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Effectiveness of instructional material on gain in knowledge of rural women

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ABSTRACT: A study of the effectiveness of instructional material (multimedia & CD) on knowledge gain was conducted among 60 rural women belonging to Badgaon panchayat Samiti of Udaipur district of Rajasthan. The selected topic was improved cattle rearing practices for rural women on which one multimedia CD and one flipbook were developed for knowledge gain. All the respondents (100%) had gained good knowledge after exposure to multimedia CD and flipbook. Multimedia CD and flipbook were found to be effective. Multimedia CD (MPS 62.24) was found to be more effective than the flipbook (MPS 56.20) in terms of gain in knowledge. The reason for such findings could be that the learning through multimedia CD was easy to understand, interesting and a unique experience for rural women. Therefore, it can be used for training purposes by Home Scientist/Extension personnel and government functionaries.

Key words: Instructional material, Knowledge gain

Cattle rearing in rural Rajasthan is primarily a household-based activity and it involves women in the care of animals. The knowledge and attitude of rural women towards improved cattle rearing practices play an important role in ensuring milk production on a lavish scale (Bhardwaj 2017). A number of improved technologies have been developed in the recent past in the field of animal husbandry. An important factor contributing to low productivity is the lack of scientific knowledge and low adoption of recommended practices, especially by women who despite looking after animals remain aloof from most training and allied extension activities (Moovanthan et.al 2016). Women have a low level of knowledge regarding modern animal husbandry practices (Gopal 2010). Sasikala (2017) reported that overall knowledge mean scores of women towards modern animal husbandry practices, breeding, feeding, and cattle care was found to be lower than men irrespective of socioeconomic status. Various reasons have been assigned for this debacle, which includes lack of interest, lack of awareness, lack of technical knowledge, and lack of access to technology (Fatima & Trivedi 2012). Thus, there is an urgent need to sensitize rural women to modern technologies and scientific interventions in cattle rearing practices in order to make their dairy more profitable one. In such a situation, communication is an essential ingredient in a dynamic society and becomes a basic necessity. This directly involves the process of teaching with audio-visual aids. Thus, the present study was planned to assess the effectiveness of instructional material i.e., multimedia CD

and flip book.

MATERIALS AND METHODS

The present study was conducted in Badgaon panchayat Samiti of Udaipur district of Rajasthan state which was selected randomly. A sample of 60 rural women (30 from each village) was taken from randomly selected two villages i.e., Kadiya and Dulawati Ka Guda of Badgaon panchayat Samiti. One group of 30 rural women was taken to study the comprehension of multimedia CD and another group was considered to study the comprehension of flipbook. One group pre and post-test research design were used in which the knowledge test was conducted to assess the existing knowledge of the respondents before their exposure to instructional material. Then after respondents were exposed to instructional material and immediately after exposure post-test was conducted to know the effectiveness of the messages by the respondents. For the collection of data, the personal interview technique was used.

A knowledge test was developed by the investigator to assess the gain in knowledge by the respondents due to their exposure to instructional material. There were 35 questions related to key components of improved cattle rearing practices in the knowledge test. For scoring, one score was assigned to each correct message. The maximum score was included in the test. The component wise distribution of scores is given in Table 1.1.

Table 1.1: Component wise distribution of scores for knowledge gain through instructional material

S.No.	Components	Messages/Scores
1.	Breeding	12
2.	Feeding	5
3.	Health care	17
4.	Management	6
5.	Clean milk practices	9
	Total	49

In order to provide uniformity in scoring, the maximum scores in the five components varied, so the information scores obtained by the respondents in each component were encoded into MPS in three equidistant groups, the respondents were then distributed as follows:

Categories	Score range
Good	66.66-100
Average	33.33-66.66
Poor	Less than 33.33

After data collection coding was done and then tabulated data were analysed for review and interpretation. For the statistical analysis of data frequency, per centage, mean per cent score and paired t-test were used. In order to find out the overall gain in knowledge by the respondents through multimedia CD and flip book, mean per cent scores were calculated. To find out the significance of difference between pre and post knowledge of respondents, the paired t test was used.

$$\text{MPS} = \frac{\text{Total sum of score obtained by respondents} \times 100}{\text{Maximum Scores}}$$

RESULTS AND DISCUSSION

Background information of the respondents: The majority of the respondents were below 30 years of age (70%) and more than half of the respondents were educated up to the primary level (53.33%) and all the respondents

(100%) were married. The majority of the respondents (66.66%) were involved in animal husbandry. More than sixty per cent of respondents were from nuclear families and had 5 to 8 members in the family and not members of any organization. All the respondents (100%) had television as their media ownership and belonged to medium socio-economic status. The most common sources of information by the majority of respondents (83.33%) were personal localite sources and all the respondents (100%) used personal cosmopolite sources and impersonal cosmopolite sources of information. More than half of the respondents (53.33%) were using the information sources to a medium extent.

Knowledge gain through developed multimedia CD on improved cattle rearing practices:

The knowledge of respondents in improved cattle rearing practices for rural women was assessed before and after exposure to multimedia CD and the information is presented in Table 1.2. A perusal of the table clearly indicates that in overall pre-knowledge i.e., before exposure to multimedia CD, the majority of the respondents (73.33%) exhibited poor knowledge and 26.33 per cent of the respondents exhibited average knowledge. None of the respondents was found in the good knowledge category. However, significant improvement was observed in the post-knowledge scores of the respondents after exposure to multimedia CD, as all the respondents were shifted to the good knowledge category. Natoli (2011) concluded that audio and visual aids are very helpful in teaching learning process. The multimedia CD includes Audio and Video component which was interesting and easy to understand.

This means that multimedia CD was effective in increasing knowledge of the rural women regarding improved cattle rearing practices.

The findings of Bala (2019) provide decisive support to the results, she confirmed that before exposure to

Table 1.2: Distribution of respondents by their knowledge before and after exposure to multimedia CD on improved cattle rearing practices n=30

S.No.	Category Components	Pre knowledge			Post knowledge		
		Good f (%)	Average f (%)	Poor f (%)	Good f (%)	Average f (%)	Poor f (%)
1.	Breeding	0	08 (26.67)	22(73.33)	30(100)	0	0
2.	Feeding	0	07 (23.33)	23(76.67)	30(100)	0	0
3.	Health care	0	07 (23.33)	23(76.67)	30(100)	0	0
4.	Management	0	09 (30.00)	21(70.00)	30(100)	0	0
5.	Clean milk production	0	08 (26.67)	22(73.33)	30(100)	0	0
6.	Overall	0	8 (26.33)	22(73.33)	30(100)	0	0

multimedia CD on nutrition for children (0-3 years) all the respondents were found in poor knowledge category and after exposure to multimedia CD, all the respondents were found in good knowledge category. Similar results were reported by Chaudhary (2012) in her study of video programme on nutrition education for rural women.

Component wise gain in knowledge: Data presented in Table 1.3 highlights gain in knowledge in different components with MPS and t values. The mean per cent scores reveals that before exposure to multimedia CD, the respondents possessed very poor knowledge (20-35 MPS) in all components. The post-test scores reveal that all the respondents gained good knowledge (83-95 MPS) in all the components after exposure to multimedia CD.

Since the knowledge of the respondents was significantly enhanced due to the exposure to multimedia CD, an effort was also made to find out the overall and component-wise extent of gain in knowledge and the significance of the difference in knowledge gain among the respondents. For this paired t-test was used. Data presented in Table 1.3 depict that there was a significant difference in overall and component-wise pre and post-test knowledge scores of the respondents as the t values were found to be highly significant. This indicates that multimedia CD was highly effective in increasing the knowledge of the respondents. Similar results were found in the findings of Verma *et al* (2017) who conducted a study on gain in knowledge through change in attitude of rural women regarding animal husbandry practices through media. The pre and post-test

analysis revealed that the developed slides were found to be effective in imparting knowledge to the respondents. A significant difference was found in pre and post-test scores regarding knowledge about all three components targeted at rural women.

Effectiveness of developed flipbook on improved cattle rearing practices for rural women

This section reveals the results related to the effectiveness of the developed flipbook in terms of gain in knowledge among rural women. For this, a similar procedure (for multimedia CD) was taken into consideration to evaluate the effectiveness of flipbook. The scores obtained by the respondents in the pre and post-knowledge tests were encoded into mean per cent scores and on the basis of the scores, the respondents were distributed into three categories of knowledge i.e., good, average, and poor.

Gain in knowledge through the developed flip book on improved cattle rearing practices

Table 1.4 indicates that prior to exposure to flipbook, the majority of the respondents (76.67%) exhibited poor knowledge and 23.33 per cent of the respondents exhibited average knowledge. None of the respondents were found in the good knowledge category. However, significant improvement was noted in the post-knowledge scores of the respondents after exposure to flipbook, as all the respondents were found in the good knowledge category. This suggests that the flip book was successful in improving the knowledge of rural women regarding improved rearing practices. The observation was reported

Table 1.3: Overall Significance of difference in knowledge scores of respondents before & after exposure to multimedia CD

S.No.	Components	Pre test (MPS)	Post test(MPS)	Gain(MPS)	t- value
1.	Breeding	21.40	83.33	62.29	5.49**
2.	Feeding	26.67	85.02	58.35	5.11**
3.	Health care	19.76	85.00	65.25	6.12**
4.	Management	35.00	95.11	60.11	5.02**
5.	Clean milk production	19.76	85.02	65.24	5.02**
	Overall	24.51	86.69	62.24	5.35**

Table 1.4: Distribution of respondents by their knowledge before and after exposure to flip book on improved cattle rearing practices n=30

S.No.	Category	Pre knowledge			Post knowledge		
		Good f%	Average f%	Poor f%	Good f%	Average f%	Poor f%
1.	Breeding	0	07(23.33)	23(76.67)	30(100)	00	00
2.	Feeding	0	08(26.67)	22(73.33)	30(100)	00	00
3.	Health care	0	07(23.00)	23(76.67)	30(100)	00	00
4.	Management	0	08(26.67)	22(73.33)	30(100)	00	00
5.	Clean milk production	0	06(26.67)	24(70.00)	30(100)	00	00
	Overall	0	7(23.33)	23(76.67)	30 (100)	0	0

Table 1.5: Overall Significance of difference in knowledge scores of respondents before & after exposure to flipbook

S.No.	Components	Pre test (MPS)	Post test(MPS)	Gain(MPS)	t- value
1.	Breeding	25.18	79.09	53.91	4.65**
2.	Feeding	24.05	85.00	56.97	4.98**
3.	Health care	26.76	89.00	55.33	5.02**
4.	Management	25.18	85.00	54.53	4.85**
5.	Clean milk production	20.04	80.33	60.29	5.00**
	Overall	24.24	83.61	56.20	4.9**

by Jain (2017) in her study of development and field testing of a flipbook on vegetables in diet for rural women.

Component-wise gain in knowledge

Data presented in Table 1.5 indicates a gain in knowledge in different components with MPS and measured t values. The mean per cent scores reveal that before exposure to flipbook, the respondents possessed very poor knowledge (20-26 MPS) in all components. The post-test scores reveal that majority of the respondents (80- 89MPS) gained a good knowledge of all the components after exposure to multimedia CD.

In the case of the flipbook, a major improvement was observed in the knowledge of the respondents. For this paired t-test was used. Data presented in Table 1.5 depict that there was a significant difference in overall and component-wise pre and post-test knowledge scores of the respondents as the measured t values were found to be highly significant at a 1 per cent level of significance. This indicates that the flip book was highly effective in increasing the knowledge of the respondents.

The findings are confirmed by the finding of Rani (2016) who revealed that the developed training package consisting of a variety of visual aid charts, flip charts, and flashcards on vegetable cultivation was found effective in empowering rural women in a study on women's empowerment through a media package on vegetable cultivation in Haryana. Similar findings were found in the study conducted by Durgapal (2018) and Dangi (2016) in their assessment of flipbook and Pamphlets for rural women.

Multimedia CD (MPS 62.24) was found to be more effective than the flipbook (MPS 56.20) in terms of gain in knowledge. The reason for such findings could be that the learning through multimedia CD was a unique experience for rural women as the presentation of the content through visuals and commentary was supplemented with music involved more use of senses facilitating better gain in knowledge as compare to learning through use of visuals alone that made the multimedia CD more entertaining and easily understandable. The attractive

presentation of the content, visual clarity and organization & layout highlight the rural atmosphere, traditionally dressed folk characters and captions highlighting the messages were other contributing aspects that made it more effective very much liked and appreciated by the respondents. Similar results were reported by Rani *et.al* (2017) in development of booklet on vegetable cultivation for promoting nutritional security and Sharma (2009) in her study on field testing of instructional material on entrepreneurship development for its comprehension by rural women.

CONCLUSION

On the basis of findings, it could be asserted that the instructional material i.e., multimedia CD and flip on improved cattle rearing practices for rural women was effective in enhancing respondents' knowledge. Thus, the developed instructional material can be used by Home Scientist/Extension Personnel of KVKs and other agencies/organizations for knowledge management of rural women on the subject of improved cattle rearing practices.

REFERENCES

- Bala, K. (2019). Development of instructional material for rural women on Nutrition for children (0-3 years). Ph.D. Thesis submitted to Maharana Partap University of Agriculture & Technology, Udaipur, Rajasthan.
- Bhardwaj (2017). Development and standization of modular multimedia package for social empowerment of women, Ph.D. Thesis submitted to Chaudhary Charan Singh Haryana Agricultural University, Hisar, Haryana.
- Chaudhary. M. (2012). Video programme on nutrition education for rural women. M.Sc. Thesis submitted to S.K. Rajasthan Agricultural University, Bikaner.
- Dangi, S. (2016). Development of flip book on mensuration hygiene for adolescent girls. Unpublished M.Sc. Thesis submitted to Maharana Partap University of Agriculture &

- Technology, Udaipur, Rajasthan
- Durgapal R. (2018). Development of pamphlets related to environment sanitation for rural women. M.Sc. Thesis submitted to Maharana Pratap University of Agriculture & Technology, Udaipur, Rajasthan.
- Fatima, A. and Trivedi, S. (2012). Training course compendium on Good Dairy Farming Practices: A way forward for organic farming, Division of Dairy Extension, NDRI, Karnal.
- Gopal, B. (2010). Awareness, attitude and practices towards cattle rearing among women in the rural areas of Rajouri (J&K). *Indian Journal of Applied Research*, 5: 36-38.
- Jain, S. (2017). Development and field-testing of a flipbook on vegetables in diet for rural women. *Journal of Community Mobilization and Sustainable Development*, 12(1): 136-140. January-June, 2017
- Moovanthan, P., Kadian, K.S. and Meena., B.S. (2016). Empowerment of tribal farmers for good dairy farming practices through multimedia approach. *Advance Research of Animal Sciences*, 6: 217-221.
- Natoli, C. (2011). The importance of audio-visual materials in teaching and learning. Cited from www.helium.com/channels/224-earlychildhood-edu retrieved on 22 August, 2019.
- Rani, S., Verma, S. K. and Lal, M. 2017. Empowerment of rural women by development of media as a printed booklet on vegetable cultivation for promoting nutritional security. In: *Compendium on Nutrition-sensitive Agriculture: Changing Role of Extension*. Society of Extension Education, Agra. Cited from <http://www.seea.org.in/neec2017/Compendium-NEEC-2017.pdf> retrieved on August 15, 2017.
- Rani, P. (2016). Educational package on protective clothing for farm workers. M.Sc. thesis submitted to Chaudhary Charan Singh Haryana Agricultural University, Hisar. Cited from <http://krishikosh.egranth.ac.in/handle/1/5810014491> retrieved on August 11, 2019.
- Verma, S.K. Jain, V. and Sharma, V. (2017). Gain in knowledge and change in attitude of rural women regarding animal husbandry practices through media. *Rajasthan Journal of Extension Education*, 11: 144-49.
- Sharma, R. (2009). Field testing of instructional material on entrepreneurship development for its comprehension by rural women. Ph.D. thesis submitted to Maharana Pratap University of Agriculture and Technology, Udaipur.
- Sasikala, M. V. (2017). Information needs and information seeking behaviour of rural women regarding cattle rearing practices. *Journal of Communication Studies*, 34: 5-8.

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