

DFID – Catalysing Access to ICTs in Africa

Senegal Household Survey Analysis

Annex to i-team report

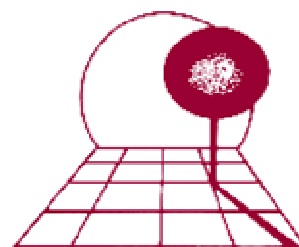
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This report forms an annex of the main i-team report

Contents

Executive Summary	2
1 Purpose of Survey.....	5
2 Hypotheses	6
3 Descriptors - Independent variables	7
3.1 Comparison with National Data	8
4 Changes in communications and media context.....	9
5 Patterns of Use of Media	10
5.1 Focusing in on Radio.....	11
6 Patterns of use – health professionals and discourse.....	12
6.1 National Survey exposure to Health Workers	13
7 Knowledge (Health)	13
7.1 HIV/AIDS.....	13
7.2 Mother and Child Health and Family Planning.....	14
8 Attitude (Health).....	15
9 Behaviour (Health)	16
9.1 Family Planning.....	16
9.2 Child health	17
10 Outcomes (Health).....	17
10.1 Outcomes (the broader picture).....	18
11 Digging into Radio.	19
11.1 Community radio and health	22
11.2 Radio conclusions.....	23
12 Digging into Cybercafes (OKN).....	24
12.1 Regarding health.....	25
12.2 Regarding Livelihood Outcomes.....	25
12.3 Attracting new users?	25
12.4 What people view	26
12.5 OKN Conclusion	26
13 Conclusion.....	28

Acknowledgements

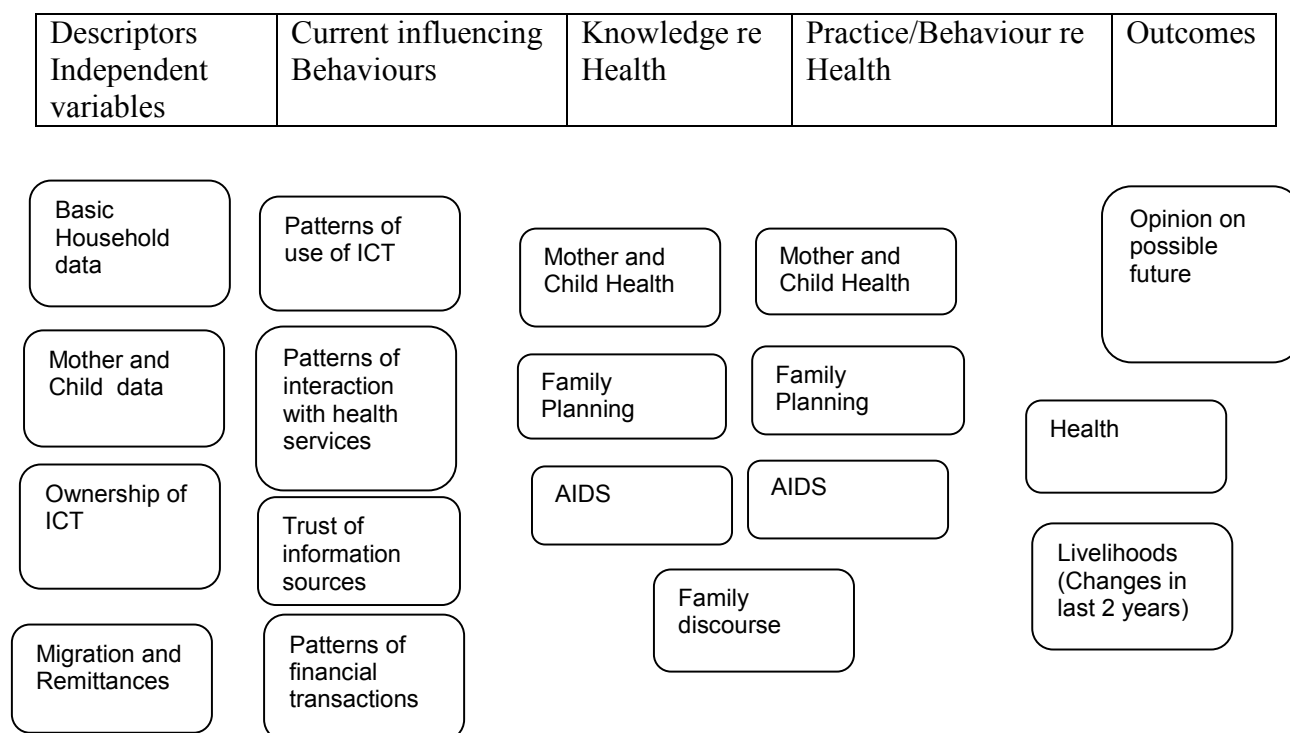
The original survey questionnaire was developed with Nick Ishmael Perkins (at that time AMARC Africa), and we are grateful to Nick for continuing to work with us having moved to Healthlink. Mr Aziz Faye organised and managed data collection, and we are grateful to the enumerators who did the hard work of data gathering. With thanks to Mr Darnas and his team for electronic data entry. Thanks to all the interviewees who spent over an hour answering a long questionnaire. With acknowledgement to CATIA (Atos Consulting) and DFID for funding.

Executive Summary

As part of the independent assessment of Catia, a household survey was conducted in Senegal of over 650 households. The survey instrument was designed to yield data on how people are using communications, and what impact this has on their lives. The survey was not designed to measure or attribute the impact or outcomes of CATIA per se, but to make informed comment on some of the key assumptions made, and to give a view on whether the trends identified and supported by CATIA are leading to fulfillment of the CATIA goal.

The sample was drawn from four districts of Senegal, but mainly from Dakar (334) in order to get a stronger view on communication use and the impact of radio. Peri urban areas of Dakar and Thies were surveyed (190), and rural dwellers in Louga, Saint Louis and Thies were also sampled (129). Two thirds of the sample were female. The survey instrument was designed to dovetail with Senegal's recent national household survey (Demographic and health survey) thus enabling comparisons with a national sample of 69,000 people (7,400 households). The CATIA sample was representative, albeit slightly better educated, and slightly older.

The model for the survey is represented in the following chart, and uses variables grouped according to knowledge, attitudes and behaviour relating to health. The analysis used non parametric statistical tests when looking for linkages between sets of variables.



The analysis of the data demonstrates that **poverty indicators**, particularly education, tend to affect indicators right across the model – the use of telecommunication, the knowledge about health, the resultant behaviours and the outcomes.

There is almost universal use of radio, widespread use of TV, and relatively low use of newspapers, although newspaper use is higher than in the national survey (especially amongst men). The more educated trust print matter, and are making more use of the newer **ICT opportunities**. Radio remains strong in the rural areas.

As an example of the insights given by the data; by considering the correlations between media, we may say the following:-

That those who are increasing their use of radio are also tending to increase their use of TV.

With all three media, change in use correlates with confidence – mostly strongly with radio, i.e. that those who have confidence in a media source are increasing their use of it.

However, only intensity of use of newspapers correlates with confidence in newspapers – implying people will watch TV and listen to radio even if they have very little confidence in what they are listening to or watching.

An analysis of radio listening habits and preferences indicates that in urban areas people are becoming "sophisticated", possibly losing some of their roots, which has both positive and negative implications - less local language, less gender inequality. Surprisingly TV is the only medium that does not show a gender bias towards men.

So is the increasing exposure to media and telecommunications **improving health knowledge, attitude and behaviour**? As expected the picture is complex. Exposure to professional health workers clearly influences people's knowledge and behaviour. Since frequency of use of media is in itself linked to contact with health workers (we presume through wealth, education and regional factors), it is difficult to differentiate the impact of media on peoples' thinking. There are a few examples of media impact but they must be treated with caution.

In contrast to this, there are clear links between the use of **telecommunications and improved livelihoods** (beyond health alone). Family relationships are enhanced by telecommunications and this has an impact on income and other livelihood factors.

When examining the role of radio, the data demonstrates that **radio can have an influence on health knowledge**, although it is perhaps losing ground to television in urban areas (which is growing in use and can communicate with less gender bias). The CATIA activities emphasised community radio as potentially having a deeper connection with poor communities, giving voice, and being able to communicate more effectively in local languages. The survey confirmed this, but also suggests that where national stations are using local languages, they are the preferred stations. It also shows that at the moment, people who listen to community stations tend to have a poorer knowledge and attitude towards health than comparable samples who listen to national stations. This may reflect the technical and quality input that is put into national programming, and may change as community stations (with the help of Catia and connectivity) improve their quality – however the survey cannot comment on this potential future change, and at the moment it is national radio that has the greater impact.

The CATIA sample was randomly selected – it was not a purposive sample of users of the **Cyberpop cyber cafes** of the Senegal Open Knowledge Network (OKN) partner ENDA. However, the sample did purposefully include areas where the Cyberpop Access Points are located, and other comparable areas where Cyberpop is not present. The survey suggests that **use of cybercafés** is similar to comparable locations in Dakar, although cybercafé users in OKN areas are more frequent users, indicating they may be getting more value from their use. However, the cybercafés have not attracted significantly greater use by a greater number of people than cybercafés in other areas. There is no identifiable difference in content viewed between cybercafé users in the OKN areas and users elsewhere. In conclusion, there is no

evidence of the step change in internet use that OKN has been seeking – both by its focus on local content and by its support for the cybercafe telecentre model.

Referring to the two key questions for the Catia Goal:-

- **Are households with greater access to ICT making use (i.e. take up the opportunity) of that access**

A resounding yes. The urban dwellers have a greater access and take up that opportunity. While those in the rural area have less access, they nevertheless clearly take up what opportunity there is.

- **Has the use enabled poor people (in Senegal) to gain (maximum) benefit from the opportunities offered by ICT**

As stated, it is difficult to determine "maximum" benefit and the picture is complex. There is also some dilemma in the survey data that contact with health professionals is so closely linked with use of media, making it difficult to separate out the impact of the ICT on the health knowledge, attitude and behaviour (KAPB). We can say that ICT has become a part of the mix of information channels that contribute to the overall KAPB of people. Where ICT is accessed by the more educated, their health outcomes are improved. However there were a considerable number of counter intuitive relationships – for instance where listening to the radio is linked with a reduction in the likelihood of positive health behaviour.

1 Purpose of Survey

As part of the independent assessment of the Catalysing Access to ICTs in Africa (CATIA¹), a household survey was conducted in Senegal of over 650 households. The survey instrument was designed to yield data on how people are using communications, and what impact this has on their lives. In particular, the survey instrument was designed to dovetail with Senegal's recent national household survey (Demographic and health survey) thus enabling comparisons with a national sample of 69,000 people (7,400 households).

The national household survey has large sections on mother and child health, and the knowledge of the household on HIV AIDS and contraception. Only some of the extensive questioning on mother and child health was brought into the CATIA survey – mainly those questions with a focus on knowledge or behaviour that does not depend on infrastructure and services². The assumption is that knowledge on health may be gained from mass media, family discussions or health services. The response to knowledge is likely to be greatly influenced by other socio-cultural factors and this survey does not attempt to disaggregate these influences. The original national survey does not particularly focus on the distinction between knowledge and attitude and there are a number of limited questions regarding attitudinal responses to AIDS. Behaviour is picked up by the CATIA survey.

To this selective portion of the national survey questionnaire, specific sections and questions were added to reflect the enquiry required by CATIA.

- A section investigates ownership and use of communication technologies, following the methodology developed in previous DFID funded telecommunications and livelihoods research³. This also includes an extended section on internet access and use, designed to explore the impact of Open Knowledge Network (OKN⁴) cybercafés in some of the sampling areas;
- Investigations into radio listening behaviour are normally associated with specific campaigns or with specific radio stations. In this case the section on radio relies on a number of text based responses, which are coded after the survey – to identify the stations that people listen to. The survey also asks the household to recall programmes that may have been important for child education, livelihoods or health.
- The radio section is also differentiated by the presence of community stations. CATIA has prioritised community stations and while the time between CATIA and this survey is too short to make any attribution of CATIA activities to the outcomes of the survey, the investigation of the role of community stations on health and livelihoods tests the assumptions that community stations are listened to in preference to national stations, and have a greater impact than national stations.
- Previous research has established that household surveys requesting opinions or attitude to changes over the last 2 years are almost as accurate as longitudinal studies monitoring livelihood changes⁵. A section requesting comment on 2 year changes was added giving a view on impacts on livelihoods.

¹ <http://www.catia.ws/>

² For example, where asked if they attended a hospital, the answer greatly depends on the nearness of the hospital, whereas questions about breastfeeding do not depend on the infrastructure.

³ McKemey et al (2003); Souter et al (2005). <http://www.telafrica.org/>

⁴ ENDA Cyberpop is creating and exchanging local information and has 11 “access points” in Senegal <http://www.openknowledge.net/>

⁵ For instance, asking people if they have more cattle now than 2 years ago, is almost as accurate as a longitudinal study that asks ownership of cattle in year 0 and again in year 2.

- Value was added to the survey by including a section on migration and financial transfers as part of a DFID project on transformational M-payments.

The presentation below has been written more as a narrative than a statistical dissection. Nevertheless every statement can be backed up with statistics and analytical tables, which are not appended to this version of the report.

2 Hypotheses

As part of the Monitoring and evaluation of CATIA, the survey was intended to investigate a number of assumptions and to take a view on the Goal of CATIA.

CATIA Goal statement:

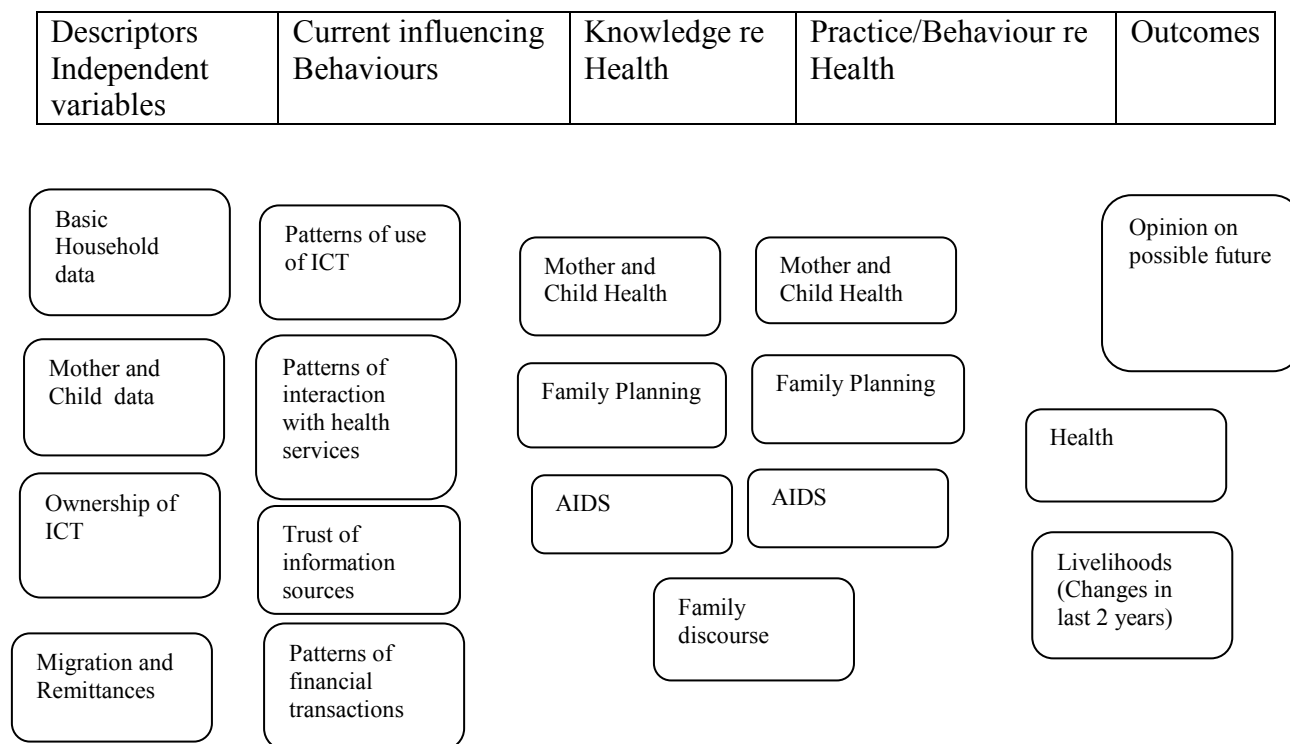
Poor people in Africa able to gain maximum benefit from the opportunities offered by ICT.

Given the Goal of CATIA the hypotheses being examined include:-

- Are households with greater access to ICT making use (i.e. take up the opportunity) of that access
- Has the use enabled poor people (in Senegal) to gain (maximum)⁶ benefit from the opportunities offered by ICT

Given the timescale of CATIA, the survey does not seek to attribute changes in access or in livelihoods., It is a view on how the changing landscape of ICTs is affecting a poor community in Africa, and therefore might enable an informed comment on the assumptions and validity of the Goal.

The model of investigation is approximated in the diagram below. From the independent variables, the analysis will look for linkages to the dependent variables.



⁶ The survey is unlikely to be able to determine if they have maximised the potential benefit – it will take a view on whether they have gained benefit.

The survey has also taken a view on migration and remittances to add value to the DFID Transformational M-Payments.

The analysis has sought to investigate the relationship between clusters of boxes in the diagram; for example:

- Is **use of ICT** (including radio listening behaviour) dependent on other **household descriptors**?
- How do the **household characteristics** influence current interaction with **health services** (this is particularly influential when considering health knowledge and behaviour.)?
- How do the **household characteristics** influence the **knowledge** about Child Health, Contraception and HIV/AIDS?
- How does **use of ICT** influence the **knowledge** about Child Health, Contraception and HIV/AIDS?
- How do the **household characteristics** influence the **practice and behaviour** regarding Child Health, Contraception and HIV/AIDS?
- How does **use of ICT** influence the **practice and behaviour** regarding Child Health, Contraception and HIV/AIDS?
- Are there identifiable linkages between behaviours and **outcomes**?

In addition to the above overall model, approximately 43% of the survey sample had access to a community radio station. The sample has been disaggregated to investigate any differences in the dependent variables between samples exposed to community radio and those not exposed (including listening behaviour).

Similarly, approximately 33% were in easy walk of an OKN cyberpop access point. The sample were not asked to differentiate their use of ENDA branded access points, but to state their use of internet cafe. Again the sample has been disaggregated to investigate any differences in the dependent variables between samples within the OKN catchment and those in an equivalent urban area.

The analysis uses non parametric statistical tests when looking for linkages. When looking at the influence of groupings, the Mann-Whitney U test has been used; this calculates the probability (p value) that differences between the two groupings have occurred by chance. Generally, only differences with a probability of less than 0.05 have been taken to indicate a significant relationship. Similarly, when considering correlations between two variables, only where the p value associated with a Spearman Rank Order Correlation Coefficient is less than 0.05, and the correlation coefficient itself is greater than 0.2, has it been assumed that a valid relationship exists.

3 Descriptors - Independent variables

The sample was drawn mainly from Dakar (334) in order to get a stronger view on communication use and the impact of radio. Peri urban areas of Dakar and Thies were surveyed (190), and rural dwellers in Louga, Saint Louis and Thies were also sampled (129).

The sample is two thirds female, but this splits along regional lines:

- in Dakar, two thirds are female
- in rural districts, only around 45% are female.

As is the case in many interviews in Africa, the interviews were conducted in the presence of others, and this may affect in part the responses. It is best to assume that the response represents the household rather than the individual.

Regarding the position of these women in the household:

- in Dakar, 27% of women are head of household;
- about a 50% in Thies (combination of urban and peri urban).
- only around 10% in rural areas

The quartile age groupings of the main respondent are under 25, 26 to 30, 31 to 37, and over 37 (approximately 25% in each group). Just under half have not been to school, for approximately 25% primary school was their highest level of education, 22% had secondary education, and 8% with higher education. Approximately half have paid employment. Among those with no education approximately 93% were functionally illiterate.

Given the complexity of African household data, this survey did not make a systematic attempt to define the poverty of the household. Urban households are notoriously difficult to define due to their lack of boundaries, and their lack of clearly defined material assets (e.g. land or cattle). To take a view of the subsequent analysis in the context of poverty and livelihoods we note 2 factors.

- There are strong cluster correlations between the answers to questions about the permanence of work, the payment type (cash or salary) and the expenditure of the household and education. It is therefore reasonable to take education as indicative of urban poverty.
- By keeping the first half of the questionnaire the same as the national sample of 7,400 households (DHSI), the sample can be placed on the national poverty statistics.

Accordingly, the subsequent commentary will use gender, education, age and region as the core differentiating descriptors, where education is taken as representative of poverty.

3.1 Comparison with National Data

As stated above the first part of the questionnaire was based on the DHS National survey. The DHS survey was conducted in 2005 with over 18,000 respondents to individual interviews. The raw data was obtained and interrogated as to whether the CATIA sample is representative of national responses.

In terms of basic descriptors

- CATIA sample is slightly older (especially women)
- Gender breakdown is similar – CATIA has greater proportion of men
- Working status is similar, and similar between sexes.
- The CATIA sample selected households rather than individuals (in Section 3 it was noted that responses to the CATIA survey better represent the household than the individual), so this sample has a higher proportion of heads of household than the country sample.

The CATIA sample is better educated than the country as a whole – while the proportion of men with no education is similar, more have higher education. A greater proportion of women in the CATIA sample have secondary education, and fewer have no education.

In the National survey there are ethnic groups that are not available in the CATIA survey, however the proportions of dominant groups in the CATIA sample are similar to the country as a whole.

4 Changes in communications and media context

In this global environment, it is no longer surprising to find that there is widespread use of communication media in Senegal.

Table 1: Use of ICTs

	SOME use	%
radio	588	90%
tv	530	81%
fax	62	9%
phone kiosk	550	84%
mobile	385	59%
SMS	218	33%
private fixed line	201	31%
email / internet	105	16%
PC	36	5%

4.7% do not register use of any communications technology; this group has the following characteristics:

- Half are in Thies; 16% in Dakar;
- 61% female
- Mean age 36.9 i.e. older than the whole sample
- 54.8% had no education
- 51.6% are illiterate

It is clear that ICT has become embedded in Senegal society, and it the very poorest and illiterate that are not making use of the potential access.

This use of communication media results is consistent with other research in Africa. Data in the following table, for example, shows similar use of radio and mobile phones, higher use of TV in Senegal, and higher use of public and fixed line phones in Senegal. Use of the internet stands out as being much higher in Senegal, so may not be representative of the country as a whole. Half of the Senegal sample was drawn from urban areas, whereas around one third of the samples used by Souter et al were from urban centres, so one might expect higher use of TV and internet amongst the Senegal sample.

Table 2: Use of ICTs⁷ (Percentage of sample – Souter et al)

	Mozambique	Tanzania
Use of different ICTs	Used %	
Radio	92.4%	96%
TV	57.9%	54%
Public phone / kiosk	68.9%	21%
Mobile phones	56.0%	61%
Short message service (SMS)	37.6%	33%
Private fixed line phone	9.6%	9.8%
Email / internet	1.5%	2.0%

⁷ Souter D., Scott, N., Garforth C., Jain R., Mascarenhas O., and McKemey, K., The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction: a study of rural communities in India (Gujarat), Mozambique and Tanzania (Commonwealth Telecommunications Organisation for UK Department for International Development, 2005)

Regarding National survey use of ICT:- The country sample shows almost universal use of radio, widespread use of TV (over half) and relatively low use of newspapers. This is the same trend as shown by the CATIA sample, although the higher educational status of the CATIA sample is reflected in higher rates of newspaper use (especially amongst men).

Regarding National survey the use of mobile phone:- Samples are similar in that they show ownership of mobile phones to be equal between men and women. However levels of ownership in the CATIA sample are slightly higher than the country sample, reflecting a concentration of male household heads, and higher levels of education.

Overall, access to radio and TV has improved over the last 2 years, although people felt there has been no significant change in telecoms. A little surprisingly access to cars has deteriorated.

Regarding the changes in access:-

- improved access to telecoms and TV correlates with education (not radio or car);
- significant differences across regions:
- telecoms and TV got better only in Dakar;
- radio improved through all districts

5 Patterns of Use of Media

Two thirds of the sample listen to radio every day – half watch TV. The following table narrates how the core descriptors relate to the use of media.

	Newspapers	Radio	TV
Education	both confidence and change in use of newspapers correlates with education – those with secondary and higher education have a positive view of papers, but only those with higher education registered an increased use of papers		
Gender	papers (and radio) are clearly more intensively used by men than women	women expressed higher confidence in radio and TV than men, accompanied by more positive change behaviour for both (marginally increased use of both)	frequency of use of TV (and radio) not sensitive to gender
Regions	decrease in use of newspapers is the only variable that is universal. newspapers most intensively used in Daka, least in Thies (poverty / education)	use of radio increased in all regions except Dakar radio most intensively used in Louga and Saint-Louis, least in Thies music in own language is most popular in Louga and Thies (least so in Dakar)	TV only intensively used in Dakar (not much in others)
Age		pop music is more popular with better educated, and with the young	

Education:- Newspaper readership is closely related to education, unlike radio which is listened to across all educational groups. TV weakly relates with education, possibly reflecting the wealth aspect of ownership and access.

Gender:- papers are clearly more intensively used by men than women. Radio is more intensively used by men, but the differences are not significant. TV also shows no gender difference, implying that women have equal access to TV (This statement needs to be made in the context below – that TV is intensively used in urban situations, so the lack of gender bias perhaps suggests that, as to be expected, the more sophisticated urban dwellers are moving towards gender equality) .

Regions:- There are significant differences between regions; newspapers are most intensively used in Dakar, least in Thies (again this probably reflects the poverty / education link to the regions). Radio is most intensively used in Louga and Saint-Louis, least in Thies – this will be further examined in the later section on which stations are popular. Perhaps as to be expected TV is only intensively used in Dakar.

In terms of trusted sources of information, television has the highest confidence rating while newspapers have the lowest. This is consistent with the data showing that among the urban population there is an increase in use of TV while there is a severe reduction in use of newspapers.

Examining this a little further there is (perhaps as expected), a strong correlation between use of newspapers and education, with the secondary and higher educated having a positive view of newspapers. However as stated above general use of papers is declining and it is only those with higher education that register an increased use of papers.

There is an emerging picture of differences both between educational groupings but also urban and rural regions. There were significant differences across regions in terms of use of media. In contrast to newspapers, the use of radio increased in all regions **except** Dakar.

By considering the correlations between media, we may say the following:-

- That those who are increasing their use of radio are also tending to increase their use of TV.
- With all three media, *change in use* correlates with confidence – mostly strongly with radio, i.e. that those who have confidence in a media source are increasing their use of it.
- However, only *intensity of use* of newspapers correlates with confidence in newspapers – implying people will watch TV and listen to radio even if they have very little confidence in what they are listening to or watching.

5.1 Focusing in on Radio

Regarding the details of radio listening habits we note:-

- pop music is more popular with better educated, and with the young;
- there are no significant differences in preferences according to gender
- music in own language is most popular in Louga and Thies (least so in Dakar) although across the whole sample there was a strong preference for music in own language, and traditional music
- similarly, radio dramas are least popular in Dakar and Saint-Louis; across the whole

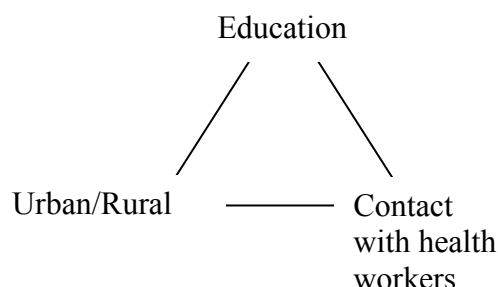
- sample there was mild dislike of radio dramas
- universal disinterest of phoning in – most so in Dakar. Only 82 (12.5%) have taken part in a phone in.

The picture painted by the data is of an urban population that is losing its roots – being less concerned about its mother tongue, and being more discerning in its likes and dislikes.

Radio messages are an increasing phenomena. 30% of respondents have sent a message on the radio at some point. Around 70% of these related to death announcements; the next most common topic was marriages at 14%.

6 Patterns of use – health professionals and discourse

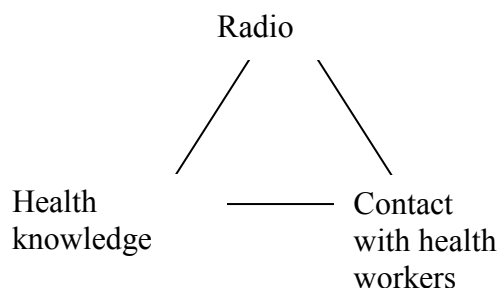
Since the survey is particularly picking up on health knowledge and behaviour, it is important to look at sources of influence other than the media, and in this case the contact with health workers and with other members of the family were investigated.



As to be expected it is the more educated who had greater contact with health workers.

The questions about whether the household has been visited by a health professional, have visited a clinic and exposure to health professionals all correlate very highly. This suggests that exposure to health workers is coincidental rather than complementary – ie one might hope that fieldworkers are reaching those people who might not come to the clinics – however for whatever reason they are not. Fieldworkers are not (in the main) reaching a different grouping of people than the clinics, rather there is a group of people who avail themselves of health services, and others that don't. This may be because the field workers are doing their job well, referring people to and encouraging people to go to health clinics. It may also be that staff at the clinic are doing their job well, by giving names of households to the fieldworkers to follow up with. It may be that each group is not doing its job well and that there is a grouping of educated people who avail themselves of the services available. Whichever this is, the outcome is that there is a grouping of people who have a greater exposure to health messages through the health system than others.

This comes into play when cross correlating with the media – there is a strong relationship between hearing about health advice and radio and attending clinics and/or receiving field visits from health professionals.



Strengthening this interrelationship there are also links through to discussion in the household. Where people have had input from either health workers or media, they will have greater likelihood of having discussed family planning (with the household and various people)

6.1 National Survey exposure to Health Workers

There was a significant difference in the DHS survey, regarding visits by a health worker.

	<i>Country - Female</i>	<i>CATIA - Female</i>
Visited by family planning (FP) worker last 12 months	99.3%	10.1%
Visited health facility in last 12 months	57.3%	20.0%
At health facility, told of FP	6.6%	9.4%

We would question the accuracy of the 99% visit figure in the National survey.; it seems very high for a country wide figure. Nevertheless if we accept the national figures, then the incidence of visits by health workers and to health facilities is lower in the CATIA sample – especially visits by family planning workers. However, the proportion of respondents who have been told about family planning at a health facility is of the same order of magnitude.

Interestingly the very high visitation claimed in the national survey is not reflected in responses to family planning, and there is actually a slightly higher receptivity to family planning messages amongst the CATIA sample. Whereas recognition of radio and TV messages is similar between the samples, recognition of newspaper messages is higher among the CATIA sample – this is consistent with the higher use of newspapers in this sample.

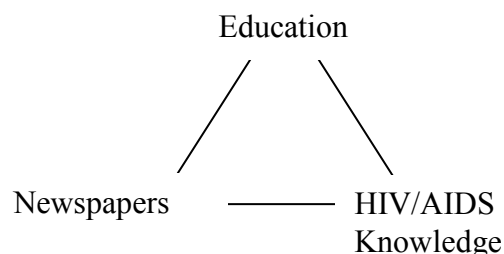
7 Knowledge (Health)

The above section leads in to a more detailed examination of the influence of descriptors, the use of media, and contact with health workers on key indicators of health knowledge. As described in the introduction, health indicators were used that should, in theory, not be dependent on the health infrastructure, e.g. knowledge about breastfeeding, diarrhoea, AIDS and family planning.

The approach taken in the analysis was to split the sample in two on the basis of their response to a knowledge variable, then perform a Mann Whitney Difference test to look for other variables where differences occur – this is a non parametric approach. For instance, the AIDS awareness questions have been converted into bipolar “knows” : “doesn't know” variables.

7.1 HIV/AIDS

Perhaps unsurprisingly education is the most consistent determinant of knowledge. Knowledge seems to be relatively insensitive to gender – generally, men tend to have better knowledge (with the exception of questions relating to mother to child transmission). Readership of newspapers appears to be strong determinant. However it is worth recalling that education is a strong determinant of readership. Of the other media, radio appears to have weakest links to knowledge. For instance people who claim to have heard of different brands of condoms and those who don't both claim to have heard about family planning on the radio – indicating that radio experience has not given them information on condoms that actually affects their knowledge. By contrast while people who know about condoms have heard



about family planning through TV and papers, people without knowledge on condoms do not claim to have heard about family planning through TV and papers.

As expected from the above analysis of linkages between health workers, education and knowledge, people who visited a health facility have better knowledge. There are consistent links between all aspects of AIDS knowledge and contact with health personnel (family planning workers, clinics, etc.) – can we make the link that they are doing a good job? The one unexpected response, is that contact with health workers seems to have had little impact on the households knowledge about the symptoms of sexually transmitted diseases – this may represent a deficiency in health worker training?

We would also expect that knowledge is reinforced by discussion, and certainly people with knowledge of condoms are more likely to have talked about family planning (with either their household or somebody else).

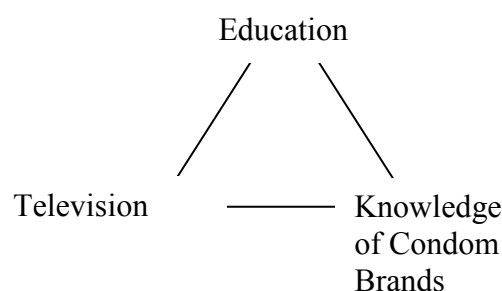
On the whole, basic knowledge concerning AIDS infection and prevention is lower in the CATIA sample than in the national sample. There are a few areas where notable differences are evident between the two samples:

- CATIA sample has poorer understanding of maternal transmission – especially during delivery and when breastfeeding;
- CATIA sample has a better understanding that AIDS cannot be spread through mosquito bites.

7.2 Mother and Child Health and Family Planning

The predominance of questions about mother and child health and family planning were about the actual behaviour of the household rather than their knowledge.

One area of knowledge regarding mother and child health is the transmission of AIDS through pregnancy, delivery and breastfeeding. Pregnancy and Delivery are tightly related to the usual variables – education, frequency of use of media, contact with health workers and the urban rural divide. However perhaps surprisingly and certainly importantly, the message about transmission of AIDS through breastfeeding is not related to almost any other variable, with the exception of TV and family discussion.



Counter to its transmission of AIDS, breastfeeding is generally encouraged by health professionals. Greater knowledge about how quickly the child should be breastfed was distinguished by gender – women are more likely to know that it should be soon as possible.

Regarding family planning the knowledge question was about the brand of condoms. This too is strongly influenced by education, and its linkage through to TV. As discussed above under the AIDS section disappointingly there is no link between radio use and improved knowledge.

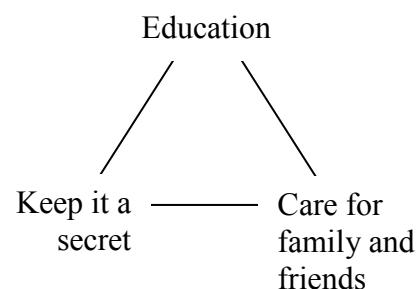
Only one indicator shows any marked difference between the national and CATIA samples. In response to the question "how long after birth is baby put to the breast", responses were recorded slightly differently in DHS and CATIA surveys. We note that in the translation the CATIA survey asked when "should" baby be put to the breast, whereas DHS survey asked when "was" it done i.e. Practice v. knowledge.

10.4% of Country sample said they put baby to breast immediately. This compares with 22% of the CATIA survey.

8 Attitude (Health)

It is possible to distinguish knowledge from attitudes. Attitudes towards AIDS are an important influence on society.

The views on AIDS are complex. The better educated and the younger prefer to keep AIDS a secret; yet they would be prepared to look after friends and family who might have AIDS. This possibly reflects their greater knowledge that AIDS transmission can be mitigated, and yet their wish to keep it secret reflects their understanding that society frowns on and is scared of those who have AIDS.



So how has the media influenced these attitudes? While most media reinforce the above (that the more educated are willing to care for someone with AIDS but have a greater preference to keep it secret), radio and television might be having an impact on those attitudes. Those who have a higher frequency of use of radio and television are more likely to care for people. The higher frequency of use of radio and television is NOT related to the wish to keep it secret, which suggests that radio and television do not appear to reinforce the stigma associated with AIDS, and they may indeed provide a forum for opening society to discussion about AIDS.

Similarly the linkages are not there between contact of health workers and keeping it a secret, and caring. Since health worker contact is related to education and urban dwellers, the lack of linkage suggests that health professionals may be encouraging more openness about AIDS but failing to encourage caring for AIDS sufferers.

Similarly there are strong linkages regarding positive attitudes to family planning and education.

Research has shown that people place a high value on the ability to communicate information on the health of family members. This survey confirms there are positive attitudes towards the ability to contact sick relatives. People with lower levels of education prefer face to face, radio, and phone, while those higher educated prefer SMS, adverts. For urgent messages those who preferred radio are mainly women.

The relationship between health workers and communicating sickness and messaging is complex. People who had contact with health workers place a higher value on being able to contact sick relatives (and communicate urgent information), with the exception of those who had NOT been contacted by a field worker and those who did NOT to staff at a clinic (to talk about family planning) who placed higher value on information about sick relatives. People not getting information from health workers place a higher value on being able to communicate about sick relatives. This seems to suggest that the uncertainty about health, and concern for relatives (fearing the worse), is higher with those who have less knowledge about health.

9 Behaviour (Health)

As stated above, the focus of the questionnaire developed by the DHS for the whole of Senegal was much more on the health behaviours rather than spending too much time on knowledge. Accordingly the linkages between behaviour and the independent or influencing variables are much richer.

9.1 Family Planning

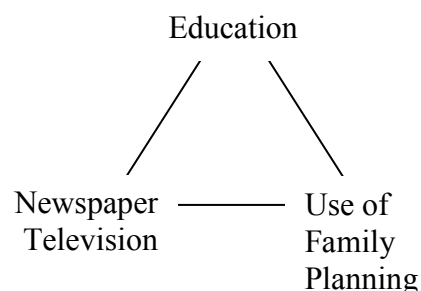
21.4% of the households sampled were using some method of contraception. The most popular methods are:

1. pill 13.4%
2. injectibles 5.5%
3. condom 1.5%

The vast majority of women in the country sample have some knowledge on contraceptive methods (91%). However, a relatively small proportion claim to have ever practiced (20%)

As expected those currently using contraception are the better educated. They also tend to be older couples.

People who use contraception tend to be more intensive newspaper readers, however when adjusted for education it would seem to be that it is a more generalised awareness that is the source of the linkage rather than newspaper message per se. Similarly, those implementing family planning tend to be more intensive television watchers – again with a link through to education.



By contrast though, there is no significant difference in radio listening behaviour between people using family planning and those not. However, when it comes to messages transmitted through radio, the proportion of those using family planning who claim to have heard about it through the radio is higher than among those **not** using family planning. Everybody listens to the radio, and messages through the radio have affected behaviour.

A greater proportion of those using family planning have had contact with health workers, which would suggest that the health workers are doing a good job, although again with the caveat that education and contact of health workers are linked.

Interestingly while the pill and general use of family planning highlight the above characteristics, the use of condoms shows no such correlations with any source of media. It suggests that perhaps either men are less receptive to messages over the media or that the promotion of condoms in Senegal has been less effective.

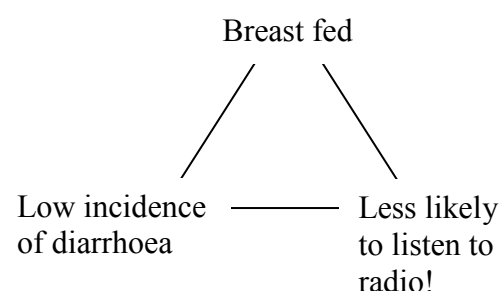
Current use of contraception appears higher in the CATIA sample than in the country sample (women only) – 28% of women in the CATIA sample claim to be currently using some form of contraception. This is counterintuitive, as a greater proportion of women in the Country sample claim to be living with a man. In the CATIA sample there is a clear preference for the

pill, which is not reflected in the country sample – we assume this may have something to do with levels of education (and wealth?).

9.2 Child health

The picture for child health is very different from the above. There is an inverse relationship between giving children vaccination and education (i.e. those better educated are **less** likely to have given their child vaccinations). Similarly, it is the less educated that are more likely to breast feed immediately and for longer. And for both the above the variables are higher in the peri urban areas than in urban Dakar.

Breast feeding is an important behaviour, and this is born out in the linkages between behaviour and outcomes. The survey shows that breast fed children are (statistically significantly) less likely to have had diarrhoea in the previous 2 weeks (from the survey) than those who are not breast fed. Similarly, those who are given homemade fluids are more likely to have diarrhoea.



However, disappointingly for the radio enthusiast, those more likely to be feeding breast milk are **less** likely to listen to the radio. If this were purely a manifestation of poverty, ie less wealth, less likely to listen to radio, we would expect the linkage of breastfeeding to other poverty indicators – however no such linkage shows. Similarly there are a number of inverse relationships especially when vaccinations are involved. Is it that the educated and wealthier urban dweller feels they need less vaccinations?

A greater proportion of those giving homemade fluid (after diarrhoea) had contact with a family planning health worker again indicating that health workers are doing their job. There was generally more positive responses to diarrhoea in those that had contact with health workers. And no special linkages with any media.

10 Outcomes (Health)

Finally for this section, we examine the links to the health outcomes. While behaviours such as breastfeeding have links to the incidence of diarrhoea, there are no links that follow through from the independent or influential variables all the way through to outcomes. A greater proportion of those whose child has had diarrhoea in last 2 weeks have discussed family planning which is slightly counter intuitive in that one would expect discussion to be indicative of a general awareness of health.

When we consider infant mortality we find that people without deaths tend to be better educated (and more intensive users of newspapers and other ICT), are younger, and the respondents more likely to be female. Foetal mortality shows less linkages generally and not with education, although TV use is higher among those with less deaths.

Interestingly infant and foetal mortality shows no links to contact with health workers. There are also a number of counter intuitive links between behaviour and outcomes. For instance:

- those who experienced infant mortality more likely to wash hands (counterintuitive);

- amongst those who experienced foetal mortality, a greater proportion can remember something about health from the radio
- of those who experienced foetal mortality, a greater proportion gave polio vaccine immediately after birth, they gave a larger number of vaccinations, and gave DPT vaccine. (counterintuitive?)

10.1 Outcomes (the broader picture)

Across all the livelihood indicators those who experience an improvement in health also tended to experience an improvement in all other aspects. This may suggest that those who can make improvements in one aspect of their livelihoods can reap the benefits across their whole household, and can find their way towards a virtuous cycle rather than the spiral downwards of poverty. However, it may also mean that some households are "glass half full" people!

Table 3: Changes in livelihoods indicators – whole sample (means)

	<i>Mean</i>	<i>Capital asset</i>
Relationships with your friends	4.06	Social
Relationships with family members	3.85	Social
Your own level of knowledge and education	3.34	Human
The health of your family members	3.23	Human
Education opportunities for your children (0 if no children)	3.06	Human
Below this line, the situation is there is deterioration not improvement		
Your household income	2.98	Economic
Access to telecommunications changed	2.96	Physical
General security in your neighbourhood	2.54	Institutional factor
Support from family members living elsewhere	2.52	Social/Economic
Quality of government services (e.g. levels of corruption)	2.23	Institutional factor

1 = much worse; 3 = no change; 5 = much better

For the sample as a whole, greatest improvements in livelihood factors has been in relationships with friends and family. The other high ranking changes are deterioration in government services, the support from family and in general security. It is interesting to note that 2 of the bottom ranking 3 are beyond the control of the household and are contextual institutional factors that affect livelihood strategies (see Livelihood model).

Returning to the relationships between people, there are strong positive linkages between support from family and household income (thus demonstrating the growing importance of remittances). This positive link is further supported by correlations between improvements in relationships with the frequency of use of telecommunications, in particular mobile telephones. This is interesting given that, overall, people feel that there has not been an improvement in access to telecommunications.

Indeed there were quite a number of relationships between the improvements in livelihoods and frequency of use of various telecommunications (e.g. mobile, SMS, fixed line phone). Such a link between frequency of use of media (radio, TV, etc) and improvements can not be seen. This contrast between telecommunication and media, suggests that the improvements are not just a feature of education or wealth, but are genuinely related to the connectivity people are now able to utilise.

Health behavioural variables which show greatest number of links with livelihoods outcomes are:

- sleeping under bednet;
- timing of polio vaccinations
- remembering health programme on radio

11 Digging into Radio.

Having looked at the general relationships across the variables, this section looks in more detail at peoples response to the sections on radio, and attempts to unpack its influence on knowledge, attitude and behaviour.

Radio is more frequently listened to in the rural areas. Frequency of listening does not correlate with any of the preferences for programming.

The stations listened to are presented in the table below:

Table 4: Radio Stations ranked in according to preference

	Frequency	Percent	Valid Percent
Walfadjiri	112	17.1	19.3
Gaynaako FM	74	11.3	12.8
Sud FM	62	9.5	10.7
Dunya Mbour	60	9.2	10.4
RFM	47	7.2	8.1
other	41	6.3	7.1
Lamp Fall FM	38	5.8	6.6
Sokhna FM	38	5.8	6.6
Nostalgie FM	33	5	5.7
RFI	28	4.3	4.8
Fatick FM	17	2.6	2.9
RTS	12	1.8	2.1
Dakar FM	10	1.5	1.7
Oxygene FM	7	1.1	1.2
Total	579	88.4	100
Missing System	76	11.6	
Total	655	100	

Gaynaako is a community radio station and its popularity is disproportionately high given that it only reaches a part of the overall sample.

Most people listen to a mix of stations and languages. However, those stations identified as favourites by 60% of the sample broadcast in local languages. 27% prefer to listen to stations broadcasting in French. Wolof is clearly the most popular language. As might be expected, people tend to prefer stations using their own language; with the odd exception being Serere speakers who listen more to stations in Wolof.

So what is the profile of the local language listener? People who listen to local language stations:

- have lower levels of education
- are older;
- greater proportion are female

- less intensive users of newspapers, tv, fax, mobile, SMS, fixed line, internet
- less likely to have contact with health workers
- more likely to have heard about Family Planning on the radio;
- less likely to have heard about Family Planning through newspapers
- less likely to have talked about AIDS with woman

The picture is that local language listeners tend to be poorer (Education, ICT use). There is a significant difference in Urban/rural context – local language listeners more rural.

Do those who prefer local language have different listening habits to the French listeners? The sample was divided into 2 according to whether people listen to stations in local languages or French, and a MW test for differences in radio preferences and behaviour show several significant differences:

- people listening to local language stations have a greater preference for pop music (but not traditional or local language music) (counterintuitive);
- people listening to local language stations are more likely to have taken part in a phone in;
- French station listeners have a greater liking for dramas;
- French station listeners more likely to have bought something based on adverts
- greater proportion of French station listeners found news item relevant
- greater proportion of French station listeners can remember a programme that helped with farming

This generally paints a picture of French station listeners being more serious and culturally aware.

43% of the sample are served by community radio. 13.6% claim to listen to community radio. Several investigations were attempted including comparing:

- people who claim to listen to community radio stations
- all other radio listeners

and comparing

- all radio listeners in communities served by community radio stations
- radio listeners in all other locations

Those in areas with community radio may be marginally lower status, but there is no difference in level of education (key poverty indicator). However, there are many more differences according to whether the individual actually listens to community radio:

- in this case people listening to community radio tend to be of lower status – lower education and lower frequency of use of ICT technologies ;
- a greater proportion of community radio listeners are male;
- people who listen to community radio are more frequent radio listeners, and they are much less intensive users of tv (consistent with their lower status);
- those listening to community radio have experienced a higher degree of contact with health workers;
- a greater proportion of those listening to community radio had heard about family planning over the radio;

Rather surprisingly, of 89 people claiming to listen to community radio, only 1 claims to have taken part in a phone in.

Figure 1 shows that the overwhelming reason for listening to the radio is for information (note that this is regarded as distinct from news). Music and entertainment are a long way behind.

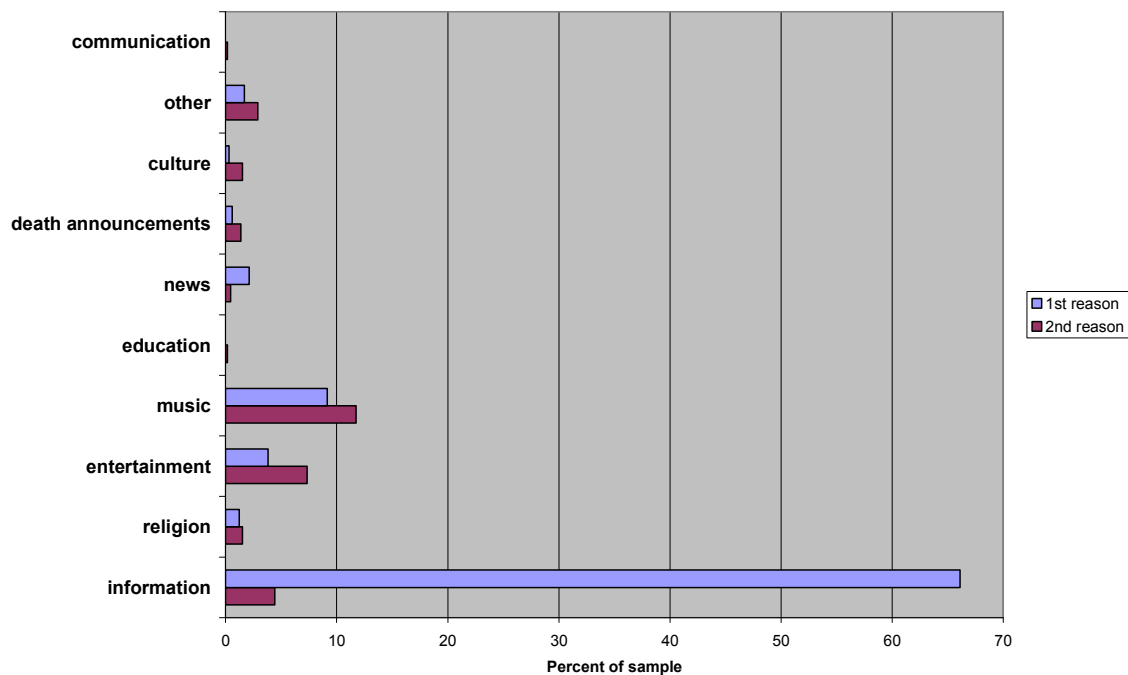


Figure 1 Reasons for listening to the radio (whole sample)

An indication of the effectiveness of radio in getting messages across is given by the number of respondents who could recall an advert – 66% of the sample. Most people gave the type of product rather than a specific brand name, enabling responses to be categorized according to type of product (see Figure 2).

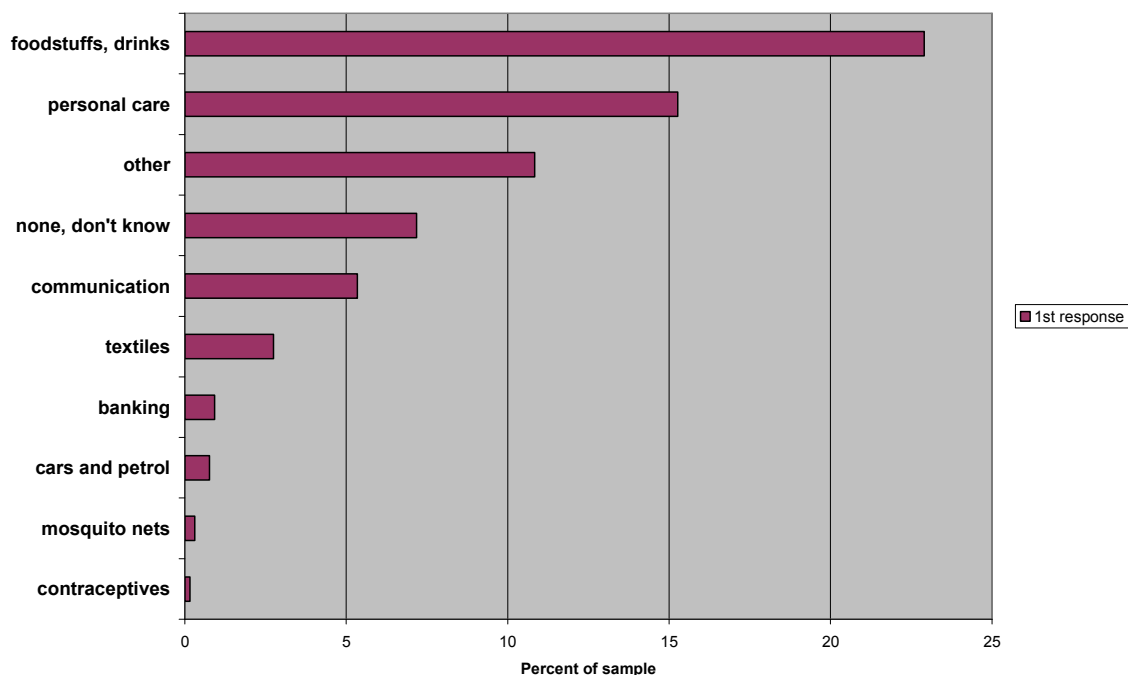


Figure 2 Category of product associated with adverts that respondents could recall (whole sample)

11.1 Community radio and health

However, like most of the above, the picture is complex. While those listening to community radio tend to have heard about family planning, their behaviour is not significantly better than those who don't listen to community radio. Tests performed on a selected sample – only those registering some frequency of radio use, suggest that

- A greater proportion of those currently using FP methods do NOT listen to community radio;
- A greater proportion of those using the pill, injectables do NOT listen to community radio
- A greater proportion of those using condoms (mostly men) do listen to community radio.

Similarly regarding child health behaviour there are a few differences between those listening to community radio:

- a greater proportion of people using a mosquito net listen to community radio
- a greater proportion of people washing hands do NOT listen to community radio
- a greater proportion of people who gave polio vaccinations later (as opposed to after birth) listen to community radio
- there is a correlation between those listening to community radio and the number of polio vaccinations given

However as we have seen above, the prevalence of vaccinations is greater in rural areas, where the community stations are. When asked if they could recall the subject of a radio programme that that helped their children, the most quoted topic was education, followed by vaccinations. Gaynaako (a community radio station) is the most quoted station associated with these programmes, and it can be seen that this station has been effective in communicating messages on vaccinations.

Disappointingly for the community radio enthusiast, more of those who can remember a radio programme are NOT served by community radio, although again this response is overlaid by education and other significant factors.

If we step back from behaviour to look at knowledge, in this case of AIDS, the picture remains disappointing (to the community radio enthusiast):-

- Of those who *know of brands* of condoms, a greater proportion listen to community radio'
- of those who have heard of AIDS, a greater proportion do NOT listen to community radio
- when it comes to knowledge on what can be done to avoid AIDS, those who are aware generally are more likely NOT to listen to community radio.
- Amongst those with a correct understanding of infection and transmission of AIDS, a greater proportion do NOT listen to community radio.
- Exceptions are an awareness of *value of condoms* and the ability to transmit the virus during breast feeding – people with a correct understanding are more likely to listen to community radio,
- Those who have heard of other STDs less likely to listen to community radio
- people who recognise loss of weight as AIDS less likely to listen to community radio

Regarding attitudes

- People wanting AIDS to remain a secret more likely NOT to listen to community radio
- people more willing to look after a relative more likely NOT to listen to community radio
- amongst those who regard radio as good media for urgent information, only a small proportion listen to community radio
- People listening to community radio more likely to approve of family planning

11.2 Radio conclusions

The above demonstrates that radio can have an influence on health knowledge, although it is perhaps losing ground to television in urban areas which is growing in use and can communicate with less gender bias. The CATIA activities emphasised community radio as potentially having a deeper connection with poor communities, giving voice, and being able to communicate more effectively in local languages. The survey confirmed this, but also suggests that where national stations are using local languages, they are the preferred stations. It also shows that at the moment, people who listen to community stations tend to have a poorer knowledge and attitude towards health than comparable samples who listen to national stations. This may reflect the technical and quality input that is put into national programming, and may change as community stations (with the help of CATIA and connectivity) improve their quality – however the survey cannot comment on this potential future change, and at the moment it is national radio that has the greater impact.

The DFID assumptions state the following:-

DFID Assumption	Comment based on Senegal Household Survey
A. Genuine community, public-service and local radio stations are a proven force for development and peace-building.	There is evidence that radio is a channel for health education.
B. The more such stations there are in a country, the higher the likelihood of positive development outcomes.	The survey does not seek to comment on the number of stations, however, since many people listen to the national stations, there is no evidence from the survey that community stations add anything regarding health education. This does not mean that they have no value on other development outcomes.
B. More and better- trained broadcasters and station volunteers will produce more and better pro-poor programming.	The survey cannot address this technical assumption – however the ability of national broadcasts to communicate messages more effectively than community stations suggests that it is the more qualified national broadcasters that can produce pro-poor programming.
B. The more stations are networked with each other, the better their pro-poor content will be.	The survey cannot address this technical assumption
B. Portals and audio-exchange systems will be used and valued by African broadcasters.	The survey cannot address this technical assumption

B. Audiences in poor and war-torn areas will notice a positive change at, and will be able to engage more with, local radio stations.	The survey suggests that the retention of messages is not more effective in community stations, but it is more effective in National stations – as long as that station is broadcasting in the local language.
C. Radio stations with proper connections to the Internet and better technically-trained staff will be able to serve the poor better.	The survey cannot address this technical assumption..

12 Digging into Cybercafes (OKN)

The following section must be treated with caution. The OKN has planned its own M&E of its own activities through its ethnographic research approach, now led by the Zimbabwe partner Safire. The CATIA household survey was a random sample of people in certain locations – it was not a purposive sample of users of the Cyberpop cyber cafes of the Senegal OKN partner ENDA. However, the sample did purposefully include areas where the Cyberpop Access points are located, and other comparable areas where Cyberpop is not present. The following analysis looks at users of internet cyber cafes and makes comparisons between those in a Cyberpop area and those not.

Looking at the demographics of people in the communities served by CyberPOPs: covers 33.4% of the sample – all are in Dakar district. There are a number of differences between people in these communities and the rest of the sample:

- higher levels of education;
- more frequent use of all ICTs (radio, tv, phone kiosk, mobile and SMS (big difference)), with the exception of email / internet;
- greater proportion visited by health worker who talked about FP;

The various cautions and caveats to the analysis include that –

- **there is no view on whether cyber cafe users in a OKN area actually use an OKN affiliated cyber cafe** – they may be using another private cafe. There is an assumption that users of cyber cafes in OKN areas might prefer the OKN cyber cafe, and that the sample represents the impact or effect of the ENDA/OKN experience.
- **the sample is small.** As stated above approximately one third of the overall survey sample live in areas where there is an OKN affiliated cybercafe. However, only the more educated and wealthier tend to go to cybercafes. 105 people across the sample use internet or email. Of these only 51 use cyber cafes (the others using their workplace, schools or rarely their home). Of these 51, 15 live in OKN areas.

Therefore, while the following gives a view, it is not definitive, and it is important that OKN deliver on their ethnographic M&E to really determine if OKN is having any impact on their client groups.

The 15 people using cyber cafes in OKN locations tend to be (statistically significant)

- younger;
 - greater proportion are female
 - are less intensive users of newspapers;
- than the 36 cyber cafe users of other locations.

12.1 Regarding health

There are a few differences in health behaviour with OKN located cyber cafe users tending to use a form of contraception more than the others. However, in terms of HIV/AIDS knowledge the OKN located users tend to have less knowledge about transmission and prevention. There is a greater proportion of OKN located cyber cafe users claiming they heard about family planning from radio and newspapers, but this is counter intuitive since they are actually less intensive users of newspapers.

Similarly there were no significant differences in attitudes towards AIDS and PLWA between the two groups (of Cyber cafe users). People using cybercafés in OKN areas are less concerned about secrecy of AIDS, and again this is counter intuitive in that the more educated tend to be more concerned with secrecy.

Cybercafe users in areas served by OKN place a greater importance on information relating to sick relatives, but those living elsewhere place greater importance on information relating to urgent matters (assumed often to be relating to health matters) i.e. Inconclusive.

In conclusion there is no clear unequivocal impact on health knowledge based on cyber cafe use.

12.2 Regarding Livelihood Outcomes

Cyber cafe users in areas served by OKN feel that things have improved more than users elsewhere.

- In particular, users of cybercafés in OKN served areas feel that access to telecommunications has improved more than cybercafé users elsewhere.
- They also feel that family health and relationships with friends have improved more than other users;
- They feel that support from family members living elsewhere has improved, while users elsewhere feel support has got worse.

However, this has to take into account the higher education of the users, who over the whole sample feel that telecommunication has improved, as has associated social capital. They are also Dakar dwellers, who also overall feel telecoms has improved – and finally they are cyber cafe users – so one would expect them to be "communication geeks".

12.3 Attracting new users?

Has the presence of CyberPop encouraged greater use of the internet? 14.7% of respondents in other areas make some use of the internet, compared with 20% in areas served by OKN. This possibly indicates that more people are able to use the internet in the presence of OKN cybercafé, but is more likely to reflect better levels of education and better connectivity in OKN areas. So do more people use cybercafés? The 15 cybercafé users in OKN areas represent 7.0% of all residents, compared with the 36 cybercafé users elsewhere representing 8.5% of their location sample. So there is no evidence that people in OKN areas are being attracted to use cybercafé more than in comparable areas.

However, of more interest is the frequency of use. Cybercafé users in OKN are more intensive users of the internet, possibly indicating that these cybercafés provide a more

appealing environment, or some other feature that makes them more attractive. This might be lower price, but then we'd expect to see more users overall. More intensive use might indicate that the internet experience is of greater value – but astrology and music are the most commonly browsed sites in this group of users!

In all instances of cybercafé use, almost all users use it by themselves i.e. No evidence that OKN cafes provide people with more assistance.

12.4 What people view

So do we have a view on what people use the internet for? The figure below shows the proportion of respondents in the two categories who browse different types of websites:

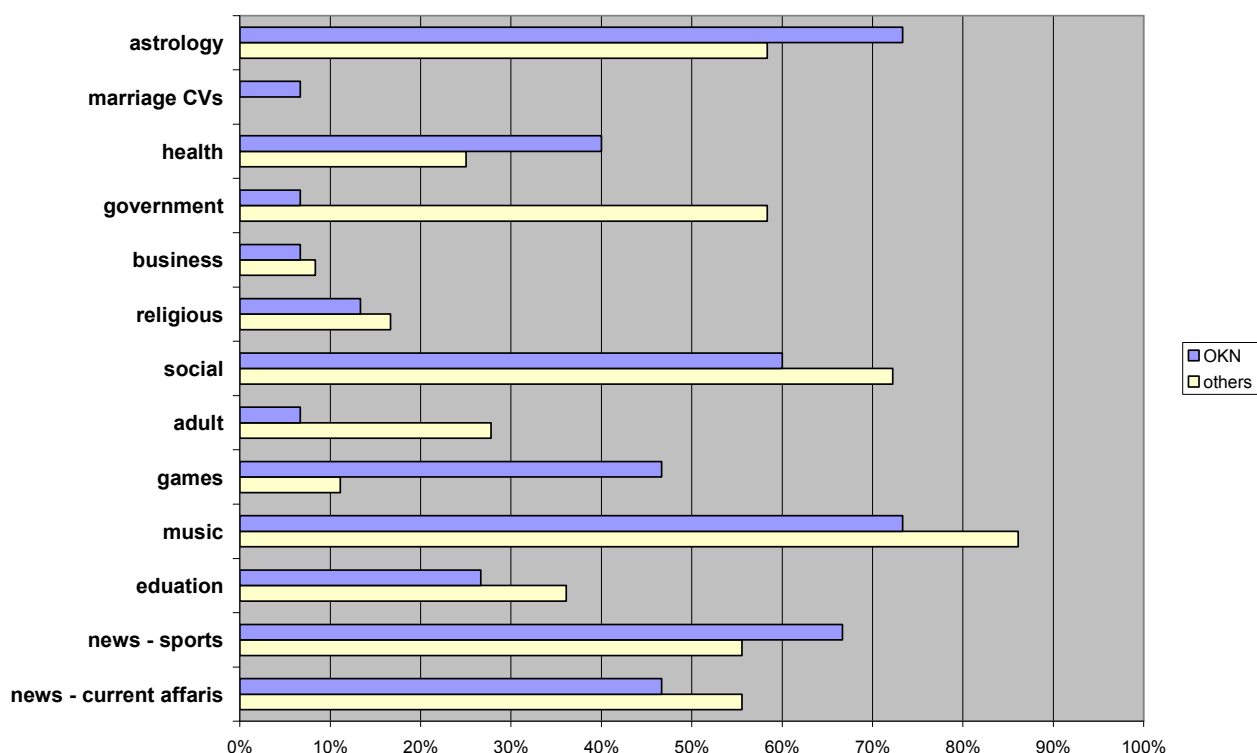


Figure 3 Types of internet sites most commonly browsed (% of cybercafé users)

A few differences may reflect the type of service provided in OKN cybercafés (although as stated above it is not certain that the cybercafés used by people in OKN served areas are actually OKN cybercafés).

- Greater interest in health;
- Less use of adult sites;
- More interest in games;

12.5 OKN Conclusion

The internal reporting of OKN suggests that the OKN sponsored cybercafés in Senegal are well subscribed, and that OKN Senegal is one of the most successful partners of the OKN. The survey suggests that use of cybercafés is similar to comparable locations in Dakar, although those in OKN areas may be more frequent users indicating they may be getting more

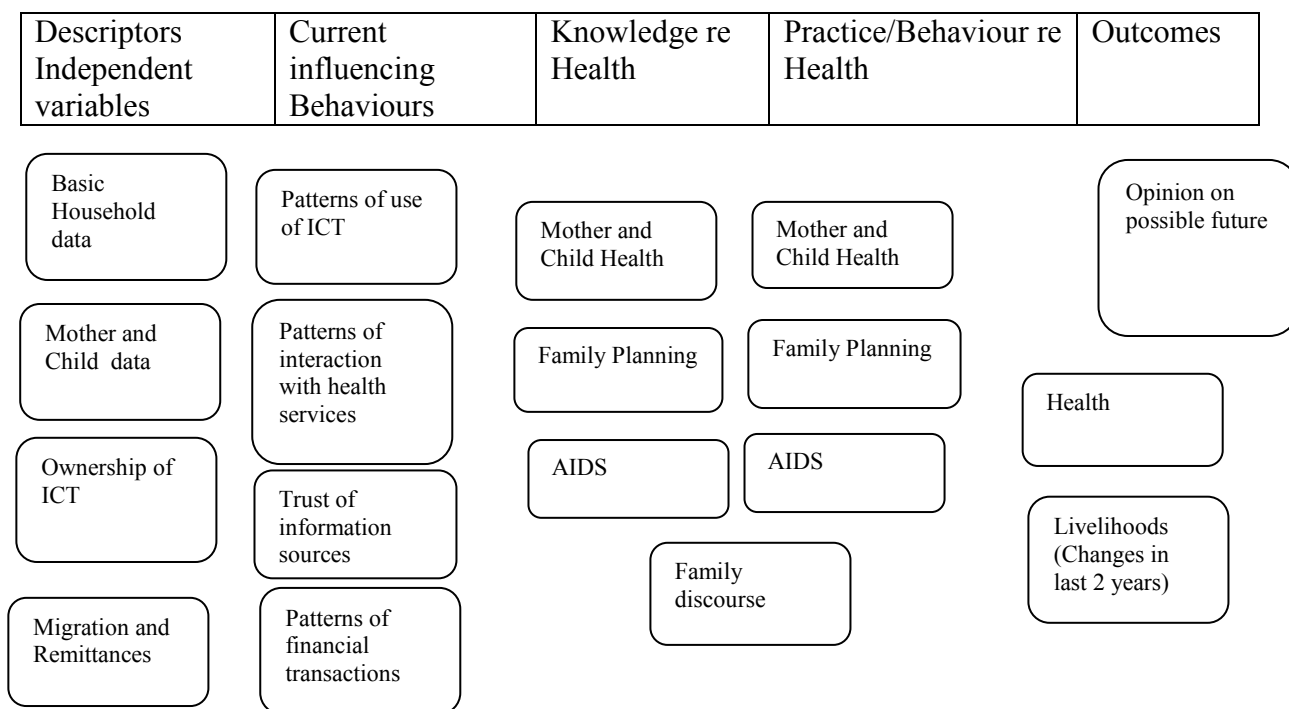
value from their use. However, the cybercafés have not attracted significantly greater use by a greater number of people than private cybercafés in other areas. Users tend to be the better educated, as one might expect. There is no identifiable difference in content viewed by cybercafé users in the OKN areas than in other areas.

In conclusion, there is no evidence of the step change in internet use that OKN has been seeking – both by its focus on local content and by its support for the cybercafe telecentre model. The clients of the internet in Senegal remain the better educated, urban dwellers, and therefore the poverty impact on the very poor is potentially limited.

DFID Assumption	Comment based on Senegal Household Survey
A. A major factor influencing 'access' to ICTs is whether or not those ICTs actually offer the user anything valuable in the way of content. Just providing a conduit is not a lot of use to anyone if nothing relevant flows through it (either up or down).	There is a "faint" indication that cybercafe users in the OKN areas are more frequent users, and this might indicate that they are getting a more valuable experience. But in general the majority of the population do not use cyber cafes, and it is the educated (and wealthier) who use them –this possibly reinforces the assumption, that currently there is little on the internet that is so valuable as to make the masses flock to use it.
B. Greater availability of locally relevant content, available through a range of ICTs, will increase the demand for improved access to those ICTs, and also in turn the sustainability and development impact of ICTs within that community.	As above – some indication of a possibly more valuable experience. However, health knowledge is not significantly improved, and outcomes not significantly better (yet)
A. Content that is stored, searched and exchanged via the internet, can be made accessible through a range of ICTs (e.g. phones, radio, video, isolated computer, etc.).	The survey cannot address this technical assumption
B. Content generated in one region is transferable and may be valuable in another (this needs to be applied at various levels, e.g. village to village, one country to another, India to Africa, etc.).	The survey cannot address this assumption
B. Local content has the potential to empower local communities and organisations.	Significant local empowerment (health knowledge, improved livelihood outcomes) through local content is not demonstrated in the survey (yet).
C. Content production and communication tools & applications can be adapted to suit the needs of poor people.	The survey suggests that the more educated and wealthier people are using cybercafes.
C. Specialist sector partners can be mobilised (e.g. private sector, etc.)	Responses in areas where there are only private cyber cafes are very similar to OKN areas – indicating that either OKN has not YET added value, or that private sector are offering people a viable and valuable service.
C. The fundamental business model underlying the Open Knowledge Network is a sustainable one.	The survey cannot address this assumption

13 Conclusion

Before drawing the conclusions, the diagram below reminds us of the model of relationships between variables.



From the analysis we have seen that poverty indicators, particularly education tend to affect the outcomes right across the model – the use of telecommunication, the knowledge about health, the resultant behaviours and the outcomes. The more educated trust print matter, and are making more use of the newer ICT opportunities. Radio remains strong in the rural areas.

In urban areas people are becoming "sophisticated", possibly losing some of their roots, which has both positive and negative implications - less local language , less gender inequality. Surprisingly TV is the only medium that does not show a gender bias towards men.

So is the increasing exposure to media and telecommunications improving health knowledge, attitude and behaviour? As expected the picture is complex. By far it seems that it is exposure to professional health workers that most influences peoples knowledge and behaviour. Since frequency of use of media is in itself linked to the contact of health workers (we presume through wealth, education and regional factors), it is difficult to differentiate the impact of media on peoples thinking. There are a few examples of media impact but they must be treated with caution.

In contrast to this, there are clear links between the use of telecommunications and improved livelihoods (beyond health alone). Family relationships are enhanced by telecommunications and this has an impact on income and other livelihood factors.

Finally, when digging into the impact of radio, there was a wealth of insight. Local language is indeed important, it is the educated who like radio dramas, and it is music that will reach the young.

In particular reference to the work of CATIA, there was no discernable impact from the community stations in the survey. Indeed it is often people listening to the national radio that are better informed. This may be due to the low quality of programming associated with community radio – and may indirectly refer to the problem identified by CATIA – that community radio need capacity building. However, the survey itself does not give insight into this, and instead suggests that the primary assumption by CATIA that community stations are more effective in communicating than national stations is flawed.

With all the caution that a small sample must bring, the investigation into users of cybercafés in OKN areas, compared with users in other areas does not suggest that a step change in internet use and impact has yet occurred in OKN cybercafés.

Referring to the two key questions for the CATIA Goal:-

- Are households with greater access to ICT making use (ie take up the opportunity) of that access

A resounding yes. The urban dwellers have a greater access and take up that opportunity. While those in the rural area have less access, they nevertheless clearly take up what opportunity there is.

- Has the use enabled poor people (in Senegal) to gain (maximum) benefit from the opportunities offered by ICT

As stated, it is difficult to determine "maximum" benefit and the picture is complex. There is also some dilemma in the survey data that contact with health professionals is so closely linked with use of media, making it difficult to separate out the impact of the ICT on the health knowledge, attitude and behaviour (KAPB). We can say that ICT has become a part of the mix of information channels that contribute to the overall KAPB of people. Where ICT is accessed by the more educated, their health outcomes are improved. However there were a considerable number of counter intuitive relationships – for instance where listening to the radio is linked with a reduction in the likelihood of positive health behaviour.

Like other recent studies, this study confirms that the use of telecommunications enhances social relationships. And in this study the link between social relationships and improvements in overall livelihood capital has been demonstrated.

In addition to the general enquires answered above, the CATIA assumption document developed by the DFID management team made the following assumption statements:-

At the Goal Level, DFID management assumed:-

B. Poor people can derive genuine developmental benefits (in terms of Health, Livelihood, etc.) from better access to information & communication.

The survey has shown that increased access to ICT including media does lead to better health knowledge, and can lead to better health behaviour. There is significant evidence that Telecommunication leads to improved social capital, and that this has an impact on overall livelihood strategies.

At the Purpose Level, DFID management assumed:-

DFID Assumption	Comment based on Senegal Household Survey
B. Poorer people & communities can benefit indirectly from increased access	B. The survey did not comment on the indirect outcomes, and the household survey took a view on the direct

<p>to affordable ICTs,</p> <p>C. Poor people can benefit <u>directly</u> from increased access to affordable ICTs, e.g.:</p> <ul style="list-style-type: none"> - A. Poor people's own choices determine what is deemed 'affordable'; - A. Poor people are able to access and use information relevant and valuable to their own lives; <p>- B. Poor people experience concrete benefits from accessing ICTs (e.g. more timely flows of remittances to cope with shocks, economic gain from information on livelihoods, etc.);</p> <p>- C. 'Access' means genuinely accessible by poor and marginalised people (i.e. not excluded on basis of literacy, location, gender, etc.)</p> <p>- C. Poor people will actually take advantage of access to ICTs if they are available and affordable.</p> <p>B. The vested interests of incumbent telcos and the powerful urban elites are not insurmountable - i.e. it is possible to have an inclusive approach to accessing ICTs that benefits both poorer and richer communities.</p> <p>C. Information via ICTs is/was the most cost effective route for that development goal.</p> <p>C. The net effect of increased access to ICTs in a country does not simply increase the gap between the rich and the poor.</p>	<p>benefits.</p> <p>C The survey demonstrates that access to media increases knowledge on health, and access to phone increases social capital.</p> <p>A. The uptake of radio, the considerable growing uptake of television and growth of mobile phones, all suggest that the poor are making their own choices based on their perceived benefit.</p> <p>A The responses to radio and television confirm that people have found relevant health information, and their change in behaviour suggests that they have found this content valuable.</p> <p>B. The use of phones to increase social capital has been demonstrated, and its subsequent impact on livelihoods strategy. Economic gain is still constrained by the mix of other complex factors, however the gain in social capital mitigates shocks and vulnerability.</p> <p>C. There are clear equalities of access in most of the ICT with a slight bias towards men in radio (but less than perhaps expected) with no bias in television watching, a bias towards urban populations but not to the exclusion of rural populations, and a bias to literacy (higher educated using computers and newspapers) but again not to the exclusion of the illiterate who can avail equal access to radio, television and phones.</p> <p>C. As above, the poor are using them where they are available.</p> <p>B. The role of the incumbent Telcom does not come out in the survey.</p> <p>C. The comparison with health workers gives a view on the comparison of ICT as effective. Despite the claim in the national survey that 99% of households have had a visit from a health worker, there is a clear distinction between those listening to the radio and watching television and those who do not in their knowledge on family planning. The media is therefore definitely adding value to the traditional health worker approach. However, the data also suggests that health workers are doing their job, and in the CATIA data, those with key knowledge are those with exposure to health workers. ICT can complement the more traditional routes to development goals.</p> <p>C. The knowledge is higher in the more educated, who in turn use ICT more. The cause and effect of this relationship is not clear and we cannot comment on whether ICT is increasing the gap.</p>
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In conclusion, the data has demonstrated that the main assumptions of CATIA have some merit and that therefore the Goal of CATIA was reasonably pro-poor and developmental. One of the lesser assumptions of CATIA was that community radio has a greater impact on the poor than national radio, and these results indicate that perhaps this needs to be challenged.