)
Email communication	7 (38%)	3 (17%)	8 (44%)
ADVANCED LEVEL TECHNOLOGIES			
Net chats/bulletin boards	2 (11%)	1 (6%)	5 (28%)
Teleconferencing	-	-	2 (11%)
File Transfer Protocol	1(6%)	1(6%)	3 (16%)

Table 4.5: Levels of internet adoption among organisations in the campaigns

From the investigation, a total of 18 organizations: seven (7) from the national, 3 from the local and 8 from the international categories had connected to the internet. This represented 60% of the total sample population (30).

It was also evident that the international category had the highest number of connected organizations with 80% while the local category had the least (with only two organizations connected)

All the connected organizations except one from the local category were already using internet technologies at the basic level that is, for email and web surfing.

At the advanced level, that is of teleconferencing facilities, net chats/bulletin boards and downloading and sharing of files on the internet (FTP), less than 50% of the organizations had adopted.

The international category registered the highest incidence of advanced internet level adoption. 28% of those who were at the basic level also were actively engaged in internet

chats/bulletin boards to share ideas, information about HIV/AIDS with each other. 3 (25%) of them used the internet to download and transfer volumes of files/materials across different organisations in the campaign efforts. The local category registered the least adoption of the advanced level technologies in the campaigns.

Organizations’ length of internet connectivity:

This sought to determine the length of internet activity in the health campaigns by the various categories of organizations. Length of connection would give an indication of which categories of organizations had used the technologies in their institutions more than the others.

More years of internet activity would imply an earlier appreciation of the new technologies and is also assumed to impact positively on continued campaign efforts by the adopting organizations. Wider networks are also expected among those organizations that have long periods of internet connection. The number of years of internet connectivity was calculated by the number of years since connection to-date.

The categorized lengths of internet connectivity among the various adopting organizations are illustrated in Table 4.6 below (N=18).

Category of organization	Lengths of internet connectivity		
	Less than 1 year	1-5 years	More than 5 years
National	-	3 (17%)	2 (12%)
Local	-	3 (17%)	1 (6%)
International	1 (6%)	4 (22%)	3 (17%)
Total	1 (6%)	10(56%)	6 (35%)

Table 4.6: Lengths of internet connectivity among organisations

The table above demonstrate that majority of those organizations who were connected to the internet had the connection for between 1-5 years. The majority of these were the international categories (22%). An appreciable number, 6 (35%), too had connected for more than 5 years. Only one organizatoin had internet connectivity for less than one year.

The findings can be interpreted as a positive gesture by many organizations given that internet technology was first used in Kenya in the early 1990s. This means that many organizations under study did not take long before connecting to the internet.

A factor that could have biased the results was the age of the organization. A good number of those studied on were started only recently thereby making the internet connection a recent undertaking.

Despite the length of connection, one issue that may require further investigation is whether the number of years of internet activity has anything to do with the success or failure of any HIV/AIDS communication campaigns.

Prohibitors to internet adoption by organisations

This question sought to identify and explain the factors behind organisations' inability or reluctance to adopt the new technologies in their HIV/AIDS campaigns.

From the open-ended responses, the reasons for non-adoption of Internet technologies in the HIV/AIDS and reproductive health campaigns were categorised into channel factors and institutional factors for ease of analysis.

The following were the main themes derived from and used to classify the open-ended responses.

i. Channel factors of internet technology non-adoption

These were the factors that hinged on the nature and perception of the Internet as a medium and that were thought to hinder potential adopters from taking the plunge. They included:

- a) Perceived low content of internet HIV/AIDS material (scanty, devoid of quality information, etc.)
- b) Costs of installation, use and maintenance of the new technologies
- c) A socially depersonalising technology - lack of face to face communication contact with the affected and infected.
- d) Skills needed to use the medium among other factors.

ii. Institutional factors of internet non-adoption:

- a) Inadequate knowledge about the value of internet in the AIDS campaigns
- b) Lack of visionary leadership – to accommodate diversity of technologies such as the new techniques of communication.
- c) Economic exigencies vs organisational priority

These are illustrated in Table 4.7 below:

Factors of internet adoption

FACTORS HINDERING INTERNET ADOPTION	Local NGOs	National NGOs	International NGOS
Channel factors			
High usage costs	7 (58%)	3 (25%)	1(8%)
Fear of the technology	1 (8%)	-	-
Skills to use it (complexity)	3 (25%)	1 (8%)	-

contd..

Institutional factors			
Poor management	2 (17%)	5 (42%)	-
Not a priority for organisation	1 (8%)	1 (8%)	-
Poor infrastructure	4 (33%)	1 (8%)	1 (8%)

Table 4.7: Factors hindering internet adoption among organisations

From the table it was evident that the challenge of high costs was a determinant factor in deciding whether to adopt or not adopt this technology. This was reported by majority of the local organizations (58%).

Lack of adequate technical skills to use the technology was also mentioned by 25% of the local NGOs. However, this was supposedly not a problem with the international NGOs. Some 2 respondents from the local category (17%) expressed that internet was not a familiar technology therefore did not adequately use it for the campaigns. This could be explained that such users were technophobic.

The challenges of poor enabling infrastructure for example lack of reliable telephone lines, etc. was reported as a big hindrance to internet connection among 4 (33%) of the local respondents. Probably due to economic hardships and only few activities that many organizations were engaging in, some 5 (42%) of the local respondents reported that internet was not a priority in their campaigns. It would be thought about at a later date. Then it was seen as a misplaced priority.

The problem of lack of good managerial skills to spearhead and support such innovations was also raised by 2 (17%) of respondents from the local category. The implication of this

for enhancing health campaign internetworking. The assumption is that visionary leaders would champion the adoption of such technologies. But lack of such skills could also be attributed to technophobia (earlier mentioned) and lack of willingness to change.

Awareness of Internet use in HIV/AIDS campaigns

Findings indicated that despite having not adopted the internet technologies in their campaigns, all organisations were aware of their applications in similar efforts in other parts of the world.

What was not established was the level of awareness of the full capabilities of internet technologies. Most of the organizations that had adopted the technologies cited the basic level (entry-level) of use – e-mail and web surfing. It was thus, possible that even the non-adopters were not fully aware of the full range of services that internet technologies can provide in health communication interventions such as HIV/AIDS campaigns.

KANCO was cited by 75% (9) of the organizations as having contributed immensely to this awareness. A lot of appreciation of this fact come from 58% (7) of the local respondents. 17% (2) of the organisations cited other NGOs such as HealthNet, Regional Aids Training Network, RATN as having been instrumental in creating this awareness. Still, one respondent read about internet use in HIV/AIDS campaigns from journals.

Challenges of Internet use in the campaigns

This sought to invetigate what problems the organisations who were actively using the internet technologies were facing.

The challenges of effective use of the internet technologies are considered to be an impediment to its use and application the HIV/AIDS campaigns. They are assumed to

impact negatively on an otherwise noble technology that is supposed to radically narrow the knowledge gaps among different organisations in their campaigns.

Table 4.8 below shows a summary of the challenges identified as hindering effective internet use by the respondents (irrespective of whether they accessed internet facilities within the organization or elsewhere).

Category of respondent (N=18)

CHALLENGES	National NGO	Local NGO	Internat'l NGO
Inadequate internet usage skills	3 (16%)	2 (11%)	1(5%)
Poor network/internet infrastructure	6 (27%)	4 (18%)	6 (27%)
High internet usage costs	4 (18%)	1 (5%)	1(5%)
Others not connected	2 (11%)	2 (11%)	2 (11%)

Table 4.8: Challenges of internet usage among organisations

Out of the 18 organizations that were connected to internet and were actively using it in the campaigns, 27 % (6) of them – each from the national and international categories, cited poor network/ internet infrastructures as the greatest challenge to its use.

High usage costs were also cited by 4 (18%) of the national respondents as opposed to only one (5%) from the international category.

Another challenge highlighted was inadequate usage skills (navigation skills) which was cited by 16% of the national category respondents.

Some respondents said that their organizations were facing the challenge of networking with others since the latter did not themselves have an internet connection. For such organizations, a complete networking relationship was only possible if all participating

organization had adopted or accessed internet facilities in order to share ideas/information with each other. This concern was raised as a challenge by 6 (27%) of the respondents.

Presence/absence of websites in organisations

The presence of a website in an organization implies a positive direction towards setting up a platform on which to establish one's presence in the virtual world. Through the website, an organizations existence is recognised, its activities consulted and reviewed by others and provides an easy way to communicate with those who may have any queries.

Out of the organisations that had internet connection, only 9 (47%) of them had managed to develop or establish their own website. The international and national categories of respondents accounted for 21% each. There was only one local organisation that had a web site presence. The general implication created by this finding was that website were not a common feature to most organisations.

Investigations into the benefits derived from such websites indicated that they were instrumental in enabling the organizations in question to post and update their researchwork, any HIV/AIDS updates, new ideas, revelations, etc on a site where other organisations could benefit by sharing the ideas and views.

The website was quoted by 64% (9) of the organisations as being a handy tool for public enlightenment on the organization activities and efforts in the HIV/AIDS Campaigns.

By the account of 2 respondents from national and local organizations, the website was also cited as availing a suitable platform of communication with activate and potential donors.

The respondents acknowledged that websites were a medium through which donors would gauge the organizations' activities and efforts in HIV/AIDS campaigns before making decisions on whether or not such campaigns efforts can be funded.

This information was corroborated with the interview held by the researcher with KANCO Resource Centre staff who confirmed that most potential donors urged organizations with internet access to establish their own updated websites to facilitate communication and evaluation of campaign activities before funding decisions were made.

Hindrances to website hosting among organizations.

Developing a quality website is a by no means an onerous task and investment. This is explained by the responses gathered from those respondents who said their organizations did not have websites.

From the analysis of the cross section of respondents obtained, the challenges to website hosting were categorised into 3 viz:

- i) High development costs
- ii) Low content to publish on the net
- iii) Inadequate skills to design and update the sites.

Table 4.9 below illustrates the percentage responses by the number of organization connected to internet in each category .

Category of Organization

WHY NOT HAVE A WEBSITE?	National (N=7)	Local (N=3)	Internat'l (N=8)	Total
High development/ design costs	3 (43%)	1(33%)	1(13%)	2 (11%)
Too little content to publish	1(14%)	1(33%)	1(13%)	3 (16%)
Inadequate skills to design and update the site	2 (29%)	1(33%)	3 (38%)	6 (33%)

Table 4.9: Challenges of developing websites by organisations

From the table above, it was evident that skills to design website was cited as the predominant factor in website hosting. 1/3 of the total organization (33%) confirmed this challenge with the bulk of responses coming from the international category (38%).

High development costs were also considered to be a major hindrance to web establishment especially among the national respondents. Such costs can be explained in terms of manpower, time to design, deciding what materials to publish etc. This was, incidentally, not perceived as a major problem by the local and international respondents.

3 (16%) of the respondents considered their organization too small to have anything meaningful to post on such website. This can partly be explained by the fact that a good number of the organizations studied were established only a few years ago (some were, in fact, started as late as 2002), therefore it was assumed could not have engaged in serious campaign activities or research yet to merit publishing on an institutional web site.

**OBJECTIVE THREE: ALTERNATIVE CHANNELS OF INFORMATION
ACQUISITION AND DISSEMINATION IN THE CAMPAIGNS**

Respondents were asked to identify/enumerate the alternative sources of information they used together and disseminate information on HIV/AIDS apart from the internet. (It is noted that evaluation was made on the effectiveness of internet as a tool of communication when compared with these alternative channels on several attributes).

Table 10 below shows the weight given to each channel as per the various categories of organizations.

Open-ended responses enabled the researcher to come up with the following categories:

- i) Print materials e.g. journals, newsletters, leaflets, brochures
- ii) Electronic media e.g. TV shows, radio programs, films, video shows etc.

iii) Theatrical presentations e.g. Drama/plays, music.

Table 4.10 below shows the frequency of the responses as given by the various categories of respondents (N=30)

CATEGORY	ALTERNATIVE COMMUNICATION CHANNELS USED		
	Print media	Electronic	Theatrical presentations
National	9 (32%)	9 (30%)	4 (17%)
Local	9 (32%)	7 (23%)	4 (17%)
International	9 (32%)	10 (33%)	5 (21%)
Total	27 (96%)	26 (83%)	13 (55%)

Table 4.10: Alternative communication channels used by organisations

The table above shows that all organizations utilised the 3 categories of media for their campaigns but at varying frequencies. The international category registered a 100% use of electronic media for the campaigns. This category had also a higher usage for the theoretical presentations (21%) than each of the local and national categories (17% each). In general, print media is more widely used than any other while the least use alternative was theatrical presentations.

The findings were indicative of a high ICTs (videos, TVs, radios, etc) exposure among the international category.

Alternative search sites for non-adopters of the internet technologies

In order to determine whether those who had not connected to internet were still accessing it through alternative locations, the respondents were asked to identify such alternative sites.

A total of 4 respondents (2 from national category and one each from each of the local and international respondents) cited commercial cybercafes as their most preferred alternative search points. 8 (67%) of the organizations confirmed that they mostly relied on the free internet search facilities offered by KANCO to its members. Out of these the local category reported the highest incidence of usage of KANCO facilities.

Asked to evaluate the regularity of usage of these search points, the findings indicated that most of the organizations used the facilities regularly (67%) while the rest used them rarely.

A higher percentage of use was registered among the respondents from the local category (42%) as opposed to 8% from the international category.

The implication of this revelation was that since most of the local organizations were hampered by lack of funds to install and access internet for their campaigns, the free facilities offered by KANCO could come in handy for their use.

The general perception created was that with an easy and affordable availability to such technology, most organizations would appreciate using them.

Was KANCO doing enough to sensitize internet use among its members?

A total of 4 respondents (2 from the local category and one each from the national and international categories) said that KANCO had largely succeeded in highlighting and encouraging member organizations to adopt internet technologies in their campaigns.

2 (17%) felt that KANCO had failed in its efforts to internetworking of member organizations. But the majority 6 (50%) confirmed that the organization had tried but still much needed to be done in terms of training of users, holding more seminars, workshops

and conferences on the same as well as increase the member of machines for use by members. This information was corroborated with the KANCO interview where it was noted that there was overcrowding when several researchers wanted to use the facilities. This necessitated the limitation of machine time to 30 minutes which was considered to little to have done any meaningful research.

Table 4.11 below shows the evaluation of the role of KANCO in encouraging the adoption and use of internet teeechnologies among member organisations.

Evaluation of KANCO’s efforts

Category (N=12)	Has succeeded	Has failed	Just trying
National	1 (8%)	-	2 (17%)
Local	2 (17%)	1 (8%)	4 (33%)
International	1 (8%)	1 (8%)	-
Total	4 (33%)	2 (16%)	6 (50%)

Table 4.11: Evaluation of KANCO efforts in encouraging Internet use by NGOs

KANCO meetings attendance

Frequency of communication meetings by organisations:

The frequency of communication meetings among KANCO members was assumed that there was a higher possibility of organisations learning about new technologies of capturing and disseminating ideas, experiences and views towards the fight against AIDS. This was also to confirm an interview with the KANCO Resource Centre manager who said that they

held meetings with members to discuss on ways and means of communicating HIV/AIDS information and other related reproductive health concerns.

The frequency, which the manager could not immediately confirm (there were no records), could only be obtained from the participating organisations themselves.

Table 4.12 below shows the frequency distribution of attendance in such forums by categories of organisations. (N=30)

CATEGORY OF ORGANIZATION	Frequency Of Attendance Of Meetings		
	Always	Sometimes	Never
National	6 (20%)	4 (13%)	0
Local	3 (10%)	7 (23%)	0
International	7 (23%)	3 (10%)	0
Total	16 (53%)	14 (47%)	-

Table 4.12: Frequency of KANCO meetings attendance by organisations

From an interview with KANCO resource manager, it had been confirmed earlier that the organization always holds a tri-monthly meeting of all members. Such meetings are usually meant to update and appraise member activities and chart the way forward. It was also a forum through which communication approaches could be evaluated and better ways devised.

It was confirmed that internet as a modern communication technology has been an issue of current discussion in such meetings. This question, therefore, sought to investigate the frequency of attendance to such fora with the assumptions that most organizations would

benefit and explore the need to use internet technologies in their own campaign interventions.

The findings indicated that all categories of organizations attended the meetings but at varying frequencies. 53% (16) of the organizations always attended the meetings. There was a high turn out from the international category (23%) than the rest of the organisations. The local category registered the lowest turnout with only 10% attending the meetings all the time they were held. Most of them (23%) attended only sometimes.

Though meetings attendance cannot be assumed to be the only contributing factor in making a decision to adopt internet technologies in the campaigns, a strong correlation among those who are connected and those who attended always could easily be noticed. Still, regular attendance exhibits organisational openness to new ideas and experiences.

Social networks among HIV/AIDS organisations

From the investigations, all the organizations that had not connected to the internet had established social networks through which information for the compaigns could be acquired and shared. A major problem cited in such networks included delays in the acquisition of the most update information on HIV/AIDS since this depended on postal services (mail), hand delivery, etc.

The local category (30%) cited this as a major challenge as opposed to 10% each of national and international categories. Some 7 (58%) organizations did not give any response with respect to this question.

Existence of networks of affiliations and collaborations with other organisations in the fight against HIV/AIDS confirmed that most organisations exhibited systems openness. The use of net forums by a number of them indicated further the willingness to share and disseminate information on AIDS with each other. There was no evidence that organisations connected

to the internet to gain a mileage in status but for the noble idea of sharing views, experiences and knowledge on AIDS.

OBJECTIVE FOUR: POLICY RECOMMENDATIONS FOR INTERNET TECHNOLOGIES IN THE CAMPAIGNS

Impact of increased resources on the use of such technologies in the campaigns

This sought to investigate the respondents' perception on how increase in the necessary resources for the technologies would affect the campaigns. Specifically, it was designed to identify the gaps that are believed can be bridged if such technologies can be fully embraced.

The dominant response among the respondents was the provision of qualitative and qualitative information resources for better decision-making in such campaigns. 5(46%) of the local respondents confirmed this choice. In total, 9 out of 12 respondents (80%) concurred with this view. Provision of internet resources was also seen to provide better campaign strategies based on sound information and an evaluation of several sources of authority from the internet.

The provision of affordable and accessible internet resources and facilities among these organizations was also perceived as one way to narrow or reduce the knowledge (information gaps). 6 (60%) of the respondents supported this view while the rest did not believe that technologies would bridge the gap.

In a nutshell, in terms of what could be done if additional resources were made available, there were a number of ideas put forward. These included the following :

- i) Links to HIV/AIDS online publications/journals from resource databases (service providers) so that one could access research papers and resource materials.

- ii) Need for edited summaries of e-chat discussions that identify the most salient HIV/AIDS issues.
- iii) Support for the development and continuation of electronic discussion groups.
- iv) Start and/or moderate HIV/AIDS and alternative medicine exclusive sites
- v) Avoid jargon. Care should be observed to introduce the content so that the posted messages do not stand alone.

Policy recommendations

A policy is supposed to streamline the way operations are done in an organization. In the context of an ICT policy, this would mean seeking to integrate the IT provision in the organizational activities.

Though only a few respondents gave their input to this question, it was evident that most favoured an ICT policy. Out of a total of 8 respondents, 1 (11%) did not find any need for a policy in the organization. The rest favoured it, the bulk coming from the local category of respondents (56%).

One respondent from the local category favoured an integration of IT with the overall organizational policy while 5(83%) did not support such a move. The international category did not indicate their preferred way.

Some respondents also believed that if the right structures were put in place, then internet facilities would greatly facilitate access to online publication such as journals and articles suitable to support research that addressed population health needs.

The Regional AIDS Training Network, RATN was quoted by one respondent as instrumental in creating a network of HIV/AIDS training institutions with partners sharing volumes of information connected electronically.

Generally, there seemed to be a unanimous agreement that a policy was one way of harnessing the internet technologies in such health campaigns.

4.3 TESTING THE HYPOTHESES

a) Relationship between internet adoption and category of organisation

The positive declaration hypothesis to be tested was: There exists a significant relationship between internet adoption and the category of organization. It was assumed and, therefore, expected that internet adoption in the HIV/AIDS campaigns would be most prevalent among international organizations.

Table T4.1 below demonstrates the state of internet connection as compared to the various categories of respondents. (N=10 for each category)

Are you connected to the internet?

CATEGORY OF ORGANIZATION	Yes	No	Total
National	7	3	10
Local	3	7	10
International	8	12	10
Total	18	12	30

χ^2 Calculated value = 5.84 d.f. = 2 χ^2 Crit. table value = 5.99 α = 0.05

Table T4.1: Test of organisation category and internet adoption relationship

The chi-square test between category of organization and adoption was 5.84 at 2 d.f. with a level of significance of 0.05. Since the calculated value (5.84) was less than the table value, it was discovered that the sample population provided sufficient evidence there there existed no significant association between the category of organisation and whether it had adopted the internet technologies or not. The null hypothesis was thus rejected and the alternative declaration hypothesis accepted.

b) Perceptual relationship between internet attributes and the categories of organisations

i.) Was there a significant relationship between the various responses on the perceived ease of use of internet technologies in the campaigns? For ease of analysis, categories of responses were collapsed thus : Very easy and Easy (EASY) while a bit difficult and very difficult formed DIFFICULT. A chi-square test revealed the following results as shown by Table T4.2 below:

Is internet easy/difficult to use for the campaigns?

CATEGORY	EASY	DIFFICULT	TOTAL
NATIONAL	7	3	10
LOCAL	7	3	10
INTERNATIONAL	9	0	9
TOTAL	23	6	29

χ^2 Cal. = 3.405 α = 0.05 χ^2 Crit. Table value = 5.991 d.f. = 2

Table T4.2: Test of organisation category and perceived ease of use of internet medium

From the test, it was observed that since the calculated value (3.405) was less than the table value at the level of significance of 0.05, there was no significant relationship between the perceptions of the various categories of respondents regarding the ease with which internet could be used in the campaigns. The null hypothesis was, therefore, accepted while the alternative hypothesis was rejected.

- ii.) Test of relationship between organisations and perceptions about internet's search and retrieval speed capability. Table T4.3 below illustrates the results.

Perception on speed of search and retrieval of internet materials

	HIGH	LOW	TOTAL
NATIONAL	9	1	10
LOCAL	7	3	10
INTERNATIONAL	10	0	10
TOTAL	26	4	30

$$\chi^2 \text{ Cal.} = 4.05 \quad \alpha = 0.05 \quad \chi^2 \text{ Crit. Table value} = 5.991 \quad \text{d.f.} = 2$$

Table T4.3: Test of category and channel speed relationship

From the above hypothetical analysis, it was evident that since the calculated value (4.04) was less than the table value (5.991), at 0.05 level of significance and 2 degrees of freedom, there was no significant relationship between the perception of speed of search and retrieval by the internet medium and the various categories of respondents. A positive perception about the speed did not depend on whether the respondent was from any particular category. The null hypothesis was confirmed as the alternative one was rejected.

- iii). Test of relationship between respondents' perception about the quality and quantity of internet materials by the internet medium. The result is shown by Table T4.4 below.

Does internet provide high /low quality and quantity of information for the campaigns?

Category (N=30)	HIGH	LOW	TOTAL
NATIONAL	10	0	10
LOCAL	8	1	9
INTERNATIONAL	10	0	10
TOTAL	28	1	29

$$\chi^2 \text{ Cal.} = 2.30 \quad \alpha = 0.05 \quad \chi^2 \text{ Crit. Table value} = 5.991 \quad \text{d.f.} = 2$$

Table T4.4: Test of category and content quality and quantity relationship

The test showed that there existed no significant relationship between the organisations' perceptions on the internet's provision of quality and quantity information for the campaigns. This meant that the same perceptions were exhibited across all categories. The null hypothesis was thus accepted and the alternative one rejected.

iv). Test of relationship between the perceptions of organisations and the degree of internet worth despite the perceived priority of other urgent issues of health care, etc. in such campaigns. Table T4.5 below shows the results of this test.

General Perception (Is internet generally worth?)

Category (N=12)	Yes	No	TOTAL
NATIONAL	3	1	4
LOCAL	2	4	6
INTERNATIONAL	1	1	2
TOTAL	6	6	12

$$\chi^2 \text{ cal.} = 1.6 \quad \alpha = 0.05 \quad \chi^2 \text{ Crit. Table value} = 5.991 \quad \text{d.f.} = 2$$

Table T4.5:Test of category and internet worth's perception relationship

At a level of significance of 0.05 and within 2 degrees of freedom, the calculated value was 1.6 far below that of the value. It was thus evident that there existed no significant relationship between organisations' perceptions on whether internet was a priority in the face of shrinking resources among several organisations.

There was general agreement that each respondent irrespective of their organisation thought it was worth or not on their own merits. The null hypothesis was thus accepted and the alternative one rejected.

INTERPRETATION OF THE HYPOTHETICAL RESULTS

From the tests of hypotheses, it was clear that there were no radical differences in perceptions and attitudes towards internet as a tool in the HIV/AIDS campaigns. It was evident that similar perceptions were held across the various response categories about internet content, versatility of use, costs of usage, etc

In a nutshell, the findings did not indicate any major biases in the way respondents perceived the new technologies. The general concurrence of viewpoints confirmed that negative or positive attitudes/perceptions about internet technologies did not depend on organisations.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter outlines a summarized version of the major findings of the research and gives appropriate conclusions and recommendations.

5.2 SUMMARY OF FINDINGS

Arising from the findings and in line with the objectives of the research, the following issues were noted.

Internet technologies were, and continue to be, generally regarded as vital tools to informatisation during the HIV/AIDS campaigns. Majority of the organizations studied (60%) confirmed that they had adopted the technologies at least at the basic level (E-mail and Internet searches). The move to adopt internet technologies in the campaigns gave a positive perception and attitude that indicated the value such organizations derived from the same.

A positive perception of the internet was also manifested by a few organizations who had developed an ICT policy (21%), websites (47%) and made resolute attempts to fully utilize the free KANCO internet facilities.

The general agreement among most of the international organizations (60%) and national organisations (54%) that internet was valuable even in the face of weak financial conditions and other priorities of the organisations was itself a pointer to the high premium it was regarded with. The negative perception, however, from the local category, implied the consideration of what was of urgent priority to them given that limited resources could

possibly not be diverted to technology at the expense of providing the basic necessities to those who were suffering.

More than half of those that had adopted the technologies had been using them for between 1-5 years and over 5 years. This showed a high internet exposure among the organisations.

In a nutshell, the internet was perceived positively due to the following benefits:

- (i) Through the internet, organisations could share ideas, opinions and experiences on how best to design and implement their campaign strategies. Most organizations confirmed that internet provided vast information resources which were rich in content (qualitative) and quantity.
- (ii) Internet facilitated communication between organizations and actual and potential donor agencies who sought to review the organizations' activities and proposed programs before they made decisions to commit funds.
- (iii) Internet facilitated instantaneous delivery of files, research work through remote databases and internet chats or bulletin boards. Such advanced level technologies were mostly used by the international organisations.

All organizations reported a heavy reliance of alternative sources of information in their campaigns. The print medium was the most favourite of all while the least used was the theatre as a channel of communication.

An evaluation of internet technologies attributes such as speed, cost and skill requirements against these alternative sources yielded a strong bias in favour of the technology with respect to speed among most of the organisations. But the general impression created by most respondents was that internet could be likened to a one-stop shop for most of the organisations' campaign needs.

This notwithstanding, internet technologies use was fraught with challenges and inhibitions. The main inhibitors of internet use and adoption (for those who had not adopted) included:

- (i) Prohibitive costs of usage occasioned by slow machines (weak band width), weak infrastructure, etc.
- (ii) Poor navigation skills - could not easily identify the right sources of information, etc.
- (iii) Fear of the technology (technophobia) manifested by unwillingness to use it even when provided free by KANCO and inability to perceive its benefits to the campaigns.
- (iv) The problem of others not co-operating. Some respondents complained that despite the provisions of the internet, some organisations did not support the idea of sharing information and proposals since they wanted to gain a competitive edge for donor funds. This was disclosed to the researcher through an interview with KANCO staff.

Evaluating the efforts put by KANCO in creating awareness and providing information of the need for use of internet in the HIV/AIDS campaigns, half of the respondents from the non-adopting category reported that KANCO had just tried but still needed to intensify its campaigns for the use of the facility. They particularly cited the inadequacy of the machines, lack of training and follow-up of member organisations.

Awareness of Internet use in HIV/AIDS campaigns was 100% and the source mostly cited for this awareness was KANCO. This seemed to confirm that awareness may not be enough.

Provision of the right avenues of access and use was also important.

Only a few (7) respondents responded to the questions of policy. One major recommendation was the need to integrate communication activities to the overall organisation policy by coming up with an ICT policy (in the context of Information Technology). This, it was believed, would effectively create a place for internet technologies as valuable tools in the fight against HIV/AIDS and other health concerns.

Regarding organisational innovativeness characteristics viz : systems openness, formalization, organisational slack, status seeking and innovation cost-benefit, the following can be deduced from the study :

1. Organisations exhibited a high degree of system openness evidenced by networks of electronic and social collaborations with others in the fight against HIV/AIDS. There was marked sharing of experiences, views and research findings across an appreciable number of organisations.
- ii. Save for a few reluctant organisations (due to lack of visionary leadership and dynamism), a good number of organisations had formal structures in recognition of the role played by internet technologies in the fight against HIV/AIDS. Many had already adopted or positively use the technologies from the nearest available sources. But only few had ICT policies in place.
- iii. Organisational slack – most of the non-adopting organisations cited inadequate financial resources to set up and maintain internet infrastructure. The costs of browsing was high. This was an indication that organisations did not have adequate reserves for the technologies.
- iv. Status-seeking – organisations did not connect to internet for prestige but for the purpose of close collaboration and need to update themselves on the latest developments in the fight against AIDS.
- v. Cost-benefit – It was evident across the board that most organisations regarded the internet technologies to be worth the cost because of the immense benefits they presented to communication planners.

5.3 RECOMMENDATIONS

As greater access to electronic connections grows, sharing of information resources among organisations can be expected to grow in Kenya. As a result, more attention will be needed on ICT policy and the planning of ICT inputs into the fight against HIV/AIDS.

It is important that organisational policies and regulations with regard to this new technology anticipate this coming tide and that campaign activities take advantage of opportunities presented by ICTS.

Many respondents said that the immediate needs of those affected are so obvious and the resources available are so inadequate, that any resources allocated to ICTS are a misplaced luxury. It is, however, suggested that focussed applications of such technologies together with appropriate policies that empower intermediary groups such as community institutions, health care providers, and those working with the poor and vulnerable groups, can make good use of the internet technologies to improve the lives of people living with HIV / AIDS and other reproductive health ailments. Resources allocated to the new technologies for campaign efforts should be in balance with, and a good percentage of the overall financial resource, as the bulk of resources needs to be dedicated to the immediate needs of people who are affected.

Initiators of such technologies need to ensure the responsible and ethical introduction and implementation of the technologies when defining programs and policies. In particular, the technology component in such health campaigns should not deflect limited resources from HIV/ AIDS – related work that is directed at the immediate needs of care, treatment, education and prevention.

Organisations could also find ways for existing resources to be used to leverage additional resources, both financial and knowledge, in order to address critical problems.

There is need for all players in the fight against HIV/AIDS to join the internet technologies against HIV / AIDS coalition that would include both private and public organisations serving as catalysts for expanding the application of internet technologies in reproductive health and HIV/AIDS issues. Such a coalition would also serve as a forum for knowledge sharing, advocacy, provision of advice and one that will facilitate the formation of public – private initiatives. Such initiatives could be coordinated by KANCO, the umbrella body of most of these organisations.

As economic growth is increasingly associated with knowledge, it is argued that the digital divide will intensify the pre-existing divide as ICTS are seen as the primary source, repository and tool for generating, and disseminating knowledge.

For those who may be opposed to the technologies, it is instructive that investment and prevention efforts are both necessary and complimentary strategies for addressing the reproductive health concerns. There is little incentive, if any, to get tested to find out one's health status without the possibility of treatment. Knowing one's status is the first step to behaviour modification. The internet technologies are instrumental in such efforts.

Efforts should take advantage of the potential of internet to stimulate the creation and sharing of appropriate knowledge in the fight against AIDS, and to strengthen alliances among civil society institutions as well as with the private sector and the government. There is the hope that access to better information can imbue positive changes before the catastrophe is even more widespread.

If internet technologies are to be used in an equitable way in addressing the HIV/AIDS, the integrations of information needs of those workers on the front lines and in communities must be a priority. The technologies can serve as effective tools to facilitate but not replace the work at the community level.

As access to internet remains limited, it will be the work of intermediary institutions to utilize the technology in a way that is reasonable and balanced with their primary objective of treatment and care, or education and prevention.

Organisations should seek to build on the existing infrastructure towards universal access to low cost electronic communications and the associated activities that need to take place to build a Kenyan information society. On a national level, it is noted while most developing countries are experiencing fairly rapid extension and modernization of their telecommunication networks, Kenya's teledensity still continues to be at less than one per 300 inhabitants, most of the telecommunication network is analogue and many sections are highly unreliable, especially during the rainy season.

Since internet utility depends to a great extent on the quality of the underlying telecommunication infrastructure (as has been seen from the findings), the poor quality of the network still remains a basic impediment to rapid developments in this area.

Subscription charges for dial up internet access varies greatly meaning that even if a computer is available, the service is beyond the reach of all but those financially endowed organisations. Reflecting the high cost of full internet based services, and also because of the overriding importance of electronic mail, the small e-mail – only store and forward systems with dial up connections to the internet are generally continuing to attract subscribers.

How can organisations stimulate and support the development of facilitated access centres (information waystations) as a means of improving access to relevant information by such organisations?

Nairobi is the focal point for the East African Internet Association (the first African regional grouping of infrastructure operators) which is planning to develop a shared internet hub facility for its members in Kenya, Tanzania and Uganda, a model that could be replicated

elsewhere. There is need for a NGO E-mail service provider like the South African SANGONET to offer a number of store and forward dial up services operated by the HIV/AIDS NGOS community.

Developing access points and building demand in strategic sites such as educational institutions by training users, supporting them with equipment and installation subsidies as well as through the establishment of telecentres (like the case of Uganda, Zimbabwe and South Africa) and promotion or support for wireless link alternatives where necessary.

How can the NGOS practically ensure that capacity building around internet technologies is not neglected?

The development of human capacity to make full and appropriate use of internet technologies will involve program of training, action – research, Monitoring & Evaluation of the new technologies. To leave this dimension out is to misunderstand the inseparability of technology, human beings and the various forms of information so fundamental to the HIV/AIDS campaigns by NGOS.

Intensive education and training of all program designers and implementers in such organisations on the value of using the latest technologies to capture and disseminate knowledge and information is required.

This will modify their perception, help them to grasp the potential benefits of adopting such technologies, incorporate them in their organisational policies and budgets in order to improve and raise the levels of adoption.

The KANCO in its endeavour to encourage the new technologies in the campaign efforts among the members should adopt the following approach:

1. Intensify its concerted efforts with other international and national organisations e.g. HealthNet, RATN enlightening or creating awareness of the need for the application

of such technologies in the HIV/AIDS and other health communication interventions.

2. Lobby with its members to present a strong case to the national co-ordinating body, the National Aids Control Council (NACC) for increased funding and assistance and all members actively involved in HIV/AIDS IEC interventions. With increased funding, it is hoped that at least a proportion of it can be used to set up and maintain an internetworking infrastructure that would facilitate the sharing of ideas, experiences and updated information on their efforts to address the pandemic.
3. Arising from the recommendations given by some respondents and confirmed by a KANCO staffer, KANCO needs to expand its internet facilities to cater for the increasing numbers of users. This would allow more machine access time and therefore, qualitative research among users.
3. Organisations opting to hook to the internet should also prioritise staff training in order that the technology can be effectively used. Staff should be taught how to navigate the internet, identify credible and relevant information for their campaign strategies as well as learning to use the various facilities/services internet can offer. Such services include the ability to download and consult remote files and databases or networks of organisations dealing with HIV/AIDS concerns, on-line and real time transfer of such information/news among members through net chats (bulletin boards) and holding on-line audiovisual communication meetings (teleconferencing). Such networks as RATN, HealthNet and Health and Development Network, HDN have made remarkable progress in HIV/AIDS campaigns and advocacy. Organisations should be encouraged to subscribe to such networks so that they can widen their knowledge base .

5.4 CONCLUSIONS

From the research findings, there was generally a concurrence among viewpoints gathered from the majority of the informants concerning the value and use of internet technologies in HIV/AIDS campaigns.

It was generally accepted that internet provides a link to others working in the campaign efforts and that the medium provided quality information sources. The technologies, therefore, served to bridge knowledge/information gaps between the 'information rich' and the 'information poor' especially if both categories had equal chances of accessing the technologies.

The Convergence model by Rogers and Kincaid (1981) was a clear expression of how internet technologies can be used to bring communicators and the audience as equal partners in communication. Through the forging of electronic and social alliances in the fight against AIDS, organisations exhibited high homophily. It was also likely that some organisations in such networks may have joined the technology bandwagon by 'reciprocal interdependence' (adopters influencing each other).

However, the adoption and use of internet in the campaigns was hinged on the provision of adequate skills, human, technical and financial resources. Though internet was viewed as valuable, the challenges militating against its effectiveness were seen to block these efforts. Awareness of the value of internet in such campaigns did not necessarily translate into internet adoption by organisations. There were still some pockets of resistance citing lack of observable benefits and low priority.

The most dramatic change that will influence adoption of the technology is an attempt to remove the aforementioned barriers coupled with change in perception so that potential adopters can perceive the relative advantage of the technology in the campaigns more favourably.

As Wilbur Schramm, et al. noted, new technologies are today's drivers of national development. The development should be cross-sectoral including health. It is thus not in dispute that using internet technologies in HIV/AIDS communication interventions may be the first step in creating an enlightened society greatly reducing the knowledge gaps between members.

The use of internet technologies in the campaigns could also be seen as a tool of social mobilisation where communication planners made more informed decisions due to adequate information from this medium.

But one major conclusion drawn from this study was that any diffusion of a new innovation has its challenges that must be addressed and priorities identified. These require innovative leadership, policy formulations and organisational openness to new opportunities of addressing a problem like the HIV/AIDS scourge and other health-related problems. Any media can affect the desires, expectations and awareness of choices but it cannot provide the removal of structural constraints standing in the way of modernisation.

What the findings established was that strong programs and institutions do find useful ways of adding ICT components to enhance their effectiveness. It is, however, urged that ICT initiatives should find, and follow good programs and complement them; otherwise on their own they cannot have useful effects.

5.5 RECOMMENDATIONS FOR FURTHER RESEARCH

The fact that research in this area is relatively new, coupled with the presumption of benefit, means that little is known about how health-related organisations are responding to the opportunities provided by internet beyond the relatively simplistic studies and statistics of its use.

Besides, there's little empirical evidence that relates to measured impact of internet use (akin to experimental and control groups). The question to ask is: Is there evidence to support the claim that internet technologies would positively impact on HIV/AIDS campaigns by facilitating behaviour change? In Marshall McLuhan's words: Is the medium the message? A further study deriving from the current one but involving more subjects from all the categories will suffice to shed more light.

Still the same study could be carried out on the rest of health disciplines to investigate whether there are cross-disciplinary differences in the adoption of such technologies.

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APPENDIX 1 : SELECTED NET FORUMS ON HIV/AIDS¹⁷

Af_AIDS [http://www.hivnet.ch.8000/africa/af_aids/]

This forum has over 2300 E-mail members from over 30 countries. It employs over 500 web browsers. The aim is to facilitate E-networking and discussions on AIDS through links to conferences, seminars, workshops, etc. among members.

SEA_AIDS [http://www.hivnet.ch.8000/asia/sea_aids/]

This forum was started in 1996 for South East Asia and the Pacific. It has over 2000 members and its main activities are to facilitate AIDS updates, exchange of news/information, posting of recent publications, conferences, etc.

IntAIDS [<http://www.hivnet.ch.8000/global/intaids/>]

This is an international forum with over 1600 members. Its main objective is to provide a forum for discussion and advocacy on AIDS on such matters as provision of cheap/affordable AV drugs for the developing countries and information on Global Aids and Health Fund.

Gender Aids [http://www.hivnet.ch.8000/topics/gender_aids/]

This was started in 1997 to facilitate linkages and information sharing between people living with HIV/AIDS, women's organisations and individuals interested in gender and AIDS. It has about 2000 members.

PLWHA networking [http://www.hivnet.ch.8000/topics/pwha_net/]

This forum facilitates in getting to know the PLWHA (people living with AIDS) networks allowing such networks to share and discuss strategies and action for containing the effects of the scourge.

ProCAARE [<http://www.hdnet.org/home2.html>]

This is a partnership between SatelLife and the Harvard AIDS Institute whose purpose is to create a forum on AIDS between clinicians, health researchers, nurses, policy makers, etc. from the developed and less developed countries on biomedical care issues, prevention, research findings, etc.

¹⁷ These forums are all facilitated by HDN and are among the largest and well-known net groups on AIDS.

APPENDIX 2: QUESTIONNAIRE FOR KEY INFORMANTS

I am conducting a research on the 'Perceptions and prospects of Internet adoption in HIV/AIDS campaigns by NGOs' as an academic project towards the Master of Communications degree, University of Nairobi. I will greatly appreciate your time to contribute your insights. Thank you in advance.

PLEASE TICK OR BOLD/BLOCK YOUR CHOICE OF ANSWER (S)

Type of NGO: NATIONAL ☐ LOCAL ☐ INTERNATIONAL ☐

1. a) Are you connected to the Internet? Yes / No (Tick one)
b) If YES, when did you get connected? If NO, PLEASE GO TO QNS. 5, 6, 7, 11, 12 THEN 14 TO 23
 2. Please indicate what motivated you to get connected to the Internet.
 3. Please indicate how you use the Internet for your campaign programmes
 4. Please indicate give the main sources of information you attribute to your knowledge of the value of Internet as a tool for your campaign activities?
 5. a) Apart from Internet browsing and E-mail facilities, please list other internet services/technologies like internet chats, etc. that serve your health campaigns ?
b) If you have none, do you hope to subscribe to them in the future? Yes / No
 6. Through what other methods, apart from Internet, do you acquire and disseminate information for your campaigns?
 7. Please assess your organisation's attendance of the tri-annual HIV/AIDS communication forums organised by KANCO?
- Always attends ☐ Attends Sometimes ☐ Never attends ☐

8. What challenges have you faced while using the Internet technologies for your programmes?

9. a) Does your organisation have an Information and Communication Technology (ICT) policy? Yes / No.

b) Please explain your answer (for or against the policy)

10. a) Have you developed an institutional Website? Yes / No

b) If YES, how has it been of use to your organisational programmes?

c) If you have not developed one, please explain the reasons.

11. How do you evaluate the Internet content as a source of information/communication in your campaigns?

12. Compare Internet technologies with other information sources in the following attributes:

Speed of delivery of information	Very good	Good	Moderate	Slow
Ease of use	very easy	easy	a bit difficult	very difficult
Quantity and quality of information	Very good	Good	Moderate	Low
Costs of use, etc.	Very high	High	Moderate	Low

13. What problems of organizational internetworking have you encountered during your campaigns?

IF NOT CONNECTED TO INTERNET

14. Do you have any social networks with other organisations working in the HIV/AIDS campaigns? Yes / No?

15. What problems do you encounter in acquiring and disseminating your research and ideas, experiences with the other organisations?

16. What do you think about investing in Internet technologies at the expense of the more urgent needs of health care, drugs provision, etc.? (Are the benefits worth the cost?)

17.a) Do you perceive the Internet as an important tool for organisational networking?

Yes / No?

b) If yes, please comment on your answer.

18. What factors have hindered you from connecting to the Internet?

19. Which of the following alternative Internet locations do you use for your searches?

Commercial cyber cafés ☐ KANCO information Centre ☐ Others(please specify) ☐

20. a) How often do you visit these Internet places?

Regularly ☐ Rarely ☐ Never ☐

b) Briefly comment on the success/failure of KANCO towards encouraging the adoption of Internet technologies in HIV/AIDS campaigns.

21.a) Are you aware of Internet technologies being used in the fight against AIDS and other health concerns in Kenya or elsewhere? Yes / No

b) If yes, through what sources of information did you become aware?

22. If resources were available to increase the reach and value of these technologies, what are your suggestions for important gaps that can be met?

23. What policy recommendations would you give to support and encourage organizations dealing with such health campaigns to adopt internet technologies?

24. Please give any other comments on the issue of employing internet technologies in the fight against HIV/AIDS among organisations.