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ASSESSING DISTANT LEARNERS' KNOWLEDGE RETENTION THROUGH VIDEO FILM

MADHURI SONAWANE

The video films were shown to the learners and post-test was conducted with the same questionnaires to know the change in knowledge level of the learners. Significant gain in knowledge after visualizing the video film and knowledge retention was observed. The highest Z-test and t-test values for aspects like pest and diseases followed by harvesting, handling, packing and export, training, prunning and also significant difference for other aspects showed that the video films on Rose production technology had highly succeeded in increasing the knowledge level of the respondents.

Keywords : Rose production, Video Film, Knowledge gain, knowledge retention

Overwhelming response to the correspondence courses started by Delhi University in 1962 led many universities to offer correspondence courses in India. The new concept of distance learning emerged in India. The establishment of the Open University in the United Kingdom, in 1969 encouraged several other countries to shift to this new concept of making higher education more accessible to large section of population deprived of formal traditional education. The Andhra Pradesh Open University (now renamed as Dr. B.R. Ambedkar Open University) at Hyderabad in 1982 and Indira Gandhi National Open University (IGNOU) in 1985 were the significant milestone in the development of distance education in India.

Yashwantrao Chavan Maharashtra Open University, Nashik, has played the key role in popularizing distance learning in Maharashtra state since its inception in 1989. Since then the university has adopted innovative approach in curricula design, development of learning material and teaching methodology. Video films related to curricula was one aspect highly emphasized by the university in initial years. A video film on Rose Production Technology was the outcome of university policy of using innovative approach in distance learning. Educational films/videos are very powerful medium of education as well as entertainment. Such film can be of great use and importance to the learners of higher education Mohanty (2001). The present study was conducted, to know the influence of video films (CD) in learning and improving the knowledge level of distance learners. Also the influence of video films on retention of knowledge was studied.

The development and use of video technology for agricultural and rural development is very much important. Still very few researchers have made attempt to develop the video for agricultural education. The reasons may be unavailability of professionally trained

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technologists in the field of media production and use as well as resources and physical facilities are scanty. A few studies indicated trends in the production of video programmes and effectiveness of video programmes.

Decker and Merril (1990) conducted a study on "influencing practices through video tape" at Cornell University, USA. 25 minutes videotape on "proper milking procedures" was produced. The purpose of the material was to help dairy farmers understand and make informed decisions about adopting proper milking practices. Dairy farmers in 10 countries were involved in this videotape base educational programme. They concluded that over 70% of the dairy farmers believed the group discussion was moderately to very helpful, but only 37 % believed the second video viewing was moderately to very helpful. The videotape base programme led to improvement in knowledge and change in attitude among farmers, which in turn resulted in substantial on farm changes in milking procedures.

In a study conducted by space applications center, Ahmedabad (1997) in Kheda, a series of science programmes for children of 6 to 12 years were transmitted. These programmes were on nutrition, hygiene, environmental science, nature and universe, etc. In earlier stages of the introduction of television, a number of investigators studied the impact of the educational programmes, which were meant for the farmers. One such study carried out by the National Council of Educational Research and Training (1968) evaluated the agricultural television programmes. The evaluation indicated the efficiency of television as a medium in disseminating agricultural information.

NCERT's study on Krishi Darshan (1969) was based on a sample of respondants, drawn from teleclubs located in the rural blocks of Delhi. Seven programmes were selected. Scores on knowledge and attitude towards selected agricultural practices were obtained, before and after the experiment, from the experimental and control groups. This study concluded that the television was positively useful in increasing the knowledge regarding the new farm technology. The television served as a stimulus to create a favourable attitude towards improved farm practices.

Mohanty and Rath (1990) in an appraisal study of CWCR TV Programmes reported that "knowledge" objective seemed to have been realized to a great extent in all the programmes whereas "understanding" and "application" objectives found to have been realized to a great extent in 52 to 60 % of the programmes.

MATERIALS AND METHODS :

The need assessment study was conducted initially informally & thereafter through an opinionnaire. In all three video films of 26, 22 and 18 minutes respectively on Rose production technology were prepared through a rigorous process of finalizing the content of video film, script writing, converting it into a video script, selecting shooting locations, actual shooting, editing of video film.

The content of the first video film (26 minutes) included detailed information about open cultivated roses, their importance and uses, climatic requirements, various types and varieties, T budding technique, in situ plantation, digging and filling of trenches, spacing, fertilizer and water management, pruning and training technique, intercultural operations, harvesting, handling, grading, packing for local market and for distant internal market.

Second video film (22 minutes) included Rose production in polyhouse, polyhouse cultivated roses, their importance, uses, export potential, climatic requirements, polyhouse varieties, soil sterilization, raised bed preparation and planting of rose grafts, intercultural operations, pruning and training technique, special techniques followed in polyhouse-cultivated roses, fertilizer and water management, harvesting, handling, grading, packing for export market, pre-cooling, cold storage and export.

The third video film (18 minutes) included Rose plant protection covering major pests like thrips, white flies, mealy bugs, scales , bud eating caterpillar, leaf eating caterpillar, red mites, leaf webber, chafer beetle, leaf cutting bee, hoppers, digger wasp and major diseases like dieback, powdery mildew, black spot as well as deformity like bull heads and its control.

The developmental testing of these video films were carried out. Pre-test and post-test initially on a group of 25 students on pilot basis was conducted. Validation was done to check the accuracy of content. The video film were shown to experts in subject matter, instructional designers, experienced teacher, etc. In all 22 experts gave their suggestions. Considering their comments and suggestions, changes were made in the video films wherever necessary.

The learners who have completed the first year of the Diploma Programme in Floriculture and landscape Gardening run by School of Agricultural Sciences of YCMOU, Nashik were considered to have basic knowledge in the field of agriculture. These students were selected randomly for the knowledge test. Briefing about the video films was done to 76 learners and filling up of the questionnaire was completed. Pre-test was conducted before the video show. Immediately after video-show, the post-test was conducted.

For knowledge retention test, all the 76 learners were called up 30 days after the video show. Only 32 learners who attended after 30 days were considered for knowledge retention test. Thus, data collection was done in three phases, namely Before Treatment (BT), Immediately After Treatment (IAT) and 30 Days After Treatment (30 DAT).

The data collected were tabulated and quantified by working out different scores. Gain in knowledge was calculated by deducting sum of knowledge scores obtained before treatment from sum of knowledge scores obtained immediately after treatment. Retention in knowledge was computed by deducting sum of knowledge score at 30 days after treatment from sum of knowledge scores obtained immediately after treatment. The data was analyzed using Z- test and t-test to test the significant difference between the mean knowledge score before exposure, immediately after exposure and one month after exposure to the video films.

FINDINGS AND DISCUSSION :

A) Quality of video films in terms of content and technical aspects

Though the developmental testing and validation of all the video films were done before the field-testing, it was felt necessary to know the views of the respondents about the content and technical quality of the video films.

It may be observed from Table 1 that for all the respondents, the content of video films on Rose production technology was entirely new. 76.32 % of respondents had

reported that the content was entirely new for them. The discussions with the respondents after the post-test session also revealed that most of the respondents had never actually seen one or other operation personally. Some of them had visited a few Rose farms but it was not possible for them to be present at the time of each and every operation. Especially the semi- automatic Rose grading machine was new to most of them. Also the various operations in polyhouse production of Roses like bed preparation, pruning technique, use of flower protection nets, pre-cooling chain, harvesting and packing of roses, pest like digger wasp as well as different varieties of polyhouse roses were all new to them. The data in Table 1 also revealed that 97.37 % of the respondents had said that they had obtained some new technology related to Rose production.

Regarding the proper sequence of the content of the video film a very few i.e. 2.63 % of the respondents had said that the sequence was not proper. Also only 1.32 % of the respondents had said that the content of the video film was not easy to understand. It may be due to the use of difficult scientific words used in the video films. Efforts had been made to minimize the use of difficult scientific words but at some places it was really unavoidable. As the video film was in a continuous flow, and also there was no time in between to explain such words, briefing orally in between or post discussions would solve this problem.

Table:1 Video Films on Rose Production Technology Content wise Qualit Aspects

Sr. No.	Particulars	(N = 76)	
		Yes	No
1.	Content of the video films is entirely new	58 (76.32)	18 (23.68)
2.	Content of the video films is in proper sequence	74 (97.37)	2 (2.63)
3.	Content of the video films is easy to understand	75 (98.68)	1 (1.32)
4.	More scientific and difficult words are used in video films	12 (15.79)	64 (84.21)
5.	Video films are catchy	74 (97.37)	2 (2.63)
6.	Sufficient and detail information on latest technology is shown in video films	74 (97.37)	2 (2.63)
7.	Video films are lacking in one or other of the important technologies	9 (11.84)	67 (88.16)
8.	Proper time for every aspect is allotted in video films	71 (93.42)	5 (6.58)
9.	Wrong information is depicted in video films	2 (2.63)	74 (97.37)
10.	Have you obtained any new technology related to Rose Production	74 (97.37)	2 (2.63)

Figures in the parentheses are percentages

Table 2: Video Films on Rose Production Technology Technical Quality Aspects

Sr. No.	Particulars	(N = 76)	
		Yes	No
1.	The presentation style of the video films is proper	76 (100.00)	0 (0.00)
2.	The visuals are clear	75 (98.68)	1 (1.31)
3.	The audio is clear	76 (100.00)	0 (0.00)
4.	The speed of the audio is adequate	71 (93.42)	5 (6.58)
5.	Proper time is allotted to every visual	71 (93.42)	5 (6.58)
6.	The use of background music contributes to the effectiveness of the visuals	68 (89.57)	8 (10.43)
7.	The style and the language used in video films is appropriate	75 (98.68)	1 (1.31)
8.	The audio and the visual elements complement each other	75 (98.68)	1 (1.31)

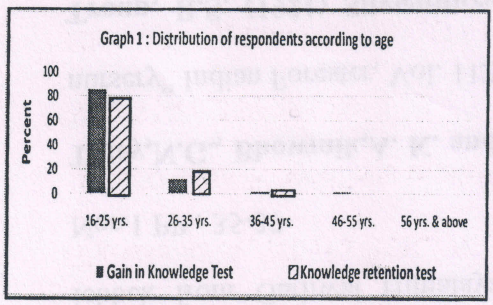
Figures in the parentheses are percentages

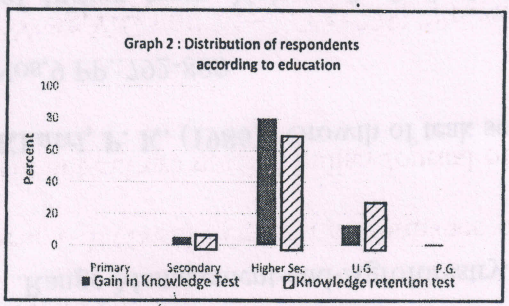
B) Socio-personal characteristics of the respondents

i) Gain in Knowledge Test

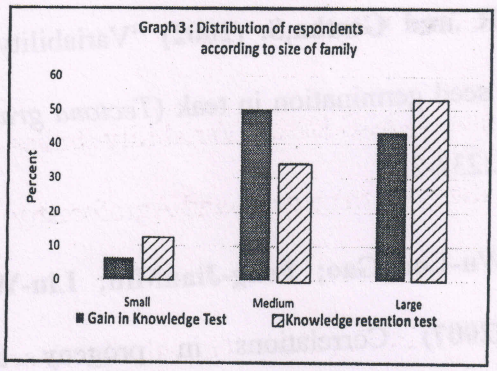
As far as the socio-personal characteristics of the respondents were concerned, it was found that almost 85.53 % of the respondents were from the age group of '16 to 25' years whereas, 11.84 % of the respondents were from the age group of '26 to 35' years and 1.32 % of the respondents were from the age group of '36 to 45' years and '46 to 55' years age category. (Graph 1).

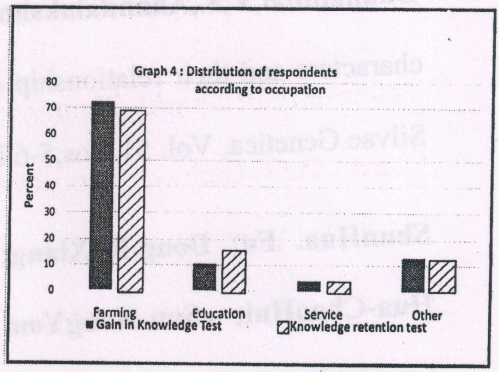
While studying the present educational status of the learners, it was observed that, every learner was educated at least up to the secondary level. 80.26 % of the learners have completed the higher secondary level of education and 13.16 % learners have completed their degree level education. Only 1.32 % of learners have completed their postgraduate level education (Graph 2).





Most of the learners were having either medium or large families. Almost all the learners i. e. 72.37 % were having farming as their main occupation while 3.95 % were in service and 13.16 % were having some other occupation (Graph 3 & 4).





ii) Knowledge retention test

It was observed that 78.12 % and 18.75 % of learners belonged to the 16 to 25 years and 26 to 35 years age category respectively. Only 3.12 % of learners belonged to 36 to 45 years age category. No learner was more than 45 years of age. Also no learner was having education up to postgraduate level. 68.75 % of learners were having education up to higher secondary level, 25 % of learners were having their education up to degree level (Table 3, Graph 1 & 2).

As far as family size is concerned most of them were either having medium or large family. Only 12.5 % learners were having small family. 40.63 % learners were having separate families. Most of them were having farming as their main occupation (Graph 3 & 4)

C) Influence of Video Programme in terms of gain in knowledge

In all 76 learners with basic knowledge in agriculture were selected. As these students had completed the Agricultural foundation Programme of YCMOU, Nashik their basic knowledge level was supposed to be higher. The gain in knowledge level was tested immediately after exposing these respondents to the video film show and the results of the knowledge gain test are presented in table 4.

It was revealed from Table 4 that the mean knowledge gain score was highly significant for all the seven groups of questions. The differences in the mean knowledge gain scores before and after the exposure were compared using Z-test. The results of the Z-test showed that there was significant difference in the mean knowledge score before treatment and immediately after treatment in all the seven groups of questions. This shows that there was gain in knowledge after visualising the video films. The results are in conformity with the findings by Jaiswal (1988), Mohanty and Rath (1990), Mohanty and Sethi (1992)

It could be seen from the Table 4 that, highest mean knowledge score difference (IAT-BT) was observed for aspects like pest and diseases (4.07), harvesting, handling, packing and export (2.83), training and pruning (2.64). This means that regarding these aspects respondents were having very less knowledge before exposure to video films. The highest Z-test values for these aspects and also significant difference for other aspects shows that the Video Films on Rose have highly succeeded in increasing the knowledge level of the respondents.

Table 3 : Distribution of respondents according to their personal, socio-economical characters

Categories	Group - 1 (N =76)		Group - 2 (N =32)	
	Number	%	Number	%
Age				
16-25	65	85.53	25	78.12
26-35	9	11.84	6	18.75
36-45	1	1.32	1	3.12
46-55	1	1.32	0	0
56 & above	0	0	0	0
Education				
Primary	0	0	0	0
Secondary	4	5.26	2	6.25
Higher Sec	61	80.26	22	68.75
U.G.	10	13.16	8	25.00
P.G.	1	1.32	0	0
Size of family				
Small	5	6.58	4	12.5
Medium	38	50	11	34.38
Large	33	43.42	17	53.13
Family type				
Joint	37	48.68	19	59.38
Separate	39	51.32	13	40.63
Occupation				
Farming	55	72.37	22	68.75
Education	8	10.53	5	15.63
Service	3	3.95	1	3.13
Other	10	13.16	4	12.5
Land holding				
Small	18	23.68	10	31.25
Marginal	12	15.79	3	9.38
Medium	16	21.05	10	31.25
Large	17	22.37	9	28.13
Soil type				
Light	7	9.21	3	9.38
Medium	50	65.79	26	81.25
Heavy	9	11.84	3	9.38
Income				
UptoRs.10000	9	11.84	3	9.38
10000-20000	18	23.68	5	15.63
20000-40000	14	18.42	5	15.63
>40000	35	46.05	19	59.38
Total	**76**	**100**	**32**	**100**

Table 4 : Mean knowledge gain Scores of the respondents exposed to video films

Treatment	Mean knowledge gain Scores		Difference (IAT-BT)	'Z' value
	BT	IAT		
Video films on Rose production technology				
I) General scientific information about Rose production	1.03	1.97	0.93	6.34
II) Propagation and planting of Roses	1.79	3.45	1.66	10.28
III) Training and pruning	2.49	5.13	2.64	12.75
IV) Fertilizer and water management	1.67	2.76	1.09	6.52
V) Pest and diseases	2.45	6.51	4.07	15.64
VI) Disorders	0.34	1.25	0.91	8.73
VII) Harvesting, handling, packing and export	2.64	5.47	2.83	9.43

'Z' value significant at 5% level BT - Before Treatment IAT- Immediately After Treatment

Table 5 : Mean knowledge gain Scores and retention scores of the respondents exposed to Video Films at BT, IAT and 30DAT

Treatment	Mean knowledge Gain Scores			Difference (IAT-BT)-(IAT-30DAT)	Standard deviation (IAT-30DAT)	't' value * (IAT-30DAT)
	BT	IAT	30DAT			
Video Films on Rose production technology						
General Scientific information about Rose production	1.37	1.84	1.15	-0.21	1.18	1.04
Propagation and planting of Roses	1.72	3.38	2.21	0:49	1.41	2.00
Training and pruning	2.59	5.72	4.15	1.56	2.41	3.66
Fertilizer and water management	1.50	2.84	1.91	0.41	1.45	1.58
Pest and diseases	2.03	7.03	5.06	3.03	2.10	8.15
Disorders	0.47	1.46	0.81	0.34	0.94	2.07
Harvesting, handling Packing and export	2.46	5.68	4.18	1.72	2.43	3.98

** 't' value significant at 5% level BT - Before Treatment IAT- Immediately After Treatment 30 DAT - 30 Days After Treatment*

D) Effectiveness of Video Films in terms of knowledge retentation

The 76 respondents present for the Knowledge Test were all called up for the knowledge retention test again one month after exposing the respondents to the video film show. Only 32 respondents were present and were considered for the study. The mean knowledge scores of these 32 respondents were calculated and compared with the respected values of mean knowledge scores of post -test undertaken one month after exposing the respondents to the video film show. The results of the paired 't' test are presented in Table 5.

It could be revealed from table 5 that 30 days after exposure to Rose video films, the mean knowledge retention score of the respondents was highest in case of pest and diseases (3.03) followed by harvesting, handling, packing and export (1.72), training and pruning (1.56), propagation and planting (0.49), fertilizer and water management (0.41), disorders (0.34) and general scientific information about Rose production (-0.21).

The data presented in the Table 5 revealed that the 't' values of paired 't' test for different aspects of Rose production technology were significant at 5% level of probability except the 'general scientific information about Rose production'. It indicated that there was a significant difference between the mean knowledge gained immediately after exposure and retained 30 days after exposure in case of all the aspects except the 'General scientific Information about Rose production'. The respondents showed highest retention of information on pest and diseases.

CONCLUSIONS :

Respondents were having very less knowledge regarding package of practicesbefore exposure to video films. The highest Z-test values for these aspects and also significant difference for other aspects shows that the video films on Rose production technology have highly succeeded in increasing the knowledge level of the respondents.

The mean knowledge retention score of the respondents was highest in case of pest and diseases followed by harvesting, handling, packing and export as well as training and prunning. There was a significant difference between the mean knowledge gained immediately after exposure and retained 30 days after exposure in case of all the aspects except the general scientific information about Rose production.

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