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## RESEARCH ARTICLE

### PLAYING WITH NUMBERS THROUGH RADIO WAVES

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#### ABSTRACT

The rise of Community media in India has opened an opportunity to reach the rural and semi urban community. One can see a transition from a deficit model to participatory and contemporary model. The paper discusses a mass media communication intervention in the context of efforts already being done in the area of development issues with the community. One such issue is developing their mathematical skill in their day to day activities. As a result, 'Radio Mathematics' was born as a one-year project by the Department of Science & Technology, Government of India. It has never been easy to play with numbers through radio waves. Aiming at creating interest amongst rural students and community particularly women to improve the clarity of thought and pursuing assumption to logical conclusion, the programme was on air. In the experience-sharing platform, they got the inspiration to tackle challenges pertaining to their understanding and growing positive insights about mathematics. One such intervention through *Vasundhara Vahini* Community radio is analysed in the paper.

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#### INTRODUCTION

Radio is a not – so – costly a medium than television and can provide all the benefits of television, except the direct visual observation of a technique or a person. Radio programmes do have their own advantages. It can be heard while doing some other activity. (Radio date, 1990). Community radio (CR) plays a pivotal role in improving the lives of women as it enhances their political, social and economic knowledge. The idea of establishment of CR across the country, was started in 1996 by 'VOICES', a Bangalore based communication campaign group. It raised a declaration for establishing community broadcasting and suggested that All India Radio should allocate regular time slots for this. After several efforts, in 2007, the Ministry of Information and Broadcasting, Government of India, announced that 4000 CR stations will be operational, under the new CR enabling policy. Anna FM, the very first campus (then) radio station at Anna University had been a source of inspiration and a model to draw upon aspects ranging from installation and infrastructure to participatory programming, content development and training (Prabhakar, 2007). The CR mechanism enables effective communication across all sections of society and can also be used as a tool for women empowerment.

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In India, although there is development happening in all sectors and sections of society, there is discrimination against women primarily due to their gender. For a country's overall growth and development, women empowerment is a must. Empowerment is a collective term that deals with political, social, personal, cultural, sexual and managerial aspects. It makes women gain self-dignity, power, autonomy, and confidence. This can be achieved to a large extent through education, formation of self-help groups, mass communication, entrepreneurial training programs etc. CR can serve as a complementing tool to assist processes aimed at women empowerment (Yalala, 2015). The paper discusses an intervention in the efforts already being done in the area of development issues with the community. One such issue is developing their mathematical skill. We need mathematical calculations in our day to day activities, be it in our homes, in shops, vegetable markets, hospitals, banks, playgrounds, or petrol pumps. Though Mathematics education is an area of concern among the students because many students do not find it interesting and others develop a phobia for it, awareness amongst citizens about applications of Mathematics is very important. A great responsibility lies on the teachers to make the subject interesting enough so that the students are able to connect their everyday experiences mathematically. This will help them develop skills of logic, problem solving and analysis (Sharma and Bagai, 2014). At the same time the common man,

especially the woman, needs to develop basic mathematical abilities. They should be encouraged to bring their views, visions, skills, aspirations and knowledge into the development agenda. Radio proves to be an effective tool to access learnings and insights that can infuse these qualities in women provided it uses local language. This makes the information and the discussions accessible to local communities. It transcends literacy barriers and encourages a woman to use it as their primary source of information. (Balan and Norman, 2012).

### A Case example of Vasundharavahini, Baramati

On the banks of River Karha, the town Baramati is renowned in Maharashtra. Baramati has Steppe climate or semi-arid climate and receives low precipitation throughout the year. Agriculture is the main source of income of Baramati and its surrounding areas. The industrial sector of Baramati thrives on the production of sugarcane with three co-operative sugar factories. The centre of attraction of the industrial area is the Baramati Hi-Tech Textile Park Ltd., spread over an area of 60 acres and houses small domestic garment manufacturers. There are many groups of textile-oriented units that have varied functions like apparel printing and packaging, garment making, embroidery, technical textile and garment making. It is a highly innovative and self sufficient park with state-of-the-art infrastructure. The Park also has an array of textile industry resources like suppliers, manufactures, packaging units, screen printers etc that serve as a tool for the provision of a unique platform for the entrepreneurs globally. The main reason for the introduction of the Park is to improve the position of the Indian Textile industry on the global platform and to strengthen women empowerment by providing them employment.

### Radio Mathematics

The Government of India, with a view to observe the birth centenary of the mathematical wizard, Srinivasa Ramanujan, declared 2012 as the year of Mathematics, (DST, 2012). The National Council for Science and Technology Communication (NCSTC) of DST accordingly launched a nation-wide programme for exploiting the potential of community radio in popularising mathematics among citizens. Science communication has more potential on radio than on any other medium, especially as 'radio... has proven to be very feasible and apt for science communication' (Mazzonetti, Merzagora and tola, 2005: 22, as quoted by Bugeja and Weitkamp; not available). Ten radio stations selected from different parts of the country came forward to produce the programme in respective local language with community participation and broadcast for one year. One of them was *Vasundhara Vahini*, Baramati. *Vasundhara Vahini* launched *Ga-Ganitacha* (Interesting Mathematics) of 182-episode on 14<sup>th</sup> November, 2014. A need assessment study gave fair details of the target group, their understanding level of mathematics and their interest in the subject. A survey of around 500 women, mostly working in the textile park was conducted. Initial study showed that they were not aware about the application of mathematics in their day to day life. The shirt manufacturing company called 'Cotton King', paid the wages to each woman, on the basis of the production of shirt pieces. The manager of the company generously made arrangements of radio listening

by hanging small mikes in equal intervals. The women started enjoying their work while listening to *vasundhara vahini*. That relieved them from monotony and helped concentrate more on the work. The Station caught the attention of the women worker and started broadcasting the programme on mathematics. The timings of the programme was such that it didn't affect their travel time. The programme was broadcast four times a day with two repeats. This helped the listeners understand and retain the subject in conducive manner.

### Making of Episodes

The creative team made the 30 minute duration programme in magazine format. Each segment of the episode was made interesting, a kind of pocket tutorial. The programme was planned in such a way that the basic maths, home management, work based maths, life of mathematicians, and agriculture based maths were covered. According to the station manager, "Initially the half an hour slot looked very lengthy. Then I bifurcated the half hour into various units, including Women's voice, where-in they spoke about maths in their everyday life. I no longer feel it is too long". He said as many as 83 women were on the air, and another 326 of them participated in various events. To maintain the listenership, they conducted various competitions on mathematics and recorded the event for broadcast. During lunch break or tea break, the station went to monitor and take the feedback of the listeners. Since Mathematics is a tough subject (as told during the need assessment study), it needed lots of creativity to make it acceptable at the popular level and various concepts helped in this regard. One of them was the concept of *Ganitanubhanubhav* (Experiential learning of Mathematics) through which, the production team tried to involve the listeners. Another concept was of stalk character like *JamureUstad* and *Gangubai*. These characters had local touch and they were presented as a fun character so that the listener could understand the content easily. Through cross media concept, the team published the events in leading newspapers including the winner's name and photographs. The programme had also a characteristic two-way approach. i.e. it was not only broadcast from the radio station but, the radio people also visited the community through various events. Some of the events included speech competition on the great mathematician, Ramanujan. Women listeners, with the help of their children and other family members, collected information about Ramanujan and prepared a 10-minute speech. Another competition was on *rangoli* making, which is a combination of traditional art and Mathematics. The participants joined and calculated the dots used in joining lines in making geometrical shapes. *VasundharaVahini* also organised traditional arts based competition named *dhupte* stitching. The participants were asked to stitch designs or scenery using geometrical shapes. By doing this, the women felt happy that they were already using Maths in their daily lives. Various application of Mathematics in everyday life was explained with real life examples. All these examples were designed with a range of lessons covering addition, subtraction, multiplication, division, fractions, algebra, trigonometry, geometry and broadcast over radio. Mathematical ideas and skills were disseminated using fun games, music and songs, folk arts, drama, puzzles, riddles, and through events such as competitions, quiz, case studies, stories, etc. The audience including students from pre-primary

to college, people in the non-formal sector and neo literates specially women participated in making the programme.

### About survey and qualitative study

The evaluation was done through both quantitative and qualitative methods. A questionnaire survey was conducted through random sampling method from the confined listeners of the textile park. The questions evaluated the programme, listenership, understanding and clarity of message, memory recall, favourite portion/character, participation in live programme etc.

### Programme fidelity, assimilation and sustainability of engagement

The impact of radio maths among women listeners is carried out by examining the following four components of assessment:

- The radio listening milieu
- Maths radio listening and participation
- Changes in audience's attitude and cognitive behaviour
- Sustainability of engagement and interest

#### The radio listening milieu

The introduction of CR has brought about a drastic change in the radio listening habits of the target women. Although 53% of them own transistor set and 50% mobile phones with radio (percentages do not add to 100 due to multiple owning).

The arrival of community radio under the maths radio programme and the gatherings of target listeners around it has inspired and activated all the women in the area under study to listen to topics on a regular basis. This mobilisation was prompted mainly by the Radio Station Volunteers who made contacts with 80% of the prospective listeners (Table 1).

**Table 1. Source of Knowing about Mathematics Programmes of Radio**

Source	Percentage
Radio Station Volunteer	80
Listening to radio	31
From Family member/Friend	12
Reading Advertisement	15
Newspaper/Magazine reports	05

(Percentages do not add to 100 due to multiple responses)

#### Place of Listening

As many as 77% of the respondents attended the maths radio programmes in gatherings around the community radio. 37% of them also listened to the broadcasts on their radios at home. About 8% went to a neighbor to listen to the programmes. Yet another 8% listened while traveling to workplace (*percentages do not add to 100 due to multiple responses*).

#### Listening Time

All the respondents prefer to listen to the broadcasts during 09.00 am to 12.00 noon, and 65% of them during 7.00 pm–10:00 pm slot. While 46% of the respondents were evening listeners (04.00 pm – 07.00 pm), 27% were morning listeners (06.00 am – 09.00 am) (Table 2).

**Table 2. Listening Time for Radio Mathematics programme**

Time	Percentage
06.00 am – 09.00 am	27
09.00 am – 12.00 am	100
01.00 pm – 04.00 pm	0
04.00 pm – 07.00 pm	46
7.00 pm– 10:00 pm	65
10.00 pm onwards	0

(Percentages do not add to 100 due to multiple listening times)

### Maths radio listening and participation

The pattern of maths radio listening and participation is examined using the following parameters:

- The Programme Attendance Indicator
  - Comprehensibility of Programmes
  - Interactional Feedback
  - Programme Participation
  - Enhancing Outreach
- a. **The programme attendance indicator:** All the respondents' reported listening to maths programmes on radio. Table 3 lists the programmes listened by them.
  - b. **Comprehensibility of programmes:** 96% of the respondents reported easy understanding of maths programmes on radio.
  - c. **Interactional feedback:** 88% of the respondents reported sending feedback on the programmes to the concerned radio station.
  - d. **Programme participation:** 73% of the respondents reported participation in maths programmes on radio (Table 4). The highest participation was in discussions, followed by phone in/out and quiz programmes.
  - e. **Enhancing outreach:** All the respondents would like to refer this series to others (85% would ask the children in family to listen to this programme, 62% to friends/neighbourers, 77% to nearby schools and 19% of the listeners would like the teachers to attend these broadcasts.

### Imbibing Mathematics: Changes in audience's attitude and cognitive behavior

The changes in audience's attitude towards mathematics, learning and assimilation is assessed by using the following four parameters:

- Change in Attitude towards Maths
- Specific Maths learning
- Content Assimilation and Learning Indicator
- Programme Fidelity through Recall

These parameters are explored below as per the inputs from the field survey:

- a. **Change in Attitude towards Maths:** According to survey, 73% of the respondents were able to address their maths fear after listening to maths radio.

Table 3. List of Radio Mathematics programme being listened by women

About maths	Applied maths
History of maths	Use of mathematics in textile Industry
<i>Ganitacheswarup</i>	Maths in traffic accident
Story of Pythagoras	Programme on postal communication and maths, Festivals and maths
Speeches of Ramanujan	About Banking (Bank <i>Ani khatayaeheprakar</i> )
<i>Sankhyashastraganit</i>	Banking ( <i>KshatratilGanit</i> )
	Coin introduction, Programme of <i>Gangubai</i>
	Rangoli competition, Calculation of salary
	Calculation of interest on loans
Basic operations	Maths and other disciplines
Calculations	Best of maths and co-ordination in other Science for Women's health and Maths
Counting parameters	<i>Pathankar's Ayurveda</i> & maths
Daily lives & maths	<i>Tilekar's</i> Geography & maths
Dash man method	Population & different geographical sites
Interest counting	Programme on maths in poem
Use of numbers in profit & loss, Measurement of kg and centimeters	Mathematicians & habits
Drama – <i>bindu</i> , circle	Statistics & maths, Maths & environment
Programme on inches and centimeters, Time counting	Mathematics & heart, Sound pollution & maths, Speech competition
	Child psychology & mathematics

Table 4. Participation of Women listeners in Maths radio programmes

Type of participation	Percentage of respondents
Phone in/out	42
Participated in discussions	81
Quiz programmes	35
In production of programme	08

Table 5. Specific learnings of Respondents in mathematics through radio maths

Operations	Application of concepts
Counting	Cutting shapes & maths
Counting of pieces	Coin & values
Plus minus	Square and its use
Types of numbers	Time counting and time management
Measurements	Environment of maths relations
Average calculation	Heart function and maths
Values and numbers	Sound pollution and maths
Area-related maths	Speech competition
<i>Kamalhyathikani</i>	
Piz tag mapping	
Rangoli based on maths	
Applied maths	About maths
Daily life importance of maths	About mathematicians
House & kitchen management	Ramanujan's biography
Daily exchanges & money	About mathematicians
Women's health and mathematics	About Aryabhata
Calculation of salary	Importunes of maths knowledge
Banking & <i>khatayache prakar</i>	Mathematics & social status
Interest counting	Teaching maths to others
Importance of maths in textile work	

Table 6. Content Assimilation and Learning Test and Results

Statement	Correct answer (% of respondents giving correct answer)
(a) Nazma's family income consists of her husband's income, her elder son's income and her own income. Her younger son does not contribute any amount. Her family income can be calculated by....	Addition 92%
(b) Aruna, a textile worker, got her salary and the whole day she kept buying things for the household. Mathematically this means she was doing....	Subtraction 88%
(c) Kamla is a daily wagger getting Rs.200 per day. As there is no off day for her, she has to report for work every day. This week, on Wednesday her child fell ill and she could not go to work. Her earning for this week will be Rs. 1200.	Correct 92%
(d) Manjeet Kaur went to market to buy chappal carrying Rs 200 with her. She bought the chappal at 50 per cent discount. Suddenly, she remembered that her mother's chappal is also worn out. She gladly bought another chappal for her.	Correct; Rs. 200 was sufficient to buy the two chappals 100%
(e) Mamta took Rs 5,000 on loan for one year from money lender with 20% interest per annum. But after one year, she could not pay off the loan. For the second year, the amount of her loan will remain as Rs 5,000.	Incorrect 92%
(f) Munni sells vegetable in the local market. For her 250 grams is equal to half of a kilogram. She is making far more money than other shopkeepers in the market	Incorrect; she is weighing '250 grams' as half kg but taking money for actual 250 grams (one-fourth of 1 kg) 88
(g) Mary wants to get the roof of her one-room house cemented. The area to be cemented will be: length of the room multiplied by height of the room	Incorrect 92%
(h) Number of centimetres in a metre is 1000	Incorrect 88%
(i) How many inches a foot equals?	12 inches 88%

**Table 7. The Most liked Programmes**

Title song/music: <i>GaGanitacha</i>	
Characters in story based programmes <i>Gangubai</i> -importance of maths; values and numbers <i>Jamureustad</i> – coins; Information about circle, Mathematics & calendar, Aryabhata and maths  Direct talk by presenter Maths and other sciences, Measurement of ground Time and average, Women & mathematics relation Sound pollution & mathematics <i>Ganitanubhav</i> , Speech competition in mathematics About Ramanujan, Concepts, Stories, Square and its uses, Type of numbers, Maths and work, Water tank & supply	Discussion with experts Dr. Joshi – maths & women Dr. Rajesh kokare / women health & maths Bank manager discussions, Maths & environment Health & maths by Dr. Savant Rajashri & Yavaraj – maths in daily use Use of maths in textile industry, <i>KhagolShastratilGanit</i> , Maths in traffic rules, Mathematics & poems Story- telling based programmes Pythagoras ( <i>valutilreghota</i> ) <i>Daptarache ore</i> Mathematicians' stories, Skit on Ma. Sa. Vi. Mathematic concepts, Methods of number writing Square & its use, Type of numbers

**Table 8. Programmes for which Repeat Broadcast Requests were made**

Dr. Rajesh kokare: women health & maths	Banking communication – types & accounts
<i>Gangubai</i> (number & values)	Information of circle
Speech competition of women's voice	<i>Daptaracheore</i> presented by student
Dr. Patwardhan's interview	Average calculation programme
<i>Latikamisat's</i> interview	Mathematician's story
Mathematics in poem	Monsoon Related mathematics
Sound pollution	

**Table 9. New Curiosities Inspired by Maths Radio**

<ul style="list-style-type: none"> <li>Counting</li> <li><i>Gunakar</i> (x)</li> <li><i>Bhagakar</i> (÷)</li> <li><i>Takevari</i>(%)</li> <li>Multi-number calculation</li> <li>Area calculation</li> <li>Average calculation</li> <li>Form related maths</li> <li>Multiplication</li> <li>Form related maths</li> <li>Interest &amp; percentage calculation</li> <li>Cutting shapes &amp; maths</li> <li>Interesting stories</li> </ul>	<ul style="list-style-type: none"> <li>Mathematics of children education</li> <li>Textile works management &amp; Mathematics</li> <li>Current interests in all kinds of loan</li> <li>Banking related maths</li> <li>Saving &amp; investment policies</li> <li>P.F &amp; mathematical calculations</li> <li>About share market</li> <li>Beauty and maths related cosmetics</li> <li>Machine work and maths</li> <li>Mathematics &amp; medicine</li> </ul>	<ul style="list-style-type: none"> <li>Multi number calculation</li> <li>Postal communication &amp; maths</li> <li>Mathematics in human life</li> <li>About more mathematicians</li> <li>How to plan family Budget</li> <li>Kitchen management &amp; maths</li> <li>Women health &amp; mathematics</li> <li>Ornaments related maths</li> </ul>
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**Table 10. Actions to improve radio maths as suggested by respondents**

Suggestion	Percentage
Focus on maths in daily lives	65
Programme needs to be complimented with other activities	54
More programmes needed	50
More drama/songs are needed to make programme interesting	32
Comprehensibility of programmes to be increased by using simple language/ concepts	24

**b. Specific Maths learning:** All the respondents were able to give examples of their specific learnings in mathematics through radio maths (Table 5).

**c. Content Assimilation and Learning Indicator:** To assess the extent of learning mathematical concepts and techniques through maths radio among the respondents, a set of nine statements were presented to them along with possible answers (Table 6). As seen the percentage of respondents giving correct answer was very high.

**d. Programme fidelity through recall:** All the respondents were able to recall programmes most liked by them. The Title song was a favourite of these listeners, followed by the characters of *Gangubai* and *Jaumure Ustad* created to build a direct rapport with the audience.

The discussion with experts on a range of topics was also liked by most women listeners. Among the story-telling based programmes, Pythagoras (*valutilreghota*) was the most liked programme.

**Sustainability of Engagement and Interest**

**a. Increase in listening to radio maths:** 81% of the respondents reported that they have increased the time they have been spending on listening to radio maths.

**b. Programme repeat broadcast requests:** 92% of the respondents reported making a request to radio station for repeat of the programmes they have liked (Table 8). These programmes constituted about one-third of the total programmes broadcast.

- c. **Expanded curiosities:** 96% of the respondents were found to be interested to know more about maths (Table 9). The average number of curiosities per respondent was found to be one.
- d. **Extended Activities:** It appears that 73% of the women went for buying a radio set/mobile after participating in community maths radio programme and also buying books/games on mathematics.
- e. **Actions to improve radio maths:** 84% of the respondents offered suggestions on improving the radio maths programme (Table 10). Among them, 65% want a renewed focus on maths in daily lives and 54% suggest that the programme needs to be complimented with other activities. 50% of them ask for more programme diversity with new topics.

### Audience Feedback

#### Some feedback from the listeners was also recorded:

- The manager of the textile company said that production at the factory has gone up by 20-25%, after the Radio Maths venture. He said, "Earlier women used to work casually and get the payment given by us. Now they know how much they get for every piece, how long does it take for each piece to be made, how to manage the time efficiently and earn more. Therefore, both their incomes and the production of the company have gone up".
- Ms. Lalitha who is in charge of merchandising and CAD operation, said that the programme is helpful in carrying out designing work. Interestingly she said the women working in the factory have begun to think in terms of seconds and minutes while doing their job. Earlier, they were thinking only in hours. This thinking has improved the output. She said, "Prior to the programme I was under the impression that I am in a creative work, and maths has no role in that. But now I have realized the importance of mathematics in my designing job".
- Ujjwala Ubhe, who has studied only up to 10th std, said she has improved her communication skills through this programme. She was confident enough to participate in the speech competition.
- Ms. Surekha Gadade, who has studied only upto 7th std, was the winner of Dupte competition and the "Best performer of the year". She sought the help of her children in knowing about the shapes. She used to write on her machine and memorise. She was proud to state that while even the well educated could not define the shapes and figures she was able to.
- Ms. Kadhambari Sanjay, who is an M.A in Hindi said, as a student of literature she used to avoid Maths. Now the programme has given the confidence to teach maths to her children.
- Ms. Shubangai Sandeep Kadham became very emotional when she was referring to her sister's son who is visually challenged. She said only after listening to 'Ganith Anubhav' she realized how much maths and numbers matter in the life of the visually challenged. They walk by counting the steps and identify coins and rupees by shapes and sizes.
- Ms. Latha Ovhal, confessed that her family began to recognize her only after her participation in the Radio Maths Programmes. According to her, 'GanithAnubhav' gave her an opportunity to reveal her skills.
- Ms. Vanitha Pawar, who is in a supervisory position, was an active participant. She had been on the air many a time. As soon as her programme is scheduled she used to inform her friends and relatives. They too would give their feedback. She said that the contents of the programme are very useful in home management and home budgeting. She is currently reading the biography of Bhaskaran Nair to deliver a talk on his life. She prepares herself for various radio programmes by using internet to browse online resources.
- Ms. Vrushali said, 'GanithaAnubhav' has simplified maths. She finds it useful in teaching her child who is in Class I. Her home budgeting and home management skills have also improved. She said, my husband who is an M.B.A was pleasantly surprised when I discussed some of the things learnt from the programme.
- Ms. Triveni, opined all the episodes are very interesting. Because of these programmes they overcame their fear of calculations.
- Ms. Kalpana said 'Radio Maths' has helped her in water management. In the context of severe drought in Maharashtra, she realized how much water is wasted and how much can be conserved. She recalled the programmes on water management at home, in farm, in the industry and in schools.
- Ms. Jyothi a Montessori teacher said that the methods and examples of this programme are useful in teaching the kids.
- Ms Meenakshi observed, 'from birth to death, there is maths. It is VasundaraVahini that removed fear of maths. According to her, women have grown bold and confident. She felt that though both the women from city and village participate in the programmes, it is the village women who excel.
- According to Ms. Vrushali, 'Radio Maths' has also taught them the importance of savings.
- Ms. Savitha Rajmane observed, "When in school we used to hate maths. Now we have begun to love it. The knowledge we gained is useful in the kitchen, in the market and in every aspect of life. Now we have begun to count the chappathis and pooris we make. Thus wastage is avoided. The stories told in the programme lend a helping hand when children demand stories".
- According to the Director, Vidya Pratisthan, "In the beginning, maths in terms of radio was something unimaginable. It was felt that Maths was restricted only to chalk and board. Now, in this programme it is all listening and only listening. It has been an enjoyable experiment and we have performed to the best of our abilities".

### Conclusions

The above analysis found the overall maths radio listening and programme participation and the overall cognitive impact of this listening on learning and assimilation remarkably high, and the sustainability in terms of ever-rising engagement of audience high. Among the listeners of the 'GanithAnubhav' of Baramati, empowerment has taken place at various levels - Knowledge, Psychological, Social, and Economical. Above

all, Gender empowerment too has taken place through this programme. It was remarkable that the production of the company has gone up by 20-25% because of the programme. The women have learnt to think in terms of minutes and seconds, instead of hours. The various competitions organized by the station and the company together at the work spot, have contributed to the 'happiness score' of the women. The management, the production staff and the women look forward for such get-togethers and festivals. The kind of publicity and press coverage also gives them a sense of pride and recognition. Thus it can be concluded that the maths radio is successful in making the target women 'graduates' in primary school level applied mathematics. This success defies the general perception that learning and assimilation among people beyond the age of learning/schooling is not possible. It has provided impetus to their livelihoods and household management. The findings also show that the community mobilisation through technological means (here radio) and through an external agent (here the respective radio stations) is very relevant in building awareness and skills among people at large.

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