

## Cell Phone Mediated Audio Conferencing as an Effective Information Delivery Tool among Women in Livestock Rearing

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### ABSTRACT

*The evolution of ICTs in the last few decades has seen its advent in delivering information related to agriculture and livestock development among farmers. With more number of people even in rural areas using cell phones, an opportunity to apply its potentials in disseminating information that would help in improving the socio-economic conditions of the rural poor was noticed. With this in mind, Cell phone Operated Mobile Audio Communication and Conferencing system (COMBACCS) was developed under Development Partnership in Higher Education (DelPHE) project of DFID, led by Rajiv Gandhi College of Veterinary and Animal Sciences, Puducherry. Since it was envisioned that a tool like this would be particularly useful in bringing information to the doorstep of the women, who are bound to their homes due to the family chores, it was decided to study its effectiveness among the Women self Help Groups (WSHGs). A study on Effectiveness of cell phone mediated audio conferencing system was thus carried out among livestock rearing WSHGs in Thrissur district of Kerala state. The objectives were to understand the effect of Cell Phone Mediated Audio Communication and Conferencing System (COMBACCS) among WSHGs as a knowledge dissemination tool, to study the perceptions of the WSHG members, resource persons, and other stakeholders about the use of COMBACCS and to identify the problems in its use among WSHGs. Statistically significant change in the knowledge level of the members' pre and post audio conferencing was noticed. All members were convinced about the advantages and use of COMBACCS. Some of the important advantages mentioned were a scope for better interaction and clarification of personal doubts from home/neighbourhood, saving money and time both for group members and resource persons, more people trained in less time and promoters can directly interact with the group members. COMBACCS was especially helpful in reaching members of WSHGs in rural remote areas, and addresses constraints of formal training. Cost of equipment, noises, and maintenance of equipment were cited as some of the limitations by WSHG members, resource person and promoters respectively*

**Key Words:** ICTs, Cell Phone, Audio conferencing, WSHGs;

The evolution of Information Communication Technology (ICTs) in the last few decades has seen its advent in delivering information related to agriculture and livestock development among farmers. ICT applications provide new tools for improving access to information (Garforth, 2003; Heffernan, 2003; Ramkumar *et al*, 2003) and disseminating knowledge widely at low cost (World Bank Report, 1999). It offers powerful "force multipliers" to conventional extension effort (Antholt, 1994).

ICT is an integral part of development strategies of both developing and developed countries. It has great potential to bring in the desired social transformations

by enhancing access to people, services, information and other technologies (Dutton *et al*, 2004). ICT applications can enhance poor people's opportunities by improving their access to markets, health, and education. Also the ICTs are being increasingly used by the governments to deliver its services at the locations convenient to the citizens. The rural ICT applications attempt to offer the services of central agencies (like district administration, cooperative union, and state and central government departments) to the citizens at their village door steps. These applications utilize the ICT in offering improved and affordable connectivity and processing solutions (Rao, 2004).

Among the ICTs, telecommunications is considered as a link in the chain of development process itself, in addition to its ability to connect people. It is increasingly becoming a vital link between rural and urban areas, and between rural zones and rest of the world. In the present situation of the global information society there is a direct correlation between access to telecommunications and socio-economic development. The tumbling down of prices in the wireless arena, has now brought mobile telephony in the forefront. Mobile telephony can have a quantitative impact on the society by increasing the speed of communication (i.e. information flow) and by reducing the cost of communication (Norton, 1992); it can have a qualitative impact by increasing the quality of information that is communicated for decision making (Bedi, 1999). Likewise, there is some evidence that mobile phones substitute for travel as conversations and discussions can be made through the phone itself (Duncombe *et al*, 2001) but other research suggests a mixed picture in which some journeys are substituted but others are not (Souter *et al*, 2005; Overå, 2006). It also facilitates emergency medical assistance, long distance consultation, and quality assurance to remote locations. With more number of people even in rural areas using cell phones, an opportunity to apply its potentials in disseminating information that would help in improving the socio-economic conditions of the rural poor was noticed. And thus Cell phone Operated Mobile Audio Communication and Conferencing system (COMBACCS) was developed by College of Veterinary and Animal Sciences (COVAS), Thrissur, Kerala, in a project initiated by Development Partnerships in Higher Education, (DePHE), under the leadership of Rajiv Gandhi College of Veterinary and Animal Sciences (RAGACOVAS), Pondicherry, funded by DFID, UK in 2006.

COMBACCS is basically a cell phone/ mobile phone based audio communication tool, through which a group can have direct interaction with an expert at any time and anywhere. The important components include a cell phone, speakers through which the group can hear the resource persons, and a microphone through which the members can interact with the resource persons (Figure-1).

COMBACCS was a method designed to apply the mobile telephony in knowledge dissemination among Women Self Help groups. This study was aimed at

understanding the effectiveness of COMBACCS amongst livestock rearing WSHGs of Thrissur district of Kerala state.

*Objectives:*

1. To understand the effect of COMBACCS among WSHGs as a knowledge dissemination tool.
2. To study the perceptions of the WSHG members, resource persons, and other stakeholders about the use of COMBACCS.
3. To identify the problems in use of COMBACCS.

## METHODOLOGY

The study was conducted in Thrissur district of Kerala state. The study followed an exploratory research design aiming to understand the use of COMBACCS in knowledge dissemination among members of WSHGs. The sequence of events in testing COMBACCS among WSHGs was also identified as a part of this study. The study also applied the experimental design to find out the change in knowledge among the members of WSHGs 'before' and 'after' participating in the audio conferencing through COMBACCS. The respondents of the study were 100 members of WSHGs from ten selected WSHG, Six resource persons who conducted classes with COMBACCS, and Six promoters of Kudumbashree who were from the district office of Kudumbashree at Thrissur. Multistage and purposive sampling techniques were used to select the 10 livestock rearing WSHGs from remote areas of Thrissur district. Data were collected by personal interview using a semi- structured interview schedule over a period of three months, after a pilot study, which helped in defining the sequence of events in testing the COMBACCS. The collected data were analysed with statistical tools such as percentages, frequencies, mean, range and paired t- test.

## RESULTS AND DISCUSSION

The results are presented in three different sections as given below:

- A. Use of COMBACCS as a knowledge dissemination tool.
- B. Perceptions of the WSHG members, resource persons and promoters towards COMBACCS.
- C. Limitations of COMBACCS as perceived by the WSHG members, resource persons and promoters.

**A. Use of COMBACCS as a knowledge dissemination tool :** The primary purpose of designing COMBACCS is to disseminate knowledge on scientific livestock rearing to the members of WSHGs. One way of assessing its use as a knowledge dissemination tool was to find out the knowledge gain, if any, among members of the WSHG before and after attending to the audio conferencing using COMBACCS.

The topics of the audio conferencing were decided based on the meetings with the members of WSHGs (as mentioned in the section of sequence of events). The following topics were identified by the groups:

- a. Reproductive health in cattle (5 groups)
- b. Clean milk production (3 groups)
- a. Common problems and first aid in cattle (2 groups).

After deciding the topic and identifying the resource person, knowledge test questions were designed on the specific topic. Ten questions on each topic were formed in consultation with the resource person and one mark was awarded for every correct answer given by the respondent, thus there was a probability of a score of minimum 0 to maximum 10. The pre and post cell phone mediated audio conferencing tests scores of the members are presented in Table-1.

Table 1. Average Knowledge Scores of WSHG members

S. N.	Location	Pre-Knowledge test Score (Group Average)	Post-Knowledge Score test (Group Average)	Paired t-test value
1	Anthikad	5.3	8.6	8.9**
2	Tholur	5.0	9.0	5.09**
3	Peechi	3.0	8.5	12.85**
4	Kattur	5.3	8.5	10.29**
5	Peechi	2.3	8.1	12.7**
6	Koratty	4.8	9.0	10.36**
7	Kunamkulam	3.6	9.2	10.59**
8	Pudukad	3.6	8.6	7.94**
9	Kattur	5.4	8.6	6.53**
10	Peechi	1.2	7.0	8.09**
	Total	3.9	8.5	23.64**

\*\*Significance at 1% level

Table 1 shows that there is a significant difference between pre and post knowledge test score group averages. The significance in the knowledge test scores of the members of the WSHGs “before” and “after” the audio conferencing was further statistically assessed with the help of paired t test. The Calculated t value for all the groups was seen to be greater than Tabulated t value and thus it statistically proved that there is

significant difference in knowledge scores in all the ten groups at 1 % level of significance. This implies the role that COMBACCS has in transferring knowledge to members of WSHGs at their doorstep/ neighbourhood.

**B. Perceptions of WSHG members, resource persons and the promoters towards COMBACCS**

**a. Perceptions of members of WSHG towards COMBACCS :** Perceptions were assessed in terms of satisfaction, advantages and usefulness of COMBACCS.

**Level of Satisfaction with COMBACCS :** It is seen from Table 2 that all the respondents were either satisfied or highly satisfied with the use of COMBACCS, and major reason they stated was the interactivity in the class (Table-3). The audio conferencing not only prompted the WSHG members to interact with the resource person, but also provided a scope for discussions amongst the WSHG members, thus making the class interactive. One of the important constraints in the use of radio among farmers is the lack of participation of farmers (Sadamate and Sinha, 1976 and Singh, 2001). The tool of mobile telephony (COMBACCS) adds scope to interactivity by ensuring participation of the respondents. Another reason for satisfaction was that individuals felt that classes were useful, especially because they could clarify doubts personally. The machine as such was new, which created inquisitiveness among the members on its applicability, and when it delivered its functions the members felt satisfied. Other reasons mentioned by the members of WSHGs are given in Table 3.

Table 2. Level of Satisfaction with the use of COMBACCS

S.N.	Level of Satisfaction	f
1	Highly Satisfied	30
2	Satisfied	70
	Total	100

Table 3. Reasons for satisfaction

S.N.	Reasons for satisfaction	f *
1	Interactivity in class	32
2	Useful class-clarified personal doubts	20
3	COMBACCS - novel equipment thus created interest	16
4	Audio conferencing first time experience	15
6	Informal method- made all participants comfortable	12
8	Used mike for first time-without inhibition	10
9	Saved money and time- no travel	10
10	Others	10

\* Multiple responses

*Advantages of audio conferencing with COMBACCS* : All the respondents were unanimous in their opinion that the audio conferencing with COMBACCS was advantageous to them. Amongst the main advantages stated by them were ability to solve queries at home without having to travel (38 per cent), saving time and money spent on travelling (27 per cent), direct contact with expert and so no distortion of message (23 per cent), and making group meetings productive with help of classes through audio conferencing (20 per cent).

Table 4. Advantages of audio conferencing with COMBACCS

S.N.	Advantages	f *
1	Solve queries from home/neighbourhood	38
2	Save money and time spent on travelling for training	27
3	Direct contact with expert- no distortion of message	23
4	Productive group meetings- with classes	20
5	Novel method- creates interest.	15
6	Two way method- can interact	10
7	Less inhibition to interact- since expert is not seen	10
8	Interact with experts from far away.	10
9	Others	10

\* Multiple responses

The novelty of COMBACCS created interest among the respondents. The effects of novelty of the communication gadgets on the farmers was reported by Rogers and Shoemaker (1971) in connection with rural radio forum. Similarly a study by Nagaraj and Reddy (1985) proved that a lecture presented by a tape recorder commanded more attention due to its novelty effect in those times.

Table 5. Usefulness of COMBACCS for WSHG

S.N.	Usefulness	f *
1	Contact experts during group meetings	33
2	Discussion within group- during or after audio conferencing.	30
3	Gain confidence to interact with officials/ experts	20
4	Solve emergency doubts of groups	18
5	Save time and money in organising classes	16
6	Familiar environment and presence of other group members- more comfortable	10
7	Direct contact with officials- transparency in message to group	7
8	Inter WSHG interaction	6
9	Class in own locality- can keep watch on children	5

\* Multiple responses

*Usefulness of COMBACCS for WSHG* : All the respondents said that COMBACCS would be useful to their WSHG. The reasons stated were the possibility to contact an expert during regular group meetings of the WSHG, chance of discussing within the group members, scope to interact with experts ,chance to solve emergency doubts of the WSHG like bank loan problems, and saving time and money normally spent to organise class for WSHG.

*B. Perceptions of resource persons towards COMBACCS*

*1. Profile of resource persons :*

The six experts who took classes with COMBACCS for the ten selected WSHGs formed the respondents of the study as resource persons. All the six resource persons were aged between 30-50 years , all except one (who was presently pursuing post graduation), had a post graduate degree in various specialisations in veterinary science. All except one were working as faculty members in various departments in College of Veterinary and Animal Sciences, Thrissur. Three of the resource persons have conducted more than twenty trainings, and are thus well experienced in conducting training. It was studied by Bhattacharya and Talukdar (1999) that academic qualification and training experience of a trainer were found to be significant with the trainers’ performance. All have used teaching aids for training. The resource persons need to have experience in disseminating knowledge through COMBACCS, unlike the conventional audio media like radio and tape recorder. The resource persons need to have some “social audio skills” of positively interacting with different individuals and satisfactorily clearing their doubts. The resource persons were of the opinion that the ICTs make teaching simpler, training interesting and helps to reach and teach more people in less time.

Table 6. Advantages of COMBACCS for resource persons

S.N.	Advantages	f *
1	Saves time, money and energy of expert - need not travel	6
2	Can train more people in minimum time	5
3	New and interesting technology	4
4	Shortage of trainers in many places- COMBACCS useful	4
5	Helps to train WSHG members in remote areas	3

\*Multiple responses

*Advantages of COMBACCS for resource persons:* All the resource persons among the promoters involved in audio conferencing viewed that COMBACCS was advantageous to them. The major reasons stated were

that it saves time and money as there is no need to travel, and also helps in training many people in minimum time as many classes are possible in a day. It is interesting since it is a new technology and it helps in places where enough trainers are not available.

*Advantages of COMBACCS for WSHG members:* All the resource persons felt that COMBACCS was advantageous for WSHG members. The reasons stated were that the WSHGs can keep classes during regular weekly meetings, (need not call for a separate meeting for training), can clarify doubts without inhibition as the expert is not seen, and saving time and money of the WSHGs in travelling to training centres.

Table 7. Advantages of COMBACCS for WSHG members

S.N.	Advantages	f *
1	Classes of experts during weekly meetings	5
2	Clarify doubts, without inhibition as the expert is not seen	4
3	Save time and money on travelling to places for class	3
4	Contact well performing WSHGs during weekly meetings	2

\* Multiple responses

*Perceptions of promoters towards COMBACCS :*

1. *Details of promoters :*

Six promoters of Kudumbashree namely, one district mission co-ordinator, three additional district mission co-ordinators, one consultant at the Thrissur district office and one consultant at State office of Kudumbashree formed the respondents.

2. *Advantages of COMBACCS for WSHGs :*

Four respondents said that COMBACCS will be advantageous for WSHGs. The reasons stated for being advantageous is that the WSHGs can contact the Kudumbashree district office, CDS and experts during group meetings. The doubts stated by two promoters for COMBACCS not being advantageous were on the technical feasibility of COMBACCS, on economic feasibility of the availability to all WSHGs and on its proper use by WSHGs

Table 8. Reasons for being advantageous

S.N.	Reasons	f *
1	WSHGs can contact the district office if they required any guidance during meetings	4
2	WSHGs can contact the CDS during its meetings	2
3	WSHGs can contact experts to gain knowledge and information during meetings	2

\* Multiple responses

Table 9. Reasons for not being advantageous

S.N.	Reasons	f *
1	Technical feasibility of the equipment.	2
2	Large number of WSHGs – all can't be provided COMBACCS	2
3	Whether the WSHGs will use the equipment effectively	1

\* Multiple responses

*Advantages of COMBACCS for promoters:* All the respondents felt that COMBACCS will be advantageous for the promoters, mainly because the WSHGs can be contacted during their meetings, there will be transparency in information passed to the WSHGs and review meetings can be conducted with CDS.

Table 10. Advantages of COMBACCS for Promoters

S.N.	Advantages for Promoters	f *
1	Promoters can contact the whole group during group meetings	5
2	Transparency in information passed to members of WSHGs	3
3	Can conduct review meetings with CDS	3

\* Multiple responses

*Limitations of COMBACCS as perceived by the WSHG members, resource person and promoters*

*Limitations of COMBACCS as perceived by WSHG members :* The Table 12 showed that 35 respondents had felt that there were no limitations with COMBACCS, this could be because the WSHG members were exposed to COMBACCS only during the demonstration of COMBACCS and during the one time audio conferencing with COMBACCS. Cost of the equipment, network problem, and technical problem were the major limitations that were stated by the WSHG members.

Table 11. Limitation of COMBACCS as perceived by WSHG members

S.N.	Limitations	f*
1	No limitations	35
2	Cost of the equipment	18
3	Network problem	11
4	Technical problems	8
5	Inadequate skills for operating COMBACCS	8
6	Call charges	6
7	No eye contact with speaker.	4
8	Noise	4
9	Problems in maintenance.	4
10	Lack of recording facility.	3
11	Misuse of COMBACCS.	3
12	More weight of COMBACCS	3
13	Radiation effect from the mobile phone	2

\* Multiple responses

*Limitations of COMBACCS as perceived by resource persons :* The major limitations stated by the

resource persons were the external noises during audio conferencing which interferes with audibility. Lack of eye contact with the listeners which makes its difficult to assess the situation, and not useful for transferring skills were the other limitations indicated by them.

Table 12. Limitations of COMBACCS as perceived by resource persons

S.N.	Limitations	f*
1	External noises	5
2	Lack of eye contact with trainees	4
3	Not useful for transferring skills	4
4	Requires operating skills	3
5	Difficult to speak for long hours on cell phone	3
6	Network Problems	3

\* Multiple responses

*Limitations in using COMBACCS as perceived by promoters* : Major limitation stated by the promoters was the technical feasibility of COMBACCS. The promoters had earlier used telephone audio conferencing provided by Tata Indicom but it failed which could be the reason for the promoters expressing doubts on the technical feasibility of COMBACCS. The telephone audio-conferencing was individual to individual communication between 3 or more people whereas COMBACCS is one to group communication. However the promoters needed time to work on the feasibility of this method. The cost of the equipment (Approx. 6,000) was also cited as another limitation as many groups would not be able to purchase it. The limitations stated by the promoters were the requirement of operating skills, and the call tariff.

Table 13. Limitations of COMBACCS as perceived by promoters

S.N.	Limitations	f*
1	Technical feasibility	4
2	Cost of the equipment	4
3	Knowledge to operate the equipment by the WSHG members	4
4	Call charges	3
5	Misuse of equipment	3

\* Multiple responses

## CONCLUSIONS

From the findings of this study, it is concluded that the COMBACCS is an useful tool in dissemination of knowledge among members of WSHGs. COMBACCS had contributed to a significant improvement in the knowledge level of the WSHGs members on the topics of audio conferencing. One of the notable advantage is that the members can use COMBACCS as they organize their routine WSHG meetings in the neighbourhood. COMBACCS is seen to address some of the constraints of a formal training, as the WSHG members do not have to travel out of their neighbourhood and thus can take care of the household work, small children and livestock which were restraining them to attend formal training programmes. COMBACCS saves money and time of both the WSHG members and resource person as they do not have to travel. Audio conferencing with COMBACCS is a group method which facilitates interaction of WSHG members with resource person and encourages dialogues and discussions within the group members. A transparent exchange of knowledge occurs with COMBACCS, as the whole group is present during the audio conferencing. In a resource person’s perspective COMBACCS helps in training more people in lesser time and is beneficial since it creates a prospect to interact with all the group members in one go.

On the other hand the cost of the equipment, network problems, call charges, noises, technical problems and maintenance of equipment are the major limitations of using COMBACCS. Effective use of COMBACCS needs good facilitation, once the members identify the topic of conferencing and are helped by the promoters in identifying an appropriate resource person, COMBACCS helps them to gain knowledge at their doorstep. This facilitation can also be undertaken by leaders of WSHGs in which groups they are active.

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