AN EXPERIMENTAL STUDY ON THE RELATIVE EFFECTIVENESS OF SELECTED VISUAL AIDS IN TEACHING NEO-LITERATES

BY
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THESIS
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requirement for the degree
MASTER OF SCIENCE IN AGRICULTURE
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1990

DECLARATION

I hereby declare that this thesis entitled "An experimental study on the relative effectiveness of selected visual aids in teaching neo-literates" is a bonafide record of research work done by me during the course of research and that this thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any other university or society.

SANTHOSH KUMAR, S.

Vellayani,

27..1..1990.

C E R T I F I C A T E

Certified that this thesis entitled "An experimental study on the relative effectiveness of selected visual aids in teaching neo-literates" is a record of research work done independently by Sri. SANTHOSH KUMAR, S. under my guidance and supervision and that it has not previously formed the basis for the award of any degree fellowship or associateship to him.

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DEDICATED TO

The loving memory of
the late Sri. P.S. SASI KUMAR, my friend,
colleague and strength, who left me for
heavenly abode during the course of
preparation of this thesis.

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22-1-1990

S. SANTHOSH KUMAR.

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INTRODUCTION

INTRODUCTION

Illiteracy and traditional outlook of the majority of our rural masses had always been a barrier for development. Illiteracy is always linked with poverty which in turn hinders the progress of the society. India launched her massive programme of Community development with a view to liberating the teaming millions from squalor, diseases, illiteracy, ignorance and poverty. The challenging task of non-formal education aimed at making the adults literate in Kerala, is now carried out mainly by Governmental and voluntary agencies. Of the various government programmes, the National Adult Education Programme (NAEP) started in 1977 actually gave an impetus to the adult education programme in the state along with other parts of the country. The other related programmes include the Rural Functional Literacy Programme (RFLP), the National Programme of Functional Literacy (NPFL) and the National Literacy Mission (NLM). Among the voluntary agencies working in the sphere of alleviation of illiteracy in the state, the Kerala Association for Non-Formal Education and Development (KANFED), stands out with a statewide reputation. The earnest efforts put in by the government under the functional literacy programme, the KANFED and a few other philanthropic organisations, in the field of adult education culminated in organising a network of neo-literate groups in every district and a few

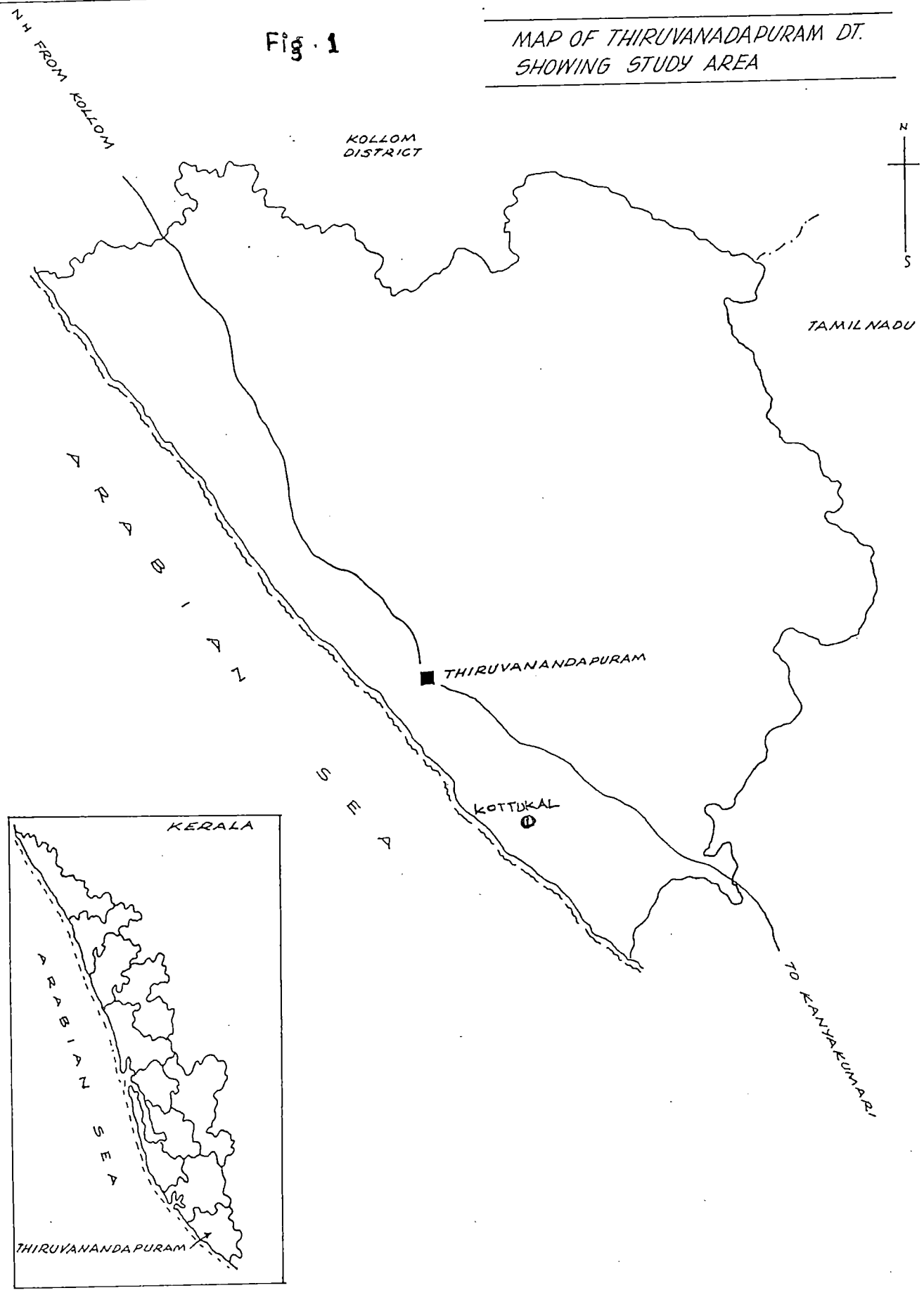
To select these visual aids from the many available visuals, which prove most effective for a given subject and situation, is an ardous job. The selection depends upon many parameters like the type of learners, subject matter to be presented, physical facilities available, economic feasibility of the visual aid etc. Taking all these facts into cognizance, conducting a systematic study would perhaps yield some useful results. These in turn will help in the selection of the right instructional visual aids for a given teaching situation and type of learners.

Until now, no systematic research works had been carried out in Kerala to findout the effectiveness of visual aids in teaching neo-literates. It was felt worthwhile to undertake a study to find out the effectiveness of different selected visual aids in the gain in knowledge and retention of the gained knowledge of neo-literates. Hence the present study was taken up with the following objectives.

1. To assess the relative effectiveness of selected visual aids in gain in knowledge of neo-literates.
2. To assess the relative effectiveness of selected visual aids in retention of knowledge by neo-literates.
3. To study the relationship of certain selected socio-personal characteristics of the neo-literates with their gain in knowledge and retention.

Fig. 1

MAP OF THIRUVANADAPURAM DT.
SHOWING STUDY AREA



Scope of the study

A study of this kind is perhaps a pioneer one in Kerala. It is hoped that results of this study will throw light in the selection and use of the appropriate visual aids for imparting knowledge to the neo-literates and retaining the same for longer periods.

This study will also help to findout the relative effectiveness of three selected visual aids viz., the slides, flash cards and flannel graph in imparting and retaining knowledge to neo-literates, who form an integral part of non-formal education.

The results of the present study will facilitate extension educators and other organisations engaged in adult education programmes to select and make use of appropriate visual aids in imparting knowledge to the neo-literates.

Limitations of the study

Considering the limited time and other resources available with the researcher and since this is an experimental study, it has been confined to one Panchayat in Trivandrum district. The neo-literate fishermen groups of this panchayat do not represent the spectrum of neo-literates in Kerala. Hence the conclusions drawn from the experiment cannot be generalised to other areas, and communication situations. However, considering the efforts put in planning and conducting the experiment it is hoped that the

results generated will be of use to make broad generalisations for the whole state of Kerala.

Definitions of terms used in the study

The connotation of certain terms used in the study are operationalised as follows:-

Neo-literate:

A person who can just read and write by using primers. This category includes those people who were formerly illiterate but have become recently educated to just read and write and to use primers.

Lecture:

It is the oral method of presentation of a subject matter in a sequential order by the teacher.

Gain in knowledge:

This refers to the increase in the amount of knowledge of an individual as a result of a particular teaching method.

Retention of knowledge:

This refers to the amount of knowledge retained after an interval of 15 days out of the amount of knowledge gained by an individual as a result of a particular teaching method.

THEORETICAL ORIENTATION

II. THEORETICAL ORIENTATION

In this chapter, the review of literature is presented under the different sub-heads.

1. Learning, learning situations and learning through different senses.

Strauss and Kidd (1948) found that 80 per cent of learning was through the senses of sight and hearing. Through the use of visual aids, students learnt upto 35 per cent more in a given period of time.

Mannio (1949) reported that stimulation of two senses simultaneously results in quicker and easier mental expressions.

Allen (1952) found that both bright and dull students learned from audio-visual materials and that the effect of audio-visual materials was particularly observed with dull students.

Hass and Packer (1955) reported that learning occurs only through the educational activities. The participation in activities will be there only if they attract the attention of the learners. Audio-visual aids are best attention compellers. They add interest and vitality to any training situation. As a result they enable students to learn faster, remember longer, gain more accurate informations and understand the concept and meaning.

Marks (1955) reported that most of the people retained 10 to 15 per cent of what they had read, 20 to 50 per cent of what they had heard, 30 to 35 per cent of what had seen, 50 per cent or more of what they had seen and heard at the same time and upto 90 per cent if they had participated by involving all the senses.

Wilson and Gallup (1955) suggested that for effective extension teaching, the extension worker should be able to attract attention, create interest, develop desire, ensure action and maintain satisfaction in the people.

Panders (1956) said that more the number of senses stimulated in any human being, more the message conveyed and more thoroughly it was retained in his memory.

Wittich and Schuller (1957) stated that the basic function of the audio-visual aid is to enable learners to see and hear, look and listen more fully and discriminatingly for greater comprehension.

Study conducted by UNESCO (1958) indicated that people retain 20 per cent of what they had heard, 30 per cent of what they had seen and 50 per cent of what they had heard and seen.

Busset (1961) considered "eye" as a more willing and co-operative teacher than "ear". The accumulated influence of different methods is more effective than

single method. A skilled extension worker will recognise 'what' tools to use, 'how' often to use and in 'what' combination to use for effective education of farmers.

Leagans (1961) observed that a combination of seeing and hearing was more effective in making impact on people and was usually necessary to promote action.

Thirunavukkarasi (1962) concluded that much of the erroneous impressions or images likely to be formed on the minds of the learners could be averted by the use of audio-visual aids.

Dale (1963) showed that some subjects are taught best by auditory methods, some by visual, but most subjects are taught best by a combination of methods.

Rhoads and Piper (1963) in an investigation on the effectiveness of Radiophonics schools in Honduras and El Salvador found that the neo-literates attached more credibility to print media.

Ram krishan (1965) stated that no single means or method of communication is effective for all people in all situations. Often one is supplementary or complementary to each other. Each means has a distinctive appeal or approach which the others may or may not have. Hence, a judicious combination of various means depending upon the local resources had to be used to get the desired results.

Peterson (1966) reported that more the extension method or teaching aids used, higher will be the persons changing their practices favourably.

Ougweker (1973) opined that a communicable fact should be disseminated in such a way that it will motivate people to direct action. Continuous exposures to various tools of communication is the key for successful motivational and action led flow of information.

Schneider (1974) pointed out that the amount of information remembered about the messages by Brazillien farmers who reported interpersonal contacts along with mass media contacts, was a little higher than that of farmers who received information only through mass media.

Esperon (1980) studied the relation between open education programme with adult education in Mexico. The results suggest the use of audio-visual materials in adult education programmes for better understanding by the learners.

Pathak and Shah (1984) reported that the lack of motivation or interest on the part of learners is mainly responsible for widespread illiteracy among rural women in India. With purely oral methods posing the problem of retention, and the use of modern mass media restricted due to the lack of electricity in villages, puppetry can

be an effective medium for educating rural women.

Selvaraj and Knight (1985) in a study revealed that the use of sensory organs play major role in knowledge gain and retention. The involvement of more sensory organs by means of any one or more teaching aids or methods is a must in dissemination of farm technology.

Mohanty (1987) revealed in her study that majority of the neo-literates are interested in topics related to recreation, literature and mythology; specifically - neo-literates in the younger age group who seem to read more for pleasure than for knowledge.

2. Effectiveness of slides, flash cards and flannel graphs on gain in knowledge andretention.

Studies relating to the influence of communications media particularly slides, flash cards and flannel graph, in imparting knowledge and its retention have been reviewed and presented in the following pages.

Strauss and Kidd (1948) found that through the use of visuals students learnt upto 35 per cent more in a given period of time.

Dent (1949) observed that each aid has its place and there is a place for each in nearly every situation. He further mentioned that effective use of the aids can be brought out by following the principle of the right

aid in the right way at the right time to the right people for giving the right message by the right person.

Hoban (1949) enumerated the obstacles in the use of audiovisual materials as expense, difficulty in obtaining them and requirement of increased manual and technical skills.

Mannio (1949) said that stimulation of two senses simultaneously results in quicker and easier expressions.

Hakanson (1953) reported that flannel graph is the best lecture aid. To an average person, simplification of demonstration by flannel graph is very welcome, for he can understand what he sees and then because it is broadly picturised, he can remember it longer.

Harris (1953) found that 78 per cent of the teachers in his study were using chalk board than any other audio-visual aid.

Hass and packer (1955) stated that lightning never strikes twice at the same time and in the same place. But instructors can strike repeatedly at the understanding of students by the use of visual aids, more so by using flash cards. He described audio-visual aids as the best attention compellers.

Kelsey and Hearne (1957) studied the effectiveness of methods of presentation of subject matter. They reported

that a very substantial increase in the number of people influenced, could be expected through the use of charts to supplement the lectures.

National project in Agricultural communication and United States International Co-operation Administration (USICA) (1959) reported that proper selection of visual aids required recognition of the fact that there was no one best tool in the visual kit and each had appropriate application in different conditions under which it should be used.

Kulandaivel (1961) found that audio-visual aids cater to the individual differences and help students learn in their own way.

Leagans (1961) indicated that flash cards revealed the brief visual messages that were used to emphasise the important points in a talk. He also stated that slides help in presenting the new ideas effectively with the aids of carefully prepared script for the talk.

Rao (1961) studied that relative effectiveness of nine combinations of audio-visual aids and information literature with a literate group of farmers of Delhi. He found that booklets and information folders were the most effective in increasing knowledge of farmers followed by field trips with lecture and slides.

Fay (1962) reported that visual aids increase upto three times the effectiveness of the lecture.

Mohanty (1962) opined that slides were the oldest form of projected aids, flexible in nature and a good medium of advertising. Theyplay an unique role in attracting the attention and in creating interest.

Bacon (1963) observed that slides communicate ideas better than motion pictures. He also stated that flash cards help in dramatizing a point to focus the attentiontion of the farmers.

Gupta (1963) stated that audio-visual materials were like "O" and the extension worker's personality like "1" when used in the right manner, their impact will be 10 fold.

Weaver and Bellinger (1963) elaborated the role of slides by stating that:

Slides serve best when motion is not necessary. Slides are very helpful during a lecture or discussion to amplify a point or clinch essential facts. There is limitless amount of subject matter that may be placed on slides which does not involve motion for complete understanding.

According to Hass and packer (1964) the use of single slide can vitalise entire teaching session. One slide can make a topic or a lesson remain vividly in the

memory of learners.

Erickson (1965) stated that the selection and combination teaching aids should help the students to acquire specific insights and develop proper attitude.

Jalihal (1965) found that the effectiveness of village meetings was increased due to the use of both slides and flash cards.

Ramkrishan (1965) reported that use of slides is convenient and serves as an effective medium of communicating information, knowledge and skills. He emphasised the use of slides in extension as one of the best, cheapest and most effective method of attracting attention, arousing interest and making decisions.

Rao (1965) found that filmstrip was superior to film show, tape recorder, flannel graphs, photographs, flash cards and lecture without any audio-visual aids.

Srinivasamurthy (1965) discussing the role of visual aids in promotional campaign, observed that coloured slides on demonstration motivated farmers to further action.

Mahajan and Bhaskaram (1966) studied the relative effectiveness of method demonstration use of flash cards with lecture and lecture alone and found that method demonstration was found most effective followed by use of flash cards with lecture and lecture alone.

Peterson (1966) reported that more the extension methods or teaching aids used, higher will be the persons changing their practices favourably.

Reddy (1966) studied the effectiveness of some audio-visual aids in a district of Andhra Pradesh. He found that the farmers who were exposed to audio-visual aid materials understood the message communicated to them in the following order: Motion picture, leaf-let, charts and wall news paper.

Patel and Singh (1968) described the use of flash cards as a method of teaching, where there were a set of cards arranged in a series, when used in presentation helped developing a story in a sequence. Each card in a series was a brief visual message emphasising an important point.

Reddy and Somasundaram (1968) found that flash cards, flannel graphs and flip chart were superior to oral communication in their effectiveness. They found that flash cards were more effective than the other two visual aids.

Khuspe (1970) found that lecture with visual aids, followed by group discussion, result demonstration, field trips, tours and film shows were superior to conventional methods of training in changing the attitude of farmers.

According to Rao and Rao (1970) filmstrip, flannel graphs, photographs and flash cards were found to be significantly superior to lecture in imparting knowledge on foliar spray of urea on wheat crop.

Singh et al. (1971) conducted a study on relative

effectiveness of audio-visuals in disseminating information on improved methods of sugarcane cultivation. It was found that slides were superior to flash cards and flannel graphs in imparting knowledge.

According to Mathur (1972) exhibitions in India have been the most effective in conveying information to farmers than the newer media like slides and flash cards.

Muthiah and Duraiswamy (1975) revealed that individual contact was found to be the most effective followed by literature, group meeting and radio compared to other methods viz., demonstration, visual materials, exhibition and filmshow which did not create any awareness about the plant protection practices among farmers in Coimbatore district of Tamil Nadu.

Kaur and Roy (1976) proved that teaching with the help of non-projected visual aids like chart, flash cards and flannel graph was effective than the lecture method alone.

Nanjaiyan et al. (1976) in their study about the relative effectiveness of visual aids in teaching the school children about improved practices in cultivation of cotton crop reported that flash cards had significant effect on gain in knowledge. The other methods in the order of priority were lectureplus flash cards, lecture plus chalk board, lecture alone and lecture with flannel graph.

Singh and Singh (1976) conducted a field experiment in Dewas district of Madhya Pradesh to assess the effectiveness of various media and media mix to be used for fertilizer promotion. The study revealed that group discussion plus folder was least effective when compared with field trips plus slide show, wall painting plus slide show and demonstration plus slide show in terms of gain in knowledge.

Subramanyan (1976) in his field experiment on relative effectiveness of selected combinations of extension methods conducted at Coimbatore, reported that talks with flannel graphs followed by discussions was superior to slide show plus discussion in terms of retention of knowledge.

Channegowda (1977) revealed through his study that forum preceeded by distribution of leaflets was superior to the forum followed by distribution of leaflets and distribution of leaflets alone.

Sharma and Reddy (1978) observed that flannel graph was significantly superior to film strip, flash cards and opaque projection in imparting knowledge on poultry keeping.

Nagaraja (1979) reported that farmers with high organizational and high mass media participation were significantly better in respect of gain in knowledge

over all the other methods namely, lecture, lecture with slide show and lecture with flannel graph as compared with 'low' and 'no' extension contact.

Raghavendra (1979) reported that each one of the three communication methods viz., lecture, folder and lectureplus folder, was superior to the control group and there was no differential influence among these three communication methods in influencing farmers on dairy management practices.

Seetharamu (1979) reported extension meeting with flannel graph presentation was found to be most effective in terms of knowledge increase. Exhibition with flannel graph presentation was found to be effective in changing knowledge of participants followed by flannel graph presentation in extension meetings. Extension meetings with flannel graph was effective in case of illiterates whereas wall news paper plus exhibition plus flannel graph was more suitable for literates.

Shashidharamurthy (1979) observed that the media combinations, wall news paper plus slide show, wall news paper plus flannel graphs and wall news paper plus flash cards were superior to control. But no significant difference was observed among themselves in increasing the knowledge of dairy farmers.

Srishkumar (1979) observed that wall newspaper plus exhibition, wall news paper plus exhibition plus flash cards

and wall news paper plus exhibition plus slide show brought about changes in knowledge of dairy farmers. However these combinations of media did not differ significantly from each other.

Suryaprakash (1979) reported that media combinations, exhibition with flash cards and exhibition with slide show were superior in increasingthe knowledge of respondent dairy farmers to the single medium exhibition.

Reddy (1980) in his study reported that slide show and flash cards were similar in their effect and each one of them was significantly superior to folder and wall newspaper in terms of gain in knowledge.

Narasaraj (1981) in his study conducted at Devanahally taluk of Bangalore district, found that folder plus slide show and chart plus slide show were similar in their effect and each one of them was found to be superior to folder plus chart increasing the knowledge of silkworm rearers.

Selvaraj (1981) foundthat the involvementof poly-perceptory organs was moreeffective in knowledge gain by the listeners compared to involvement of disensory organs and monosensory organs.

Nagaraja and Reddy (1985) reported that lecture and tape recorded lecture did not differ in their influence on gain in knowledge and retention when combined with slide show and flannel graph.

Rani and Malaviya (1986) in their study on the relative effectiveness of different media mix systems found that besides flip chart, the flash cards mixed with method demonstration has also been equally effective in technology introduction programmes.

Shah and Gupta (1986) studied the effectiveness of three visual aids viz., flash cards, slides and puppets and found that flash cards were significantly superior to the other two in imparting knowledge in non-formal education programme.

Malviya and Verma (1987) conducted a field experiment to study media mix effectiveness and the results have confirmed that flip chart plus flash cards in combination with lecture or demonstration have proved to be most effective for five messages on improved home practices.

The findings of a study conducted by Singh and Verma (1987) revealed that there was a significant gain in knowledge for the simple and complex messages after the exposure through the slide stories.

3. Dependent Variables

A. Gain in knowledge:

Reader's Digest Great Encyclopeedia gives the meaning of knowledge as "person's range of information, theoretical or practical understanding the sum of what is known".

English and English (1958) in the 'Comprehensive dictionary of psycho-analytical terms', defined knowledge as a body of understood information possessed by an individual or by a culture.

Sahoo (1958) pointed out that there was no significant difference between the age groups of farmers in changing their knowledge by using extension media. Further he has reported that education had a definite influence in changing knowledge of farmers through different extension methods.

Tikhe (1959) mentioned that combination of personal contact group discussion, audio-visual aids and literature proved to be most effective in changing the knowledge about co-operatives among farmers.

Vishnoi and Sinha (1960) conducted a field experiment on the impact of visual aids in Delhi on youth. Education and economic status were not related to their behaviour in the case of visual aids.

Rao (1961) in his study on relative effectiveness on nine combinations of audio visual aids and information literature with a literate group of farmers of Delhi State found that booklets and information folders were the most effective in increasing knowledge of farmers followed by field trips with lecture and slide shows.

Vishnoi and Bose (1961) found that the literate farmers were superior to illiterate group at all the three exposure levels tried such as personal contact, group discussion and field trip in gain in knowledge about the use of cowdung gas plant.

Ramkrishan (1965) reported that use of slides is convenient and serves as an effective medium of communicating information, knowledge and skills.

Roy (1966) found that lecture method followed by group discussion was the most effective method for improving knowledge of the farmers.

Rao and Rao (1970) observed that film strip, flannel graphs, photographs and flash cards were found to be significantly superior to lecture in imparting knowledge on foliar spray of urea on wheat crop.

Sekhon (1970) reported that farmers with matric qualification and above had maximum gain in knowledge. Economic status was not found to operate in the gain of knowledge.

Kamalsen (1971) found in Trivandrum district of Kerala State, increased knowledge with increase in the age of the farmer trainees. The increase in knowledge was more for the illiterate and less educated trainees.

Singh et al. (1971) conducted a study on relative effectiveness of audio-visuals in disseminating information on improved methods of sugarcane cultivation. It was observed from the results that slides were superior to flash cards and flannel graphs in imparting knowledge.

Tampi and Menon (1972) observed that lecture method with mean knowledge score of 18.61 was superior to the film show method in which case the mean knowledge score was only 13.54.

Oliver and Basha (1975) in their study conducted in Avinashi block, in Tamil Nadu concluded that individual contact was superior to tape recorded speech in educating farmers about fertilizer application to cotton. The mean gain in knowledge due to individual contact methods was 11.10 followed by lecture plus flash card (9.90) tape recorded speech (9.40) and lecture (9.20).

Pandey and Khanna (1976) concluded that for communication of technical information to rural women most of whom are illiterate, discussion and interview modes were most effective. The study indicated that the groups exposed to the interview modes gained more knowledge than the other two groups, who were exposed to discussion and informal dialogue.

Nanjaiayan et al. (1976) reported that flash cards had significant effect on gain in knowledge. The other

methods in the order of priority were lecture plus flash cards, lecture plus chalk board, lecture alone and lecture with flannel graphs.

Subramanyan (1976) reported that age has influenced the amount of knowledge gained by farmers.

Manjunath (1977) found that lecture plus specimens were more effective in gain in knowledge followed by lecture plus slide method. Lecture method was the least effective.

Sharma and Reddy (1978) observed that flannel graph was significantly superior to film strip, flash cards and opaque projection in imparting knowledge on poultry keeping.

Somasundaram and Singh (1978) found age and urban contact as significantly correlated with knowledge gain in the case of adoptors.

Nagaraja (1979) conducted a study in Karnataka and reported that farmers with high organizational and high mass media participation were significantly better with respect of gain in knowledge over all the methods namely lecture, lecture with slide show and lecture with flannel graph.

Raghavendra (1979) reported that each one of the three communication methods - lecture, folder and lecture plus folder was superior to the control group and there was

no differential influence among these three communication methods in increasing the knowledge of farmers on dairy management practices.

Seetharamu (1979) found that the media treatments were superior to control in increasing knowledge. Extension meetings with flannel graph presentation was found to be most effective in terms of knowledge increase.

Shasidharamurthy (1979) observed that the media combination viz., wall newspaper plus slideshow, newspaper plus flannel graphs and wall newspaper plus flash cards were found to be superior to control in increasing the knowledge of the dairy farmers. But no significant difference was observed among themselves in increasing the knowledge.

Srishkumar (1979) in a study in Karnataka found that wall newspaper plus exhibition, wall newspaper plus exhibition plus slideshow brought about changes in knowledge of dairy farmers. However, these combinations of media did not differ significantly from each other.

Suryaprakash (1979) reported that media combinations namely exhibition with flash cards and exhibition with slide show were found to be superior in increasing the knowledge of respondent dairy farmers to the single medium exhibition. However, these two media combinations were not found to be different in increasing the knowledge of respondents.

Reddy (1980) reported that wall newspaper, folder, flash cards and slide show were significantly superior to control in their effect on immediate gain in knowledge.

Selvanayagam (1980) in a study conducted in three villages of Coimbatore district of Tamil Nadu revealed that there was significant gain in knowledge in the combination of lecture aided with photograph and lecture aided with leaflet. The study again revealed that young farmers gained more knowledge than mid-adult and late-adult groups.

Misra and Sinha (1981) concluded that formal education of farmers in general was important for knowledge gain.

Narasaraj (1981) reported that the media combinations, namely, folder plus slide show and chart plus slide show were similar in their effect and each one of them was found to be superior to folder plus chart in increasing the knowledge of silkworm rearers.

Rajanna (1982) observed that radio plus slide show and radio plus film show were similar in their effect and each one of them was found superior to radio and film show but similar to slide show in increasing the overall knowledge of farmers.

Gowda (1983) in a field experiment found that the two media treatments viz., film show preceeded by group meeting and film show followed by group meeting were found

to be similar in their effect and each one of them was found superior to filmshow only in increasing the knowledge of farmers.

Venkateshmurthy (1983) found that high knowledge level of farmers regarding mixed crop of ragi and soybean is associated with the use of leaflet or home visit.

Siddaramaiah and Rajanna (1984) reported that slide show and film show singly or in combination with radio were superior to the use of radio alone with regard to recall knowledge comprehension knowledge and overall knowledge. Further, the two media combination viz., Radio plus slide and radio plus film show were tried and found that slide show was as effective as the two media combinations in increasing knowledge.

Nagaraja and Reddy (1985) observed that tape recorded lecture was superior to lecture on gain in knowledge. Lecture and tape recorded lecture did not differ in their influence on gain in knowledge when combined with slide show and flannel graph.

Rani and Malaviya (1986) observed that the relative effectiveness of all the four media mix systems experimented by them were adjudged by the knowledge gain with each media by their respective group of rural women about low cost nutritious food technology communication.

Shah and Gupta (1986) studied the effectiveness of three visual aids viz., flash cards, slides and puppets and found that flash cards were significantly superior to the other two in imparting knowledge in non-formal education programme.

Malviya and Verma (1987) reported that even illiterate respondents can gain sufficient knowledge if exposed through different media combinations.

The findings of the study conducted by Singh and Verma (1987) revealed that there was a significant gain in knowledge at the post-exposure stage. The complex message showed a higher gain of knowledge. The social, personal, psychological and communication variables had no pronounced effect, over the knowledge gain of the experimental group.

B. Retention of knowledge:

Marks (1955) reported that most of the people retained 10 to 15 per cent of what they had read, 20 to 50 per cent of what they had heard, 30 to 35 per cent of what they had seen, 50 per cent or more of what they had seen and heard at the same time and upto 90 per cent if they had participated by involving all the senses.

Bhaskaram and Mahajan (1968) in their study conducted in Bhudan district of Maharashtra found that young and middle aged farmers retained more knowledge as compared to old farmers.

Rao and Rao (1970) pointed out that more the number of senses stimulated in any human being, the more the message that was conveyed to the human being and more thoroughly the message was retained in his memory.

Sharma and Dey (1970) found that respondents between 30 and 39 years of age as well as those with higher education had retained more knowledge in case of all the programmes in both TV and radio. They also observed that the extent of retention after fifteen days of broadcast was 16 per cent among radio rural forum members.

Verma (1972) in a study conducted in Utter Predesh found no satistical relationship between the levels of retention of information by opinion leaders with their age.

Subramonyan (1975) in a field experiment conducted in Coimbatore district reported that talk with flannel graphs followed by discussions was superior to slide show plus discussion in terms of retention of knowledge. He again found that age and educational level of farmers had influenced the retention of knowledge gained through different combinations of extension methods significantly. The study pointed out that young farmers had retained more knowledge through each of the combinations as compared to middle aged or old farmers. He observed that the difference between the mean scores of the three successive recalls viz., one week after treatment, three weeks after the treatment

and seven weeks after the treatment respectively were very highly significant. Forgetting seems to be more when the interval of time becomes longer.

Pandey and Khanna (1976) concluded that for communication of technical information to rural women, most of whom are illiterate, discussion and interview modes are most effective. The study indicated that the groups exposed to the interview mode retained more knowledge than the other two groups who were exposed to discussion and informal dialogue. Between the latter two, discussion ranked first in case of gain in knowledge as well as retention.

Doraiswamy (1977) reported that age and education has no influence on the retention of knowledge.

Selvanayagam (1980) in a study conducted in three villages of Perianaickenpalayam block of Coimbatore district revealed that there was significant retention of knowledge in the combination of lecture aided with photograph and lecture aided with leaflet.

Selvaraj (1981) stated that only with education and value orientation a significant difference was noticed with respect to retention of knowledge.

Chandrakandan (1982) reported that literate farmers could retain more knowledge than illiterate farmers.

Pathak and Shah (1984) in their study on the education of rural women pointed out that puppetry can be an effective

medium for educating them since the purely oral methods pose the problem of retention and use of modern mass media is restricted due to the lack of electricity in villages.

According to Nagaraja and Reddy (1985) there was no significant difference between lecture and tape recorded lecture on the retention of knowledge. Same was the result when each of those methods was combined with slide show and flannel graph.

Selvaraj and Knight (1985) have conducted a study which revealed that the use of sensory organs play a major role in retention of knowledge. The involvement of more sensory organs by means of any one or more teaching aids or methods is a must in dissemination of farm technology.

Rani and Malaviya (1986) studied about the effectiveness of media mix systems such as flip chart flash cards, leaflets and line charts along with method demonstration. The effectiveness was studied in terms of retention of knowledge. It was indicated that all the four media-mix systems have been substantially effective in transmitting technical know-how. Somewhat sufficient knowledge retention was observed in almost 100 per cent rural women.

In a field experiment where mix media effectiveness was tested Malviya and Verma (1987) observed that size of family had its influence for the retention of knowledge.

In the study size of family was important for retention of of knowledge regarding improved home practices. The study reveals that retention of knowledge was low which might be due to single exposure given to the respondents through different media combinations.

Singh and Verma (1987) revealed in their study that for both simple as well as complex messages there was a significant loss of knowledge at the retention stage. The complex message showed a ghigher retention of knowledge. The study alsc revealed that irrespective of the family size, social contacts, and the information sources utilised by the respondents of the experimental group had gained differential level of knowledge at the post exposure and retention stage for the simple message, and at the retention stage for the complex message.

4. Association of independent variables with dependent Variables:

A. Age

Wilson and Gallup (1955) noted that there was an increasing response as the age advanced upto 45 years, but as the age advances above 45 years the response was lesser in comparison of younger farmers.

Sahoo (1958) pointed out that there was no significant

difference between age groups in changing their knowledge and attitude through leaflets, group discussion personal contact and method demonstration.

Lokhande (1959) observed that age of the farmer had no influence on the effectiveness of extension methods.

Rao and Raheja (1959) observed that age of the cultivator had some influence in bringing about change in attitude of farmers. The age group 31 to 45 had indicated high response than below 30 years or above 46 years of age in accepting improved farming practices. The extension methods employed were personal contact, flannel graph and method demonstration.

Vishnoi and Sinha (1960) conducted a field experiment on the impact of seven extension methods along with the use of visual aids in the union territory of Delhi. In all the methods age was related to behaviour (knowledge, skill and attitude).

Vishnoi and Bose (1961) claimed that age of farmers had no association with their gain in knowledge.

Singh and Akhouri (1966) in their study reported that age does influence the amount of knowledge gained by farmers.

Roy (1966) concluded that the effectiveness of lecture, group discussion and bulletin was influenced by age of the farmers. He also found that age affected the learning capacity of the farmers. Farmers above 35 years of age had a high learning capacity.

Bhaskaram and Mahajan (1968) found that young and middle aged farmers were slightly superior to the old age group in the matter of retention of knowledge about extension methods.

Reddy and Somasundaram (1968) found that age was not an important factor in stimulating farmers to further action.

Sekhon (1970) reported that old farmers were as good as young farmers in learning improved practices.

Dornish (1971) reported that younger dairy men showed a higher gain in knowledge than older dairymen.

Singh et al. (1971) reported no association between age of farmers and gain in knowledge.

Tampi and Menon (1972) reported that there was no significant relationship between age and gain in knowledge from lecture method of presentation.

Mazer and Brown (1974) have found that younger dairy men showed a higher gain in knowledge than older dairy men.

Subramonyan (1975) found in a field experiment that age of farmers had influenced significantly the retention of knowledge gained through different combination of extension methods. The study pointed out that young farmer had retained more knowledge through each of the combination as compared to middle aged or old farmers.

Doraiswamy (1977) said that age and education has no influence on the retention of knowledge.

Kaleel (1978) found that age had no significant relationship with knowledge gained by farmers about subject matter.

Somasundaram and Singh (1978) found age as significantly correlated with knowledge gain in the case of adopters.

Nagaraja (1979) found that age was significantly associated with gain in knowledge by farmers.

Raghavendra (1979) reported that each one of the communication method under study had exerted similar influence in increasing knowledge of farmers belonging to young, middle and old age catogories.

Seetharamu (1979) reported media treatments and control did not differ in their effect on knowledge of dairy farmers belonging to different age groups.

Shasidharmurthy (1979) observed that wall newspaper plus slide show was most effective in increasing knowledge among dairy farmers belonging to old age group.

Srishkumar (1979) observed that age of the respondents had no influence on increasing the knowledge of farmers through media combinations.

Suryaprakash (1979) reported that exhibition with slideshow was most effective in terms of knowledge among young farmers.

Selvanayagom (1980) found that young farmers gained more knowledge than mid adult and late adult groups.

Narasaraj (1981) reportedthat age of respondents influenced the effects of folder plus chart, folder plus slide show and chart plus slide show, in increasing the knowledge of silkworm rearers.

Chandrakandan (1982) stated that young farmers could gain and retain more knowledge than middle aged and old farmers. The latter group showed no significant difference between them.

Rajanna (1982) conducted an experimental study in which the farmers of young age demonstrated significantly higher gain in over all knowledge when compared to the farmers of old age group.

Siddaramaiah and Rajanna (1984) reported that the respondents of younger age had acored significantly over the other categories of farmers.

B. Family size:

Dhankar (1965) reported that size of the family was positively associated with participation in extension meetings.

Singh et al. (1971) stated that effectiveness of visual aids over lecture methods was not at all influenced by family size if properly treated, handled and presented.

Seetharamu (1979) reported that media treatments and control did not differ in their effect on knowledge of dairy farmers with reference to family size.

Shashidharamurthy (1979) reported that there was no differential influence of media treatments on knowledge of farmers of varying family size.

Srishkumar (1979) observed that family size of the respondents had not influenced the effects of the media combination in increasing knowledge.

Suryaprakash (1979) found that family size of respondents had no influence on the effects of the media treatments in terms of increasing knowledge.

Narasaraj (1981) reported that family size of the farmers did not influence the effects of media treatments in gaining knowledge.

Rajanna (1982) found that there is no influence of family size on the effects of media treatments in increasing over all knowledge.

Malviya and Verma (1987) revealed that size of family as well as type of family had least significant influence on the gain in knowledge whereas the size and type of family had most significant influence for the retention of knowledge

regarding improved home practices.

C. Income

Vishnoi and Bose (1961) found that income has influence on the gain in knowledge. The study revealed that the higher income group was significantly superior only in the group discussion exposure and not in personal contact exposure and field trip.

Somasundaram and Singh (1978) found significant correlation between knowledge gain and income in case of adoptors.

D. Exposure to information sources:

Singh et al. (1971) reported that there was no significant correlation between newspaper reading behaviour of farmers and their gain in knowledge.

Ougwekar (1973) opined that a communicable fact should be disseminated in such a way that it will motivate people to direct action. In his view, continuous exposures to various tools of communication is the key for successful motivational and action led flow of information.

Shingi and Modi (1974) found that those who had limited exposure to radio gained more knowledge.

Sripal (1978) established a positive relationship between knowledge gain and mass media exposure.

Nagaraja (1979) observed that farmers with high mass media participation level demonstrated significantly higher

gain in knowledge when compared to the farmers who had low and medium mass media participation.

Chandrakandan (1980) established that radio listening behaviour had significant influence on knowledge gain of farmer listeners.

Selvaraj and Knight (1985) reported that mass media participation has no significant influence in the gain in knowledge.

E. Socio political participation

Schneider (1973) reported that participation in formal organizations predicted the amount of informations a respondent would receive.

Singh and Prasad (1974) in their study observed a positive relationship between the social participation of farmers and their gain in knowledge.

Singh et al. (1971) reported a non-significant correlation between farmer's membership in organizations and their gain in knowledge.

Ganesh (1975) and Halappanvar (1979) found that there was no significant association between social participation of the respondent farmers and their gain in knowledge as a result of training.

Sundareshan (1978) found that there was no relationship between social participation and the knowledge gained by the farmers.

Nagaraja (1979) indicated that the farmers having organizational participation differed significantly from the farmers having no organizational participation in terms of gain in knowledge.

F. Cosmopoliteness

Rogers and Svenning (1969) defined cosmopolitness as the extent of contact outside the village, such as visiting the nearest town and membership in organizations outside the village.

Knight and Singh (1975) reported that cosmopolitness has a positive relationship with gain in knowledge of farmers.

Somasundaram and Singh (1978) found urban contact as significantly correlated with knowledge gain in case of adoptors.

Seetharamu (1979) observed that media treatments and control did not differ in their effect on knowledge of dairy farmers with varying degrees of cosmopoliteness.

Shashidharamurthy (1979) noted that cosmopoliteness did not influence the effects of media combinations in increasing knowledge.

According to Srishkumar (1979) cosmopoliteness characteristic of respondents did not influence the effects of the media treatments in increasing knowledge.

Suryaprakash (1979) observed that cosmopoliteness had significant influence on the effects of media treatments in increasing knowledge of farmers.

Kamarudeen (1981) found a positive relationship between knowledge of farmers and cosmopoliteness.

Narasaraj (1981) reported that cosmopolitness of the respondents did not influence the effects of media treatments in terms of gain in knowledge.

Chandrakandan (1982) found urban contacts of the farmers to have significant influence on their retention of knowledge.

Siddarmaiah and Rajanna (1984) found that real knowledge, comprehension knowledge and overall knowledge were influenced significantly by cosmopoliteness.

METHODOLOGY

METHODOLOGY

This chapter deals with the methodology followed in the study and presented under the following sub-heads:

1. Locale of the study
2. Selection of the sample
3. Selection of message
4. Experimental design
5. Designing the treatments
6. Preparation of visual aids for different treatments and conducting of the experiment
7. Selection of variables and their measurement
8. Development of interview schedule and collection of data
9. Statistical tools used

1. Locale of the study

The study was conducted in the coastal areas of Kottukal Panchayat in Athiyannur block, Trivandrum Dist. Kottukal was selected purposively because, this Panchayat had the maximum number of neo-literate groups organised by KANFED.

Kottukal Panchayat consists of five villages from which two villages namely, Adimalathura and Pulluvila, where maximum number of neo-literate groups have been organised, were finally selected for the study. The selection process was completed with the active involvement and help of the local fisheries development officer,

KANFED officials, village level workers and local Panchayat members.

The Adimalathura and Pulluvila villages are situated a few kilometres away from the famous Kovalam beach resort and the Vizhinjam Harbour.

Majority of the population in the study area belong to fishermen community who earn their bread by means of fishing from the sea. Most of them use the indigenous devices and vessels for their work in the sea, but a very few possess boats fitted with motors. Traditionally majority of the fishermen in the area do not send their children to schools regularly.

The church situated at Adimalathura is the major social institution which excerts great influence on the fishermen in the area. Apart from this, the Fisheries Development Office and Public Health Centre also help the fishermen to identify and solve their problems pertaining to the respective areas.

2. Selection of the sample

In the experimental villages, besides KANFED, some philanthropic organisations and Christian missionaries conduct adult education programmes. The classes have been conducted without any specific periodicity or venue. Usually the venue of classes would be on sea shore and

hence there were no facilities to use any visual aids to support the lessons.

There were a few groups of neo-literates in which the KANFED used primers for teaching. Ninety such neo-literates who could read and write were selected from the two villages and divided into three matching groups of 30 each for the exposure of various stimuli. Matching was done based on the socio-personal characteristics of the neo-literates.

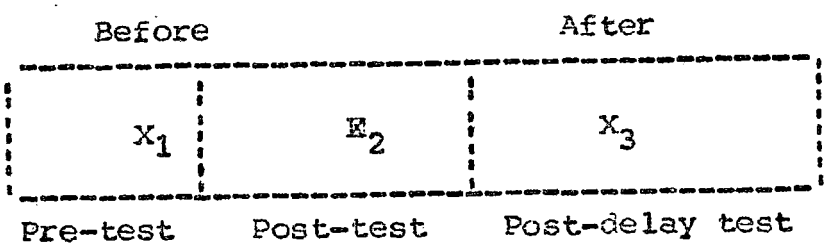
3. Selection of message

The message used in this experimental study was selected based on the needs and interest of the respondent groups. A preliminary discussion was conducted to select an appropriate message for the study. Nutritional aspects of children and health hazards were the serious problems of the area. Hence, the consensus was for "human nutrition". This topic was again sub-divided into four sub-topics - (a) "Balanced diet", (b) "Deficiency diseases", (c) "Environmental hygiene, and (d) "Dysentary - reasons and remedies", to match the number of treatments in the experiment.

4. Experimental design

An experimental design to find out the effectiveness of visual teaching methods in terms of gain in knowledge

and retention of knowledge, which has been used by Venugopal (1975) Singh and Singh (1976) and Nagaraja (1979) was used with slight modifications for the present study. The modified experimental design is depicted here under:



Where,

X_1 = Level of knowledge of the experimental group prior to exposure to a particular visual aid (stimulus).

X_2 = Level of knowledge of experimental group immediately after exposure to the same visual aid (stimulus).

X_3 = Level of knowledge of the experimental group 15 days after exposure to the same teaching aid (stimulus).

The three groups were exposed to each of the treatments in a random manner so that each group could get all the treatments in different combinations with the selected sub-topics.

5. Designing the treatments

The experiment consisted of the following four treatments.

1. Lecture alone T_0
2. Lecture plus slides T_1
3. Lecture plus flash cards T_2
4. Lecture plus flannel graph T_3

A detailed design of treatment - sub-topic combination was prepared to avoid the residual effect of message presentation. As per this design the sub-topic for the treatment, T_0 (lecture alone) - "diarrhoea - reasons and remedies", was common for all the three groups of respondents. The other three sub-topics viz., "balanced diet", "deficiency diseases" and environmental hygien were applied to the respondents in a differential combination with the rest of the treatments namely slides, flash-cards and flannel graph. The sub-topics of the major message were adequately combined with the four treatments of the study so that each group could get all the four sub-topics as well as all the four treatments. This enabled the researcher to analyse the data with regard to the 90 respondents together.

6. Preparation of visual aids for different treatments and conducting the experiment.

The relevant information on various sub-topics under the main topic of "human nutrition" was collected

from text books, reports, pamphlets and other publications of Universities and Department of Health Services, Kerala. The information thus collected was processed and prepared into lecture script for each sub-topics in vernacular language.

a. Slides

Sets of colour slides on each sub-topic were procured from the Family Welfare Training Centre, Trivandrum and Krishi Vigyan Kendra (KVK), Mitraniketan, Trivandrum. These slides were previewed and arranged in a logical sequence so as to supplement the subject matter included in the lecture note. There were 24 slides for each topic.

b. Flash cards

Key points in the lecture note were identified and flash cards of standard size, with suitable illustrations were prepared as the second visual aid for the experiment. For each topic there were 12 flash cards.

c. Flannel graph

With the help of the key points identified a set of flannel strips were also prepared to supplement the lecture script. Simple sketches and diagrams using appropriate colour combinations were included in the flannel strips.

Suitable modifications were made in the lecture script to suit the presentation of slides, flash cards and flannel graph, when they were combined with lecture without deleting any key points included in the lecture script.

Before presenting the different treatments to the experimental groups the researcher presented them before a selected group of scientists in the Department of Agricultural Extension, College of Agriculture, Vellayani as well as before a selected group of neo-literates in a non-study area. Suitable modifications in respect of sequence and mode of presentation were made as per the suggestionsof the scientists and neo-literates. This was rehearsed a number of times by the researcher until he got consistant performance.

Each treatment was given to each of the three neo-literate groups with different combinations of sub-topics selected.

Care was also taken to see that the audience could get a clear view of the three visual aids used. To enable this, there was a reasonable time gap in between the projection of two slides as well as the display of flash cards and flannel graph. In order to enable the respondents to have a closer view, the flash cards were also taken round the participants.

Before the actual conduct of the experiment, a detailed plan of schedule and an experimental design were prepared by the researcher. The schedule and design of the experiment were finalised after discussions with the local leaders, KANFED officials and village level workers.

With the help of the local Fisheries Officer and Village level adult education workers of the areas the researcher explained the purpose of this study to the neo-literate groups well in advance. This helped to build a rapport with the groups.

The date, time and venue for conducting the experiment in each of the group were finalised in consultation with the groups to suit their convenience.

The experimental groups were given necessary instructions before the commencement of the experiment.

An objective type knowledge test containing 25 questions under each sub-topic was prepared and administered before and immediately after the exposure of the stimuli to assess the gain in knowledge.

To measure the retention of knowledge, the same test was administered 15 days after the exposure.

The questions as well as their answer choices were read out by the researcher to enable easy marking of responses by the neo-literates. In order to facilitate

easy answering by the respondents, the questions got stenciled in bold letters with sufficient space in between lines.

7. Selection of variables and their measurement

The study aimed at finding out the relative effectiveness of different visual aids in terms of (a) gain in knowledge and (b) retention of knowledge. Thus the two variables namely; gain in knowledge and retention of knowledge formed the dependent variables of the study.

Based on review of literature and discussions with experts, few socio-personal characteristics were selected as independent variables in the study. They were (a) age (b) family size (c) average annual income (d) exposure to information sources (e) socio-political participation and (f) cosmopoliteness.

Measurement of variables

A. Dependent variables:

a. Gain in knowledge

Knowledge includes all those behaviours and test situations which emphasize the remembering either by recognition or by recall of the ideas and material on some phenomena (Bloom, 1956).

For the measurement of gain in knowledge through various treatments, a simple teacher-made objective type

test was constructed following the procedure adopted by Nagaraja (1979), Narasaraj (1981) and Rajanna (1982) with slight modifications. Care was taken to ensure that the questions covered the entire range of subject matter selected for the study.

The tests were pre-tested with a group of neo-literate - fishermen in the non-study area in order to avoid ambiguities and duplication as well as to help to edit some of the questions. After this process, 25 items were finally selected for the purpose of this study under each of the four sub-topics (Appendix II). The respondents were asked to indicate the statement either as 'true' or 'false'. Each correct response was given a score of 'one' and the incorrect response was given a score of 'zero'. The total score secured in all the correct responses indicated the knowledge score of the respondents. The possible scores of this test ranged from a minimum of zero to a maximum of '25'.

The knowledge test was administered to the respondents -

i. before the treatment (pre-test)

ii. immediately after the treatment (post-test).

The difference in the knowledge score of respondents between pre-test and post-test indicated a measure of gain in knowledge.

Gain in knowledge was computed as per centage of net gain in knowledge over the total possible knowledge for a respondent on the test, using the following formula.

$$\text{Percent gain in knowledge} = \frac{\sum_{1}^{n} ts - \sum_{1}^{n} t_1}{\sum_{1}^{n} t_p} \times 100$$

Where,

$\sum_{1}^{n} t_1$ = Sum of scores obtained for pre-test.

$\sum_{1}^{n} ts$ = Sum of scores - obtained for post-test.

$\sum_{1}^{n} t_p$ = Sum of possible scores for the test.

The per cent gain in knowledge for each respondent was obtained and the mean score was arrived at for the respondents based on which further analysis has been done.

b. Retention of knowledge:

Retention of knowledge is operationalised as the amount of knowledge retained by an individual on a particular topic after a reasonable period of time, as a result of the four treatments.

The same teacher-made test prepared for assessing the gain in knowledge was applied here also but with a gap of 15 days after the exposure of each stimulus. This test is indicated as post-delay test.

Retention of knowledge was computed by deducting percentage of loss of knowledge due to post-delay test from the percentage of net knowledge gained using the formula;

Retention of knowledge = Percentage gain in knowledge − Per cent loss of knowledge due to post-delay test.

Per cent loss of knowledge due to post delay test was computed as follows:

$$\text{Per cent knowledge lost} = \frac{\sum_{1}^{n} t_2 - \sum_{1}^{n} t_3}{\sum_{1}^{n} t_p} \times 100$$

Where,

$\sum_{1}^{n} t_2$ = Sum of scores obtained for post-test.

$\sum_{1}^{n} t_3$ = Sum of scores obtained for post-delay test.

$\sum_{1}^{n} t_p$ = Sum of possible scores for the test.

(B) Independent variables:-

a. Age:

Age of the respondents was measured as the number of completed years at the time of conducting the study. Mean age was computed and based on mean and standard deviation the respondents were categorised into young, middle and old aged groups.

b. Family size:

The size of the family refers to the total number of individuals being the members of the family of each of the respondent. The members themselves will be the numerical values against each respondent in the case of this variable.

Based on mean and standard deviation, the respondents were categorised into those belonging to small, medium and big families.

c. Average annual income:-

The average annual income of the respondents as expressed by themselves was taken into account for measuring this variable. The average income of the respondent in this particular study covers the income earned by all the members of the family as a unit.

d. Exposure to information sources:

To measure the exposure to information sources, the scale developed by Prasad (1983) was used. The items and scoring procedure adopted in quantifying the variable were as follows:-

	Frequency		
	Regular (Daily)	Occassional (Once in a week)	Never
	(2)	(1)	(0)
A. Impersonal sources:			
1. Radio			
2. Newspaper			
3. Printed material.			
B. Formal personal sources:			
1. V.L.W/Agril. Demonstrator:			
2. Fisheries Officer:			
3. B.D.O/Agril. Officer:			
C. Informal/personal sources:			
1. Family members:			
2. Friends/ relatives:			
3. Neighbours/ fellow fishermen:			

The total scores were added upto get the score for the variable, the mean value of which can be used for measuring the variable.

e. Socio-political participation:

This variable was also measured by adopting the scoring system followed in the socio-economic status scale developed by Venkataramaiah (1983). The scoring was done

as follows:-

	Score
1. Without any official position in socio-political organisation.	0
2. Official position in one or more organization/ institution	1
3. Official position in social and political committee/bodies	2
4. Financial contribution or raising fund common work	3
5. Active office bearer	4
6. Involvement in community work	5

The individual score of the respondent was taken as the total score under this variable for further analysis.

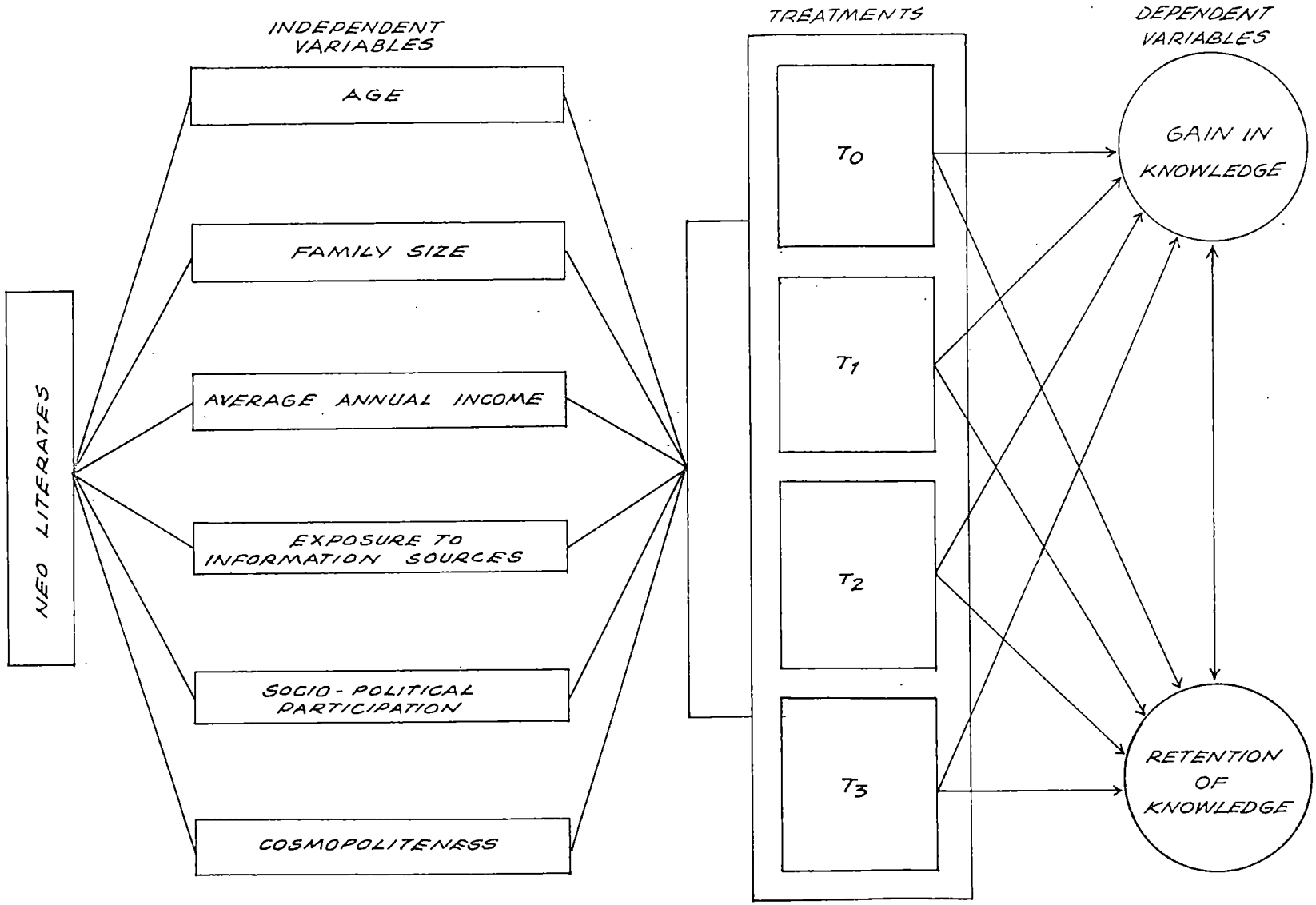
f. Cosmopoliteness:

Cosmopoliteness was measured based on the scale developed by Ambastha (1986) with slight modifications. The modified scale used in this study contained a set of six statements which were measured on a five-point continuum ranging from Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), Strongly Disagree (SDA) with scores 5, 4, 3, 2 and 1 respectively. Thus the maximum

possible score that could be secured by a respondent was 30 and the minimum was 6. The main consideration of this scale was the extent of contacts outside the village community. The components of the scale consisted the following.

Statements	Responses				
	SA	A	UD	DA	SDA
1. A fisherman can learn everything from the experiences.					
2. A man can escape numerous troubles and worries if he consults friends and neighbours.					
3. A fisherman can fulfil all his needs with the help of his village folks.					
4. Many things a fisherman ought to know are not only confined in his village, but are alike in other villages.					
5. These days when communication has so much advanced, a fisherman					

FIG. 2 CONCEPTUAL MODEL OF THE STUDY



T_0 - LECTURE ALONE METHOD
T_1 - LECTURE PLUS SLIDES
T_2 - LECTURE PLUS FLASH CARDS
T_3 - LECTURE PLUS FLANNEL GRAPH

should know more
about outside life.

6. He who doesn't consult
others, can act better.

8. Development of interview schedule and collection of data.

For the collection of data, a structured interview schedule was prepared which comprised personal information of the respondent in its first part and the data regarding independent variables in the second part. The interview schedule was pre-tested in a non-study area where similar training programmes are being organised by philanthropic organisations. In the light of the pre-test results necessary modifications were incorporated in the schedule. Each respondent was approached individually by the researcher and the information recorded in the schedule.

9. Statistical tools used:

The following statistical tools were used in the analysis of the data.

a. Frequency and percentage

Some of the data are subjected to and interpreted in terms of frequency and percentages.

b. Mean

The arithmatic mean ($\bar{X}$) is the quotient that results when sum of all items in the series is divided by

the number of the items. The formula in terms of symbol is

$$\bar{X} = \frac{\Sigma X}{N} \quad \text{Where}$$

$\bar{X}$ = Mean

ΣX = Sum of individual items

N = Number of items.

c. Standard deviation (S.D.)

The standard deviation was found out by taking the differences of each items in the series from the arithmatic mean, squaring these differences, summing all the squared differences - dividing by the number of items and then extracting the square root. The formula in terms of symbol is

$$S.D = \sqrt{\frac{\Sigma x^2}{N}} \quad \text{where}$$

SD = Standard deviation

Σx^2 = Sum of the squared deviations from the mean.

N = Number of items.

d. Analysis of variance (ANOVA) was used for determining the variance of treatments in their effect on the dependent variables.

e. The critical difference (C.D) was used to ascertain the significant difference between and among the different treatments.

The C.D. was computed by using the formula

$$C.D. = \sqrt{\frac{2MSE}{v.r}} \quad \text{where}$$

MSE = Mean squared error

V = Number of treatments

r = Number of replications.

f. Simple correlations were computed to find out the relationship between the various independent variables and the dependent variables and also to study the inter-relationships among the various independent variables.

g. The regression analysis was done to determine the net contribution of the selected independent variables to the dependent variables. This gives the percentage of variation that a set of independent variables jointly explain in the dependent variable.

The regression equation employed in this study was

$$Y = AO + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6$$

Y = Dependent variable

AO= An intercept

$x_1 \ldots . x_6$ = Independent variables.

General Hypotheses for the study

The following general hypotheses were formulated keeping in view the objectives of the study.

1. There would not be any significant difference between the visual-aids in combination with lecture and lecture alone method in their effect on gain in knowledge by neo-literates.

2. There would not be any significant difference between the three visual aids each other in their effect on the gain in knowledge of neo-literates when used in combination with lecture.

3. There would not be any significant difference between the visual aids in combination with lecture and lecture alone method in their effect on retention knowledge by neo-literates.

4. There would not be any significant difference between the three visual aids each other in their effect on the retention of knowledge by neo-literates when used in combination with lecture.

RESULTS AND DISCUSSION

IV. RESULTS AND DISCUSSION

In this chapter, the results of the experimental study are presented and discussed under the following sub-heads.

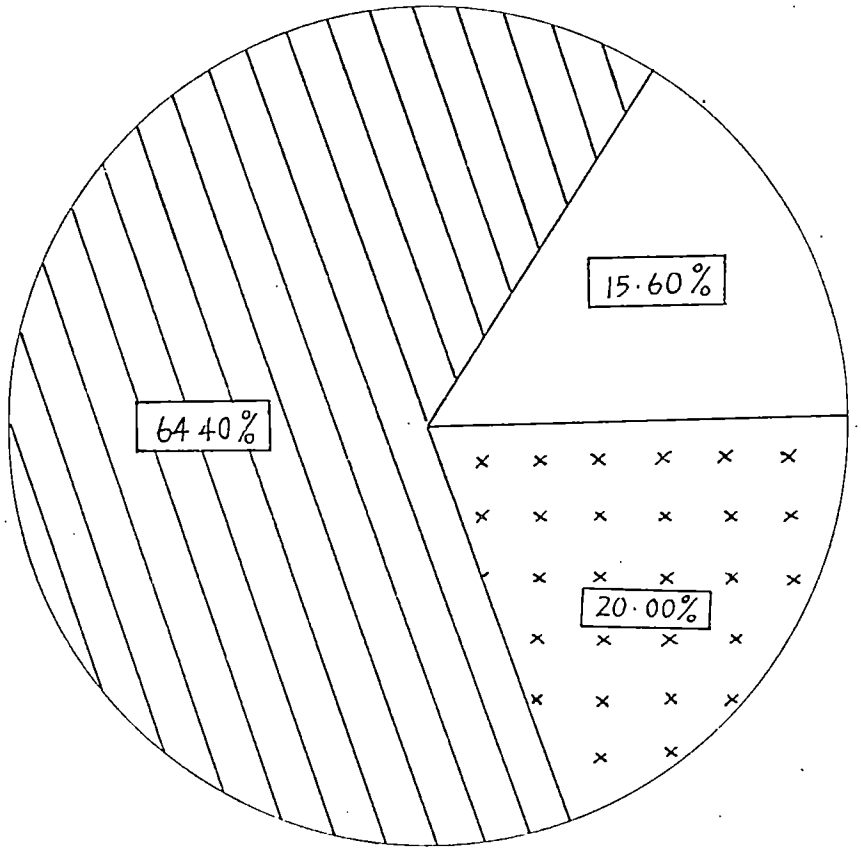
1. Distribution of neo-literates based on their socio-personal characteristics.
2. Relative effectiveness of selected visual aids on gain in knowledge of neo-literates.
3. Relationship between gain in knowledge and the various socio-personal characteristics of neo-literates.
4. Relative effectiveness of selected visual aids on retention of knowledge by neo-literates.
5. Relationship between retention of knowledge and the socio-personal characteristics of neo-literates.

1. Distribution of neo-literates based on their socio-personal characteristics

1.1. Age

The distribution of respondents according to their

FIG. 3 DIAGRAM SHOWING THE FREQUENCY DISTRIBUTION OF RESPONDENTS BASED ON AGE GROUPS.



CATEGORY OF RESPONDENTS

YOUNG

MIDDLE

OLD

age is given in table 1.1.

Table 1.1. Frequency distribution of respondents based on age groups.

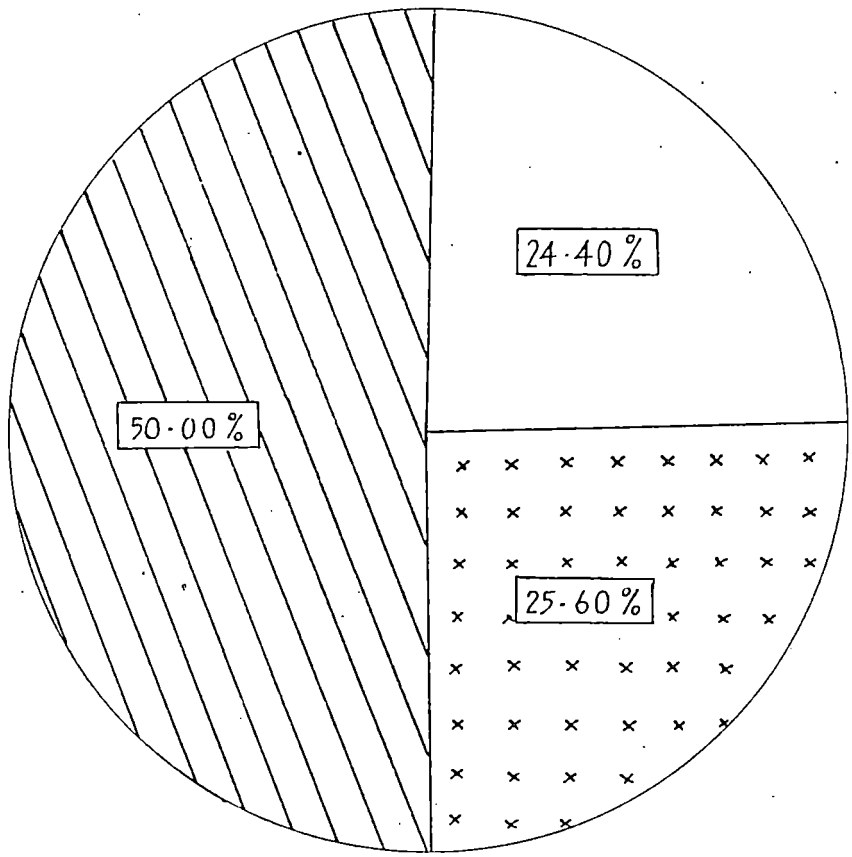
Sl. No.	Category of respondents	Frequency	Percentage
1	Young (<23 years)	14	15.60
2	Middle aged (Between 23 and 53 years)	58	64.40
3	Old (>53 years)	18	20.00
	Total	90	100.00

A cursory view of Table 1.1 shows that majority of respondents (64.40%) belonged to middle-age category. Of the remaining, 15.60 percent belonged to young and 20.00 per cent to old categories.

1.2. Family size

The distribution of neo-literate respondents as per their family size is given in Table 1.2.

FIG.4 PIE-DIAGRAM SHOWING THE FREQUENCY DISTRIBUTION OF RESPONDENTS BASED ON FAMILY SIZE



CATEGORY OF RESPONDENTS

SMALL

MEDIUM

BIG

Table 1.2. Frequency distribution of respondents based on family size

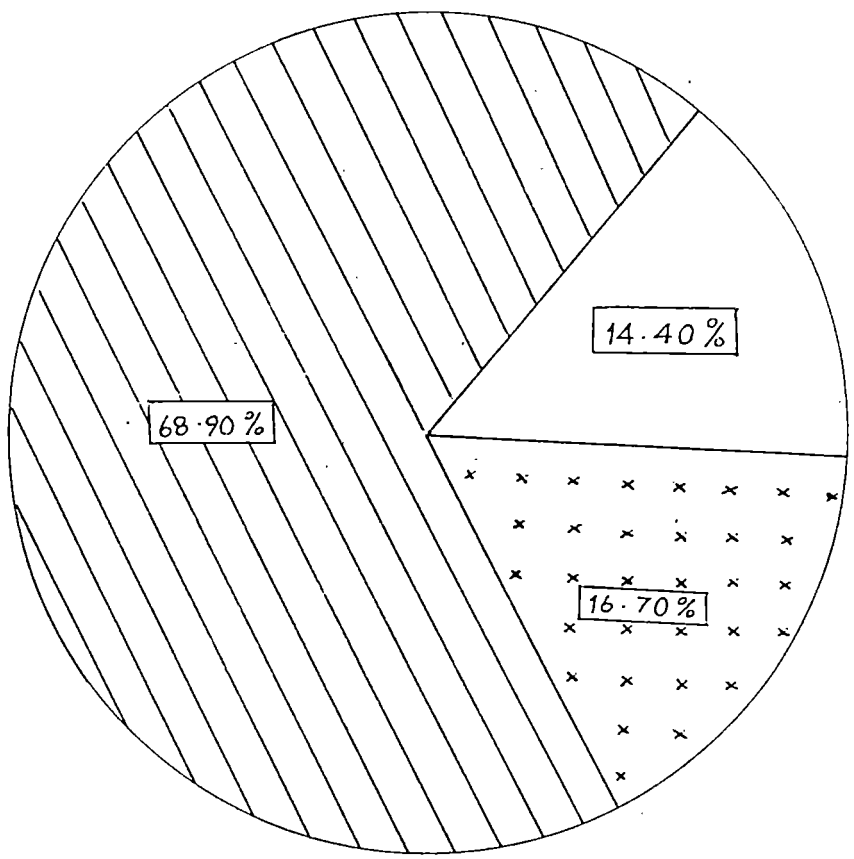
Sl. No.	Category of respondents	Frequency	Percentage
1	Small (<3 members)	22	24.40
2	Medium (Between 3 and 8 members)	45	50.00
3	Big (>8 members)	23	25.60
	Total	90	100.00

Table 1.2 reveals that exactly half of the respondents (50.00%) had medium family size whereas the rest of the respondents were distributed into small family (24.40%) and big family (25.60%) group.

1.3. Average annual income

The distribution of respondents according to their average annual income is presented in Table 1.3.

FIG. 5 PIE-DIAGRAM SHOWING THE FREQUENCY DISTRIBUTION OF RESPONDENTS BASED ON AVERAGE ANNUAL INCOME



CATEGORY OF RESPONDENTS

LOW

MEDIUM

HIGH

Table 1.3. Frequency distribution of respondents based on average annual income

Sl. No.	Category of respondents	Frequency	Percentage
1	Low (<Rs.2418 per annum)	13	14.40
2	Medium (Between Rs.2418 and 6510 per annum)	62	68.90
3	High (>Rs.6510 per annum)	15	16.70
	Total	90	100.00

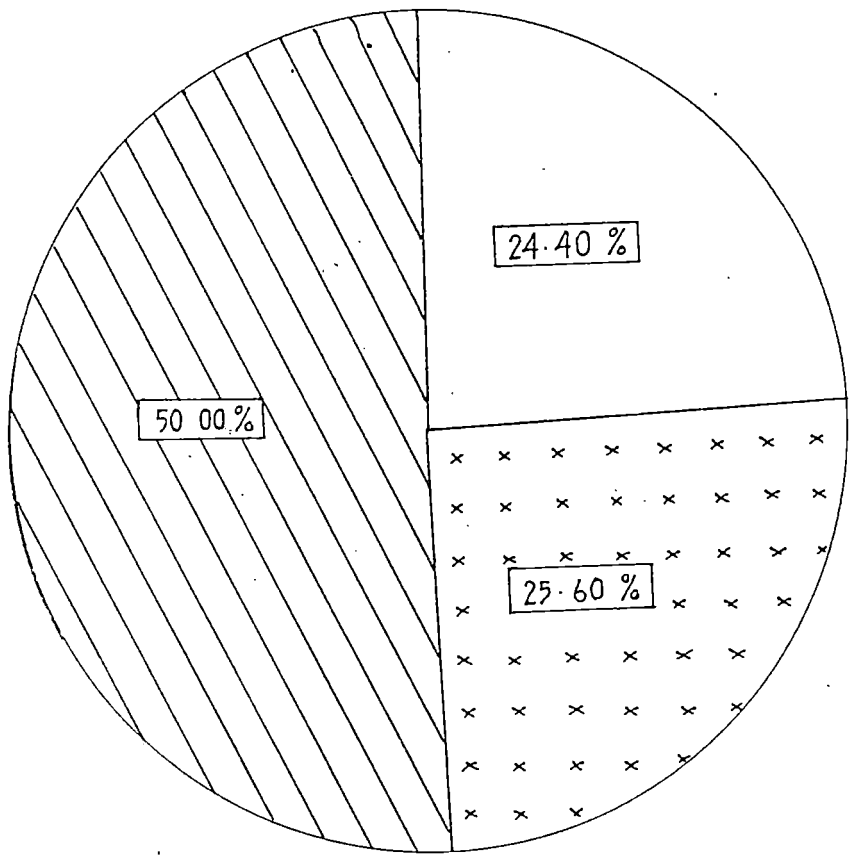
A glance at Table 1.3. shows that majority of the respondents (68.90%) belonged to the medium income group whereas the rest of them were distributed under low income group (14.40%) and high income group 16.70%).

1.4. Exposure to information sources

Distribution of respondents according to their exposure to information sources are presented in Table 1.4.

Table 1.4. Frequency distribution of respondents based on exposure to information sources

FIG. 6 PIE. DIAGRAM SHOWING THE FREQUENCY DISTRIBUTION OF RESPONDENTS BASED ON EXPOSURE TO INFORMATION SOURCES



CATEGORY OF RESPONDENTS

LOW

MEDIUM

HIGH

Sl. No.	Category of respondents	Frequency	Percentage
1	Low (< 7)	22	24.40
2	Medium (Between 7 and 12)	45	50.00
3	High (>12)	23	25.60
	Total	90	100.00

A cursory look at Table 1.4. reveals that 50 per cent of the respondents belonged to the medium group while the rest is almost equally divided into low (24.40%) and high (25.60%) groups according to their exposure to information sources.

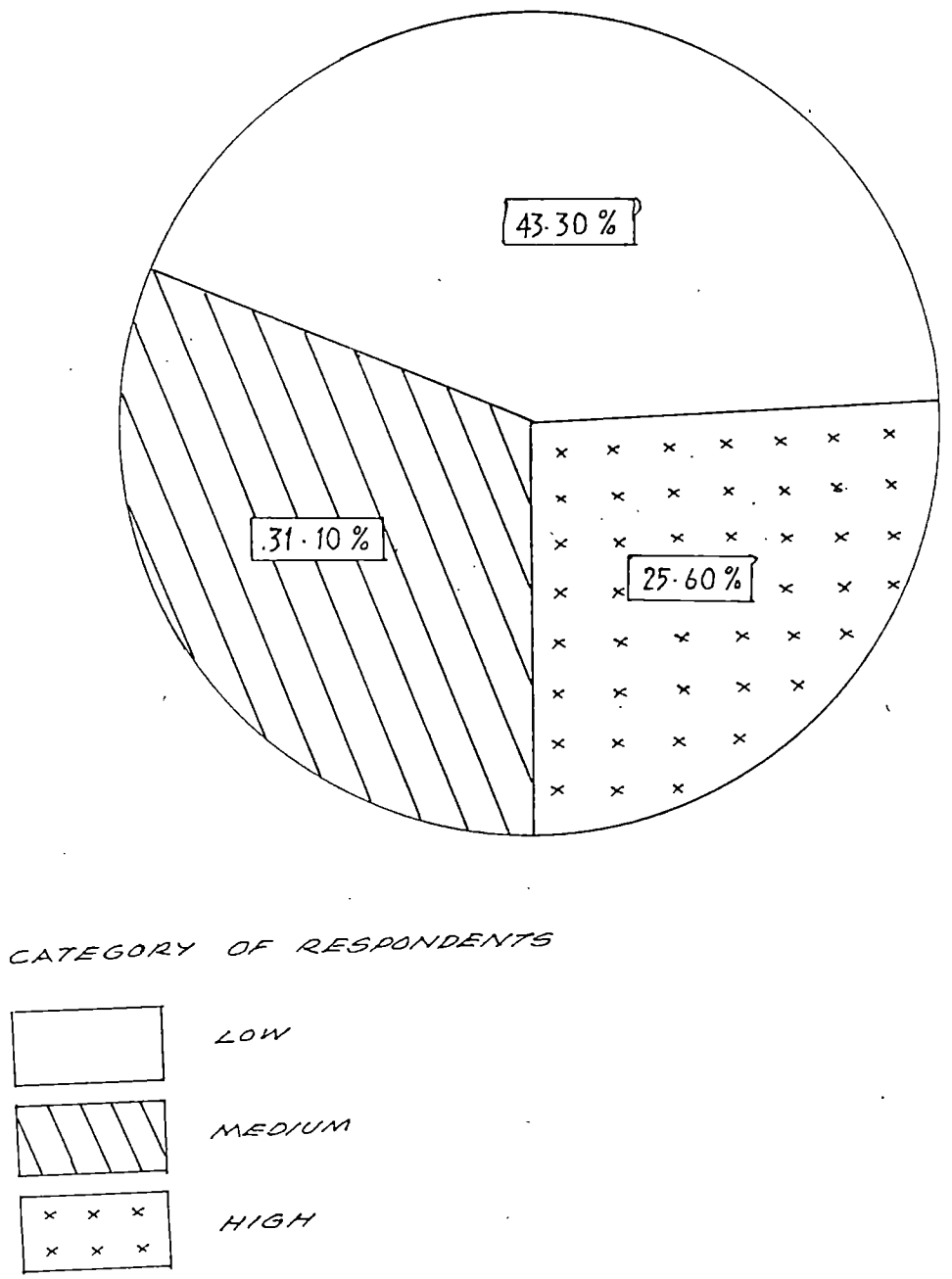
1.5. Socio-political participation

The distribution of respondents according to socio-political participation is shown in Table 1.5.

Table 1.5. Frequency distribution of respondents based on socio-political participation.

Sl.No.	Category of respondents	Frequency	Percentage
1	2	3	4
1	Low (< 1)	39	43.30

FIG. 7 PIE-DIAGRAM SHOWING THE FREQUENCY DISTRIBUTION OF RESPONDENTS BASED ON SOCIO-POLITICAL PARTICIPATION



1	2	3	4
2	Medium (between 1 and 4)	28	31.10
3	High (>4)	23	25.60
	Total	90	100.00

A perusal of Table 1.5. reveals that maximum number of respondents belonged to the low socio-political participation category (43.30%) followed by medium (31.10%) and high (25.60%) categories.

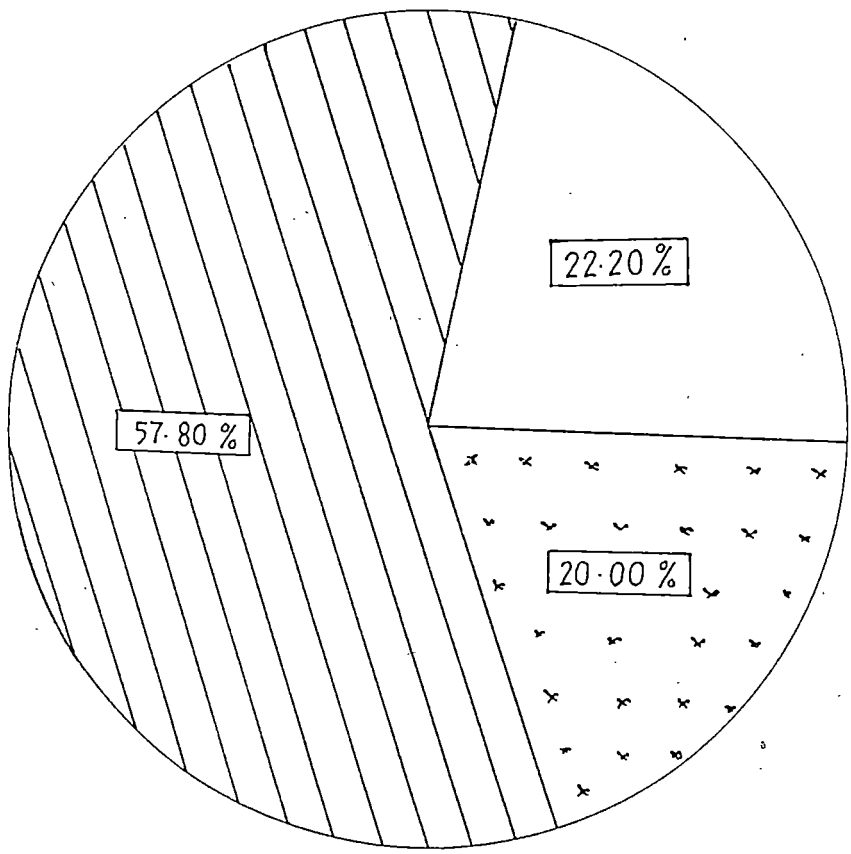
1.6. Cosmopoliteness

The distribution of respondents according to cosmopoliteness is depicted in Table 1.6.

Table 1.6. Frequency distributed of respondents based on cosmopoliteness

Sl.No.	Category of respondents	Frequency	Percentage
1	2	3	4
1	Low (< 17)	20	22.20

FIG.8 PIE. DIAGRAM SHOWING THE FREQUENCY DISTRIBUTION OF RESPONDENTS BASED ON COSMOPOLITENESS



CATEGORY OF RESPONDENTS

LOW

MEDIUM

HIGH

1	2	3	4
2	Medium (Between 17 and 25)	52	57.80
3	High (> 25)	18	20.00
	Total	90	100.00

A cursory look at Table 1.5. shows that more than half of the respondents (57.80%) belonged to the medium category of cosmopoliteness while the rest were almost equally distributed between low (22.20%) and high (20.00%) caregories.

2. Relative effectiveness of different selected visual aids on gain in knowledge of neo-literates.

The relative effectiveness of different selected visual aids on gain in knowledge of neo-literates was studied, the results of which are presented in Table 2.1 and 2.2.

Table 2.1. Mean scores of gain in knowledge of respondents as influenced by different treatments

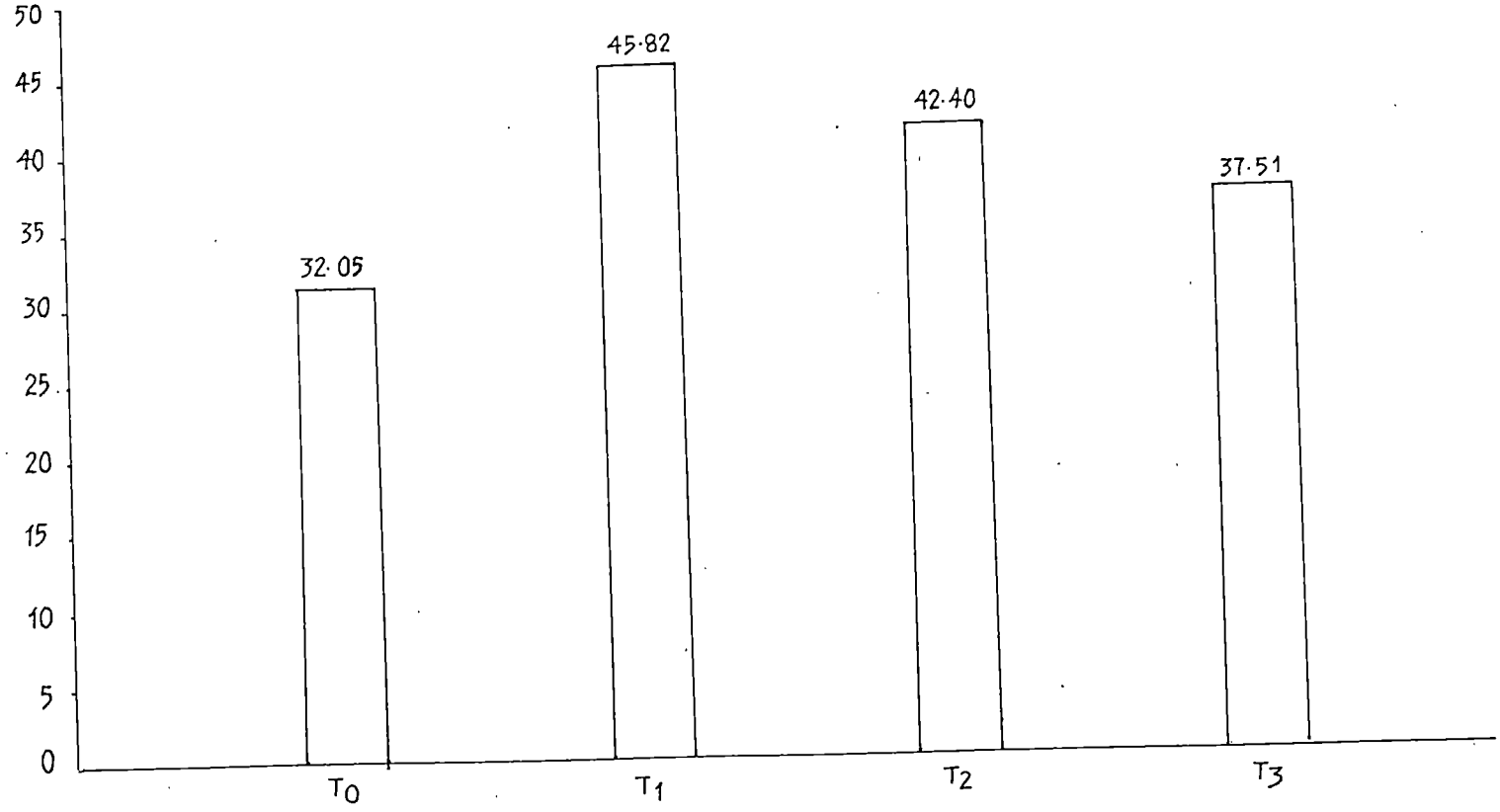
n = 90

Sl.No.	Treatments	Mean scores of gain in knowledge
1	Lecture alone (T_0)	32.05
2	Lecture plus slides (T_1)	45.82
3	Lecture plus flash cards (T_2)	42.40
4	Lecture plus flannel graph (T_3)	37.51

Table 2.1. presents the mean scores of gain in knowledge of respondents for the four treatments including the lecture alone method (T_0, T_1, T_2 and T_3). It could be seen that there was significant differences in the mean scores obtained by the neo-literate fishermen for the different treatments. Treatment T_1, ie., lecture combined with slides secured the maximum mean score of 45.82 followed by lecture plus flash cards (T_2 = 42.40) and lecture plus flannel graph (T_3 = 37.51) when compared with lecture alone (T_1 = 32.05).

To find out whether the variance due to the experimental treatments is statistically significant, the data

FIG. 9 MEAN SCORES OF GAIN IN KNOWLEDGE OF RESPONDENTS AS INFLUENCED BY DIFFERENT TREATMENT.



T_0 - LECTURE ALONE

T_1 - LECTURE PLUS SLIDES

T_2 - LECTURE PLUS FLASH CARDS

T_3 - LECTURE PLUS FLANNEL GRAPH

were further subjected to analysis of variance (ANOVA) and the results are presented in Table 2.2.

Table 2.2. Analysis of variance (ANOVA) of gain in knowledge of the respondents as influenced by different visual aids.

Sources	df	Sum of squares (SS)	Mean square (MSS)	F
Treatments	3	352.892	117.631	47.595**
Replication	2	3.051	1.526	
Error	6	14.829	2.472	
Total	11	370.772		

CD = 0.673

**Significant at 1% level of probability.

From Table 2.2 the F ratio (F = 47.595) was found to be highly significant indicating that the variation in gain in knowledge was due to the different visual aids used in the study.

The computed value of critical difference (CD) revealed that all the three visual aids used in the study

when combined with lecture (T_1, T_2 & T_3) were significantly superior to the lecture alone (T_0) method. Among the three significantly superior treatments (T_1, T_2 and T_3), lecture plus slides (T_1) had the maximum influence on gain in knowledge of the experimental group over the other two methods viz., lecture plus flash cards (T_2) and lecture plus flannel graph (T_3).

In the above findings, though lecture plus flash cards (T_2) contributed next to lecture plus slides (T_1) only, it was significantly superiior to T_3 viz., lecture plus flannel graph.

The findings reveal that of the three visual aids, slides had the maximum effect in combination with lecture in terms of gain in knowledge among the neo-literates. Further, it was evident that all the three visual aids when combined with lecture, were significantly superior to lecture alone method. The result emphasises the need for making use of visual aids for imparting knowledge to neo-literate audience.

The results of the studies reported by Mohanty (1962), Bacon (1963), Weaver and Bollinger (1963), Hass and Packer (1964), Jalihal (1965), Ramkrishan (1965), Srinivasamurthy (1965), Rao and Rao (1970), Singh et al. (1971), Nanjaiyan et al. (1976), Shashidharamurthy (1979),

Suryaprakash (1979) Reddy (1980) and Siddaramaiah and Rajanna (1984) support the present finding that the visual aids such as slides, flash cards and flannel graph are better in increasing the knowledge of respondents.

Since the three visual aids experimented in this study along with lecture were significantly different from lecture alone method and from each other, the null hypothesis set for the study that there would not be any significant difference in gain in knowledge of neo-literates due to visual aids combined with lecture method is rejected.

Similarly, the null hypothesis that there would not be any difference between different visual aids in increasing the gain in knowledge of neo-literates is also rejected.

The superiority of the combination of lecture plus slides over the lecture plus flash cards and lecture plus flannel graph could be attributed to the inherent qualities of slides in terms of attracting and holding attention, stimulating interest and making subject matter more understandable. Slides help to dramatize a point. This visual aid presents the information in a systematic manner so as to make the audience gain as such information as possible.

This could help to acquire more knowledge and naturally maximum influence was exerted by the lecture plus slide combination.

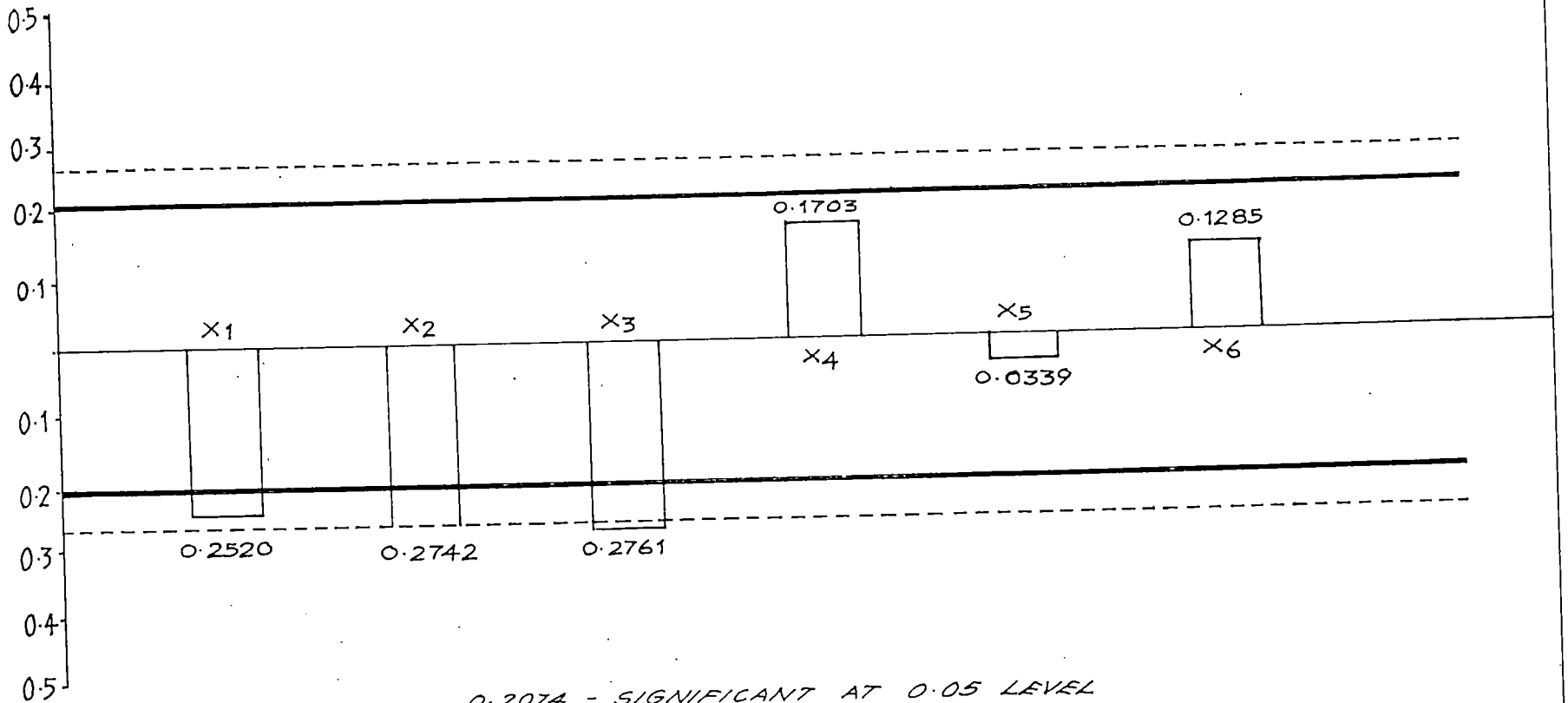
3. Relationship between gain in knowledge and the various socio-personal characteristics of neo-literates.

To study the relationship between gain in knowledge and each of the selected independent variables viz., age, family size, average annual income, exposure to information sources, socio-political participation and cosmopoliteness, correlation coefficient (r) was computed and the results are presented here under.

Table 3.1. Correlation between gain in knowledge and the independent variables.

Variable no.	Independent variable	Correlation coefficient (r) Lecture alone (T_0)	Lecture plus slides (T_1)	Lecture plus flash cards (T_2)	Lecture plus flannel graph (T_3)
X_1	Age	-0.2520*	-0.3884**	-0.5254**	-0.6004**
X_2	Family size	-0.2742**	-0.3427**	-0.4143**	-0.5446**
X_3	Average annual income	-0.2761**	-0.2047	-0.2454*	-0.3915**
X_4	Exposure to information sources	0.1703	0.2039	0.2316*	0.2491*
X_5	Socio-political participation	-0.0339	-0.1170	0.1716	-0.0366
X_6	Cosmopoliteness	0.1285	0.3235**	0.5023**	0.4364**

FIG. 10 CORRELATION BETWEEN GAIN IN KNOWLEDGE BY LECTURE ALONE METHOD (TO) AND INDEPENDENT VARIABLES.



0·2074 - SIGNIFICANT AT 0·05 LEVEL

0·2004 - SIGNIFICANT AT 0·01 LEVEL

X_1 – AGE , X_2 – FAMILY SIZE , X_3 – AVERAGE ANNUAL INCOME

X_4 – EXPOSURE TO INFORMATION SOURCES

X_5 – SOCIO – POLITICAL PARTICIPATION

X_6 – COSMOPOLITENESS

*Significant at 5 per cent of probability.

**Significant at 1 per cent of probability.

3.1.1. Relationship between age and gain in knowledge.

An examination of Table 3.1 reveals that age was significant but negatively correlated with gain in knowledge in the case of all the four treatments.

Among the three visual aids which were significant but negatively correlated, lecture plus flannel graph contributed maximum with a correlation coefficient, $r = \bar{}0.6004$, followed by lecture plus flash cards ($r = \bar{}0.5254$) and lecture plus slides ($r = \bar{}0.3884$). From the 'r' values, it could be observed that, as the age of the respondents increased, gain in knowledge decreased. In other words, fishermen of young age group acquired more knowledge when visual aids were used to supplement lectures as compared with older neo-literate fishermen.

This result is in conformity with the results reported by Singh and Akhouri (1966), Dornish (1971), Mazer and Brown (1974), Nagaraja (1979), Selvanayagam (1980), Narasaraj (1981), Rajanna (1982) and Siddaramaiah and Rajanna (1984). In these studies also, the young farmers demonstrated significantly higher gain in knowledge when compared to the old farmers.

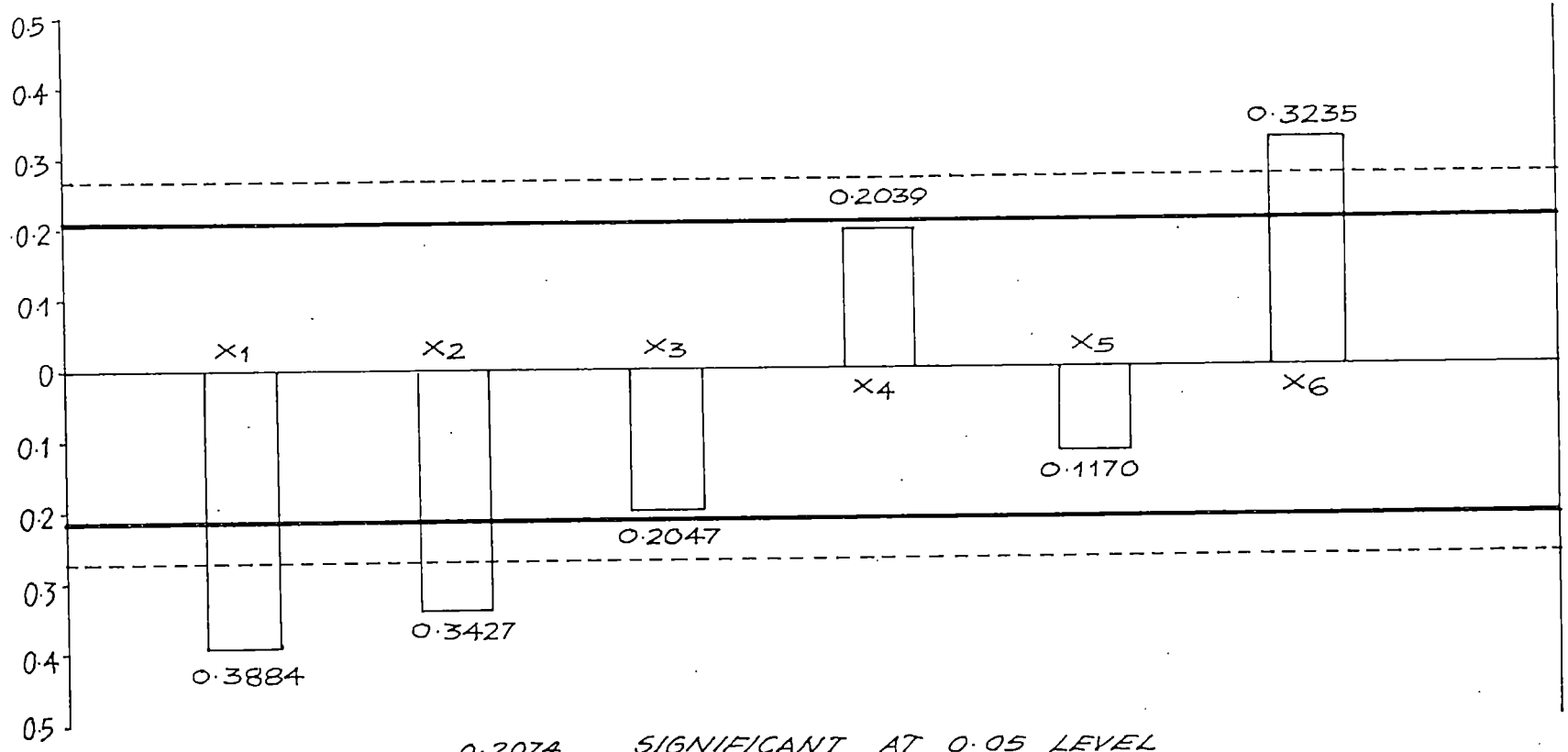
The finding seems natural in view of the fact that younger people, in general, are more enthusiastic and dynamic. In contrast to this, there will be decline in learning ability of the older respondents, as suggested by psychologists, due to the degeneration of the nervous system, lack of concentration, lack of interest in new types of tasks etc. These qualities might be responsible for making them to gain less knowledge when compared to younger people.

Similarly the results had implications that age was significantly influencing the knowledge gain when visual aids such as slides, flash cards and flannel graphs were used along with lecture than the lecture alone method.

3.1.2. Relationship between family size and gain in knowledge

A perusal of Table 3.1 indicates that the family size was significant but negatively correlated with gain in knowledge of neo-literates in all the four treatments. Lecture plus flannel graph had the maximum value of correlation coefficient ($r = -0.5446$) followed by lecture plus flash cards ($r = -0.4143$) lecture plus slides ($r = -0.3427$) and lecture alone ($r = -0.2742$).

FIG. 11 CORRELATION BETWEEN GAIN IN KNOWLEDGE BY LECTURE PLUS SLIDES (T_1) AND INDEPENDENT VARIABLES



0·2074 - SIGNIFICANT AT 0·05 LEVEL

0·2704 - SIGNIFICANT AT 0·01 LEVEL

X_1 - AGE, X_2 - FAMILY SIZE, X_3 - AVERAGE ANNUAL INCOME

X_4 - EXPOSURE TO INFORMATION SOURCES

X_5 - SOCIO-POLITICAL PARTICIPATION

X_6 - COSMOPOLITENESS

It is obvious from these results that as the family size increased, gain in knowledge decreased among the neo-literate respondents.

In this study, it seems that, the big family adversely affected the gain in knowledge which might be due to the fact that as the size of family increases, there would be more financial stress and consequently their quest for knowledge is likely to decrease.

3.1.3. Relationship between average annual income and gain in knowledge

It was found from Table 3.1 that gain in knowledge was significantly and negatively correlated with average annual income of the respondents in the case of T_0, T_2 and T_3. In the case of lecture plus slides (T_1), though gain in knowledge was negatively correlated with average annual income, it was not significant.

Thus for all the four treatments it could be seen that as the average annual income of respondents increased, the gain in knowledge decreased. It is only natural that as the income increases the respondents bother less to acquire new knowledge on the other hand the low income group would have an urge to gain more knowledge and thereby improve their standard of living.

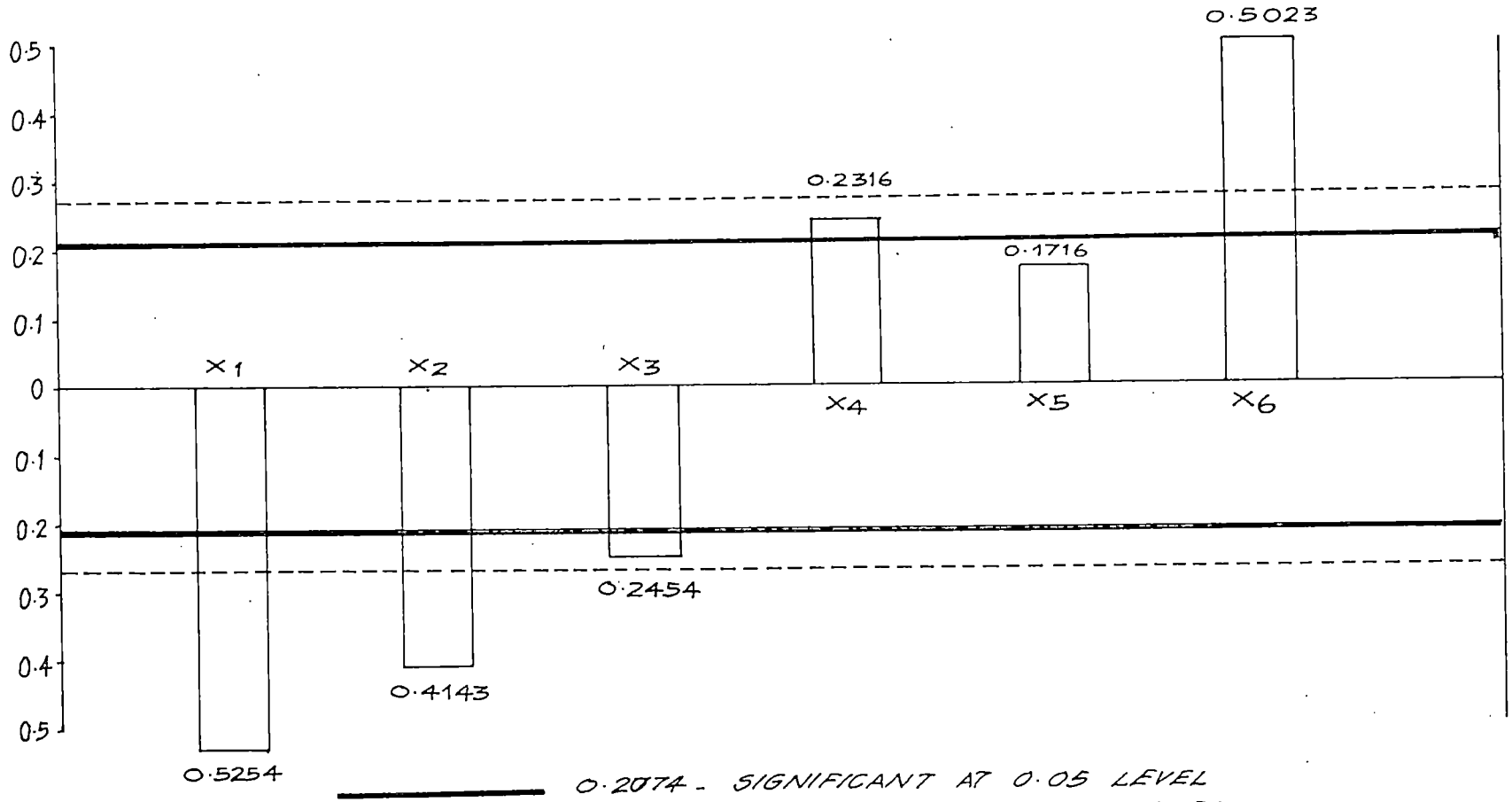
This situation is comparable with the case study reported by Rogers (1968) about the steel axes for stone age aborigins. The case study, conducted through participant observation revealed the undesirable, indirect and unanticipated consequences of the adoption of steel axes by a tribe of Australian aborigines, the 'Yir yoront'. Stone axe was the central tool of the tribe who travel over a vast territory in search of food till it was replaced by steel axe introduced by the missionaries. The new tool enabled the tribe to complete their work rapidly and their leisure time was increased. Contrary to the expectations of the missionaries, the Yir yoronts had become more lethargic and spent their leisure time by sleeping.

The results suggest that the high income group of neo-literate respondents gained less knowledge when compared to the low income group, when lecture was supplemented with visual aids. This result is in concordance with those reported by Vishnoi and Bose (1961) and Somasundaram and Singh (1978).

3.1.4. Relationship between exposure to information sources and gain in knowledge

The relationship between gain in knowledge and expo-

FIG.12 - CORRELATION BETWEEN GAIN IN KNOWLEDGE BY LECTURE PLUS FLASH CARDS (T_2) AND INDEPENDENT VARIABLES



0·2074 - SIGNIFICANT AT 0·05 LEVEL

0·2704 - SIGNIFICANT AT 0·01 LEVEL

X_1 - AGE, X_2 - FAMILY SIZE, X_3 - AVERAGE ANNUAL INCOME

X_4 - EXPOSURE TO INFORMATION SOURCES

X_5 - SOCIO-POLITICAL PARTICIPATION, X_6 - COSMOPOLITENESS

sure to information sources was positively correlated (Table 3.1) for all the treatments. But for T_0 ($r = 0.1703$) and T_1 ($r = 0.2039$) the relationships were positive but not significant and for T_2 ($r = 0.2316$) and T_3 ($r = 0.2491$) the gain in knowledge was positively and significantly correlated. The results clearly indicate the potential of various information sources in increasing the gain in knowledge. Like any other socially and educationally backward society, the fishermen also have problems of an intensively demanding kind. By exposing them to information sources their potential for progress could be brought into limelight and thereby make themselves their own change agents.

The findings of this study have indicated that the neo-literates with higher exposure to information sources demonstrated significantly higher gain in knowledge when flash cards and flannel graphs were used along with lecture, when compared with the respondents who had low exposure to information sources.

This result was in support by the findings of Schneider (1973), Channegowda (1977), Sripal (1978) Nagaraja (1979) and Chandrakandan (1980).

Those who have higher exposure to information sources are more likely to have extensive contacts with the members

from outside the community. This in turn will facilitate the individual to develop habits of gathering more information about the topics of their interest. Such neo-literates will tend to learn more than others who do not have exposure to information sources. In other words, exposure to information sources develops modern outlook among neo-literates making them more efficient in acquiring new knowledge.

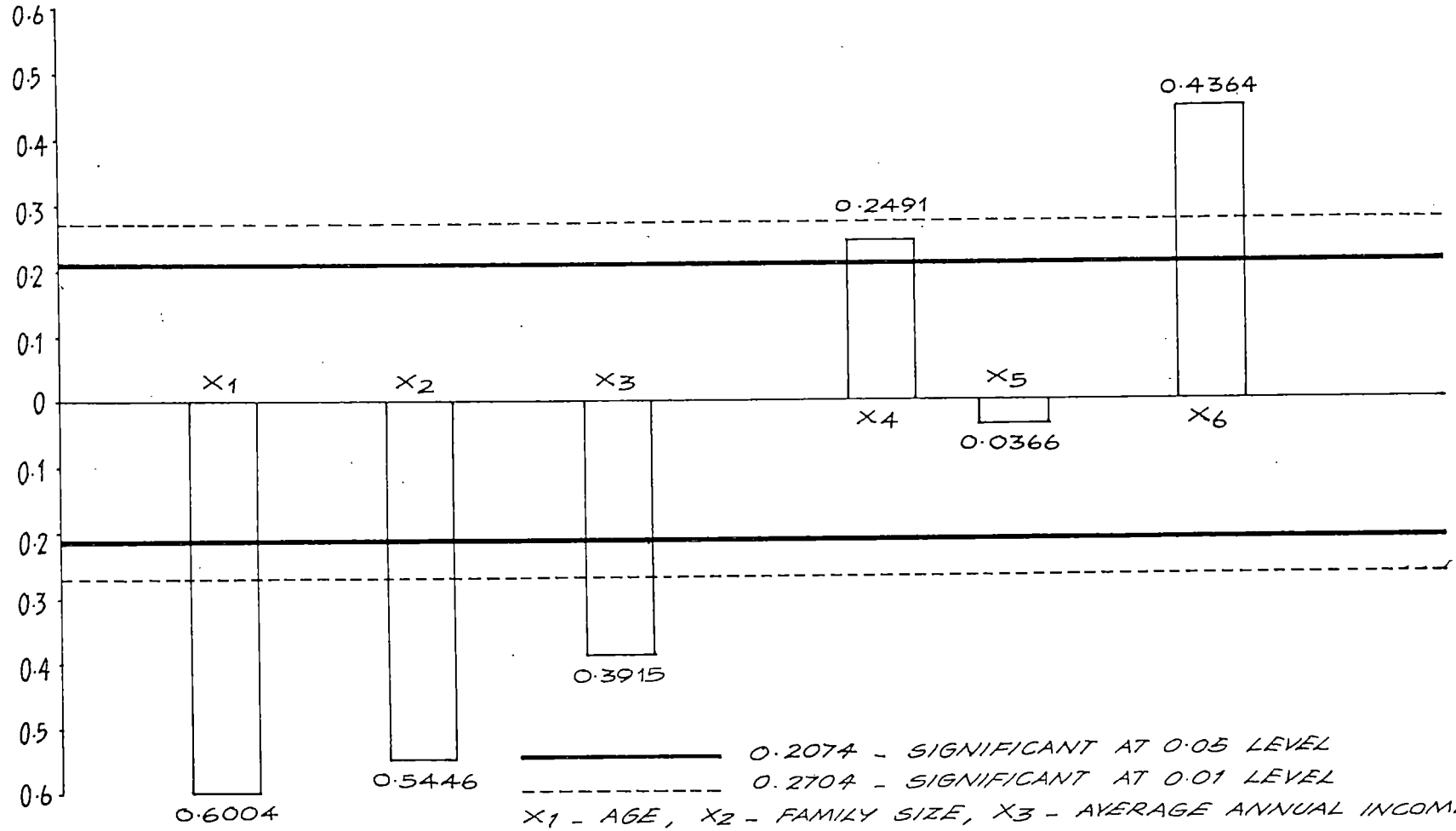
3.1.5. Relationship between socio-political participation and gain in knowledge.

A cursory look at Table 3.1 reveals that there was no significant correlation between the socio-political participation of neo-literates and their gain in knowledge. Except for flash cards ($r = 0.1716$) the other two visual aids, viz., slides ($r = -0.1170$) and flannel graph ($r = -0.0366$), when combined with lecture showed negative correlation which were not significant.

This result is in agreement with the results of the studies conducted by Singh et al. (1971), Ganesh (1975), Sundareshan (1978) and Halappanavar (1979).

The socio-political participation has contributed less to the gain in knowledge which could be attributed to the situational factors prevailing in the study area.

FIG. 13 CORRELATION BETWEEN GAIN IN KNOWLEDGE BY LECTURE PLUS FLANNEL GRAPH (T_3) AND INDEPENDENT VARIABLES



0·2074 - SIGNIFICANT AT 0·05 LEVEL

0·2704 - SIGNIFICANT AT 0·01 LEVEL

X_1 - AGE, X_2 - FAMILY SIZE, X_3 - AVERAGE ANNUAL INCOME,
X_4 - EXPOSURE TO INFORMATION SOURCES
X_5 - SOCIO-POLITICAL PARTICIPATION
X_6 - COSMOPOLITENESS

Fishing being the major occupation in the area, the possibility of getting themselves involved in socio-political organizations is very remote. This is also evident from the frequency distribution of the neo-literates (Table 1.5) which indicates that majority of them (74.40%) had only low to medium level of socio-political participation.

3.1.6. Relationship between cosmopoliteness and gain in knowledge.

Cosmopoliteness was found to be significantly and positively correlated with gain in knowledge when slides, flash cards and flannel graphs were used in combination with lecture as revealed by Table 3.1.

The value of correlation coefficient was maximum for flash cards ($r = 0.5023$) followed by flannel graph ($r = 0.4364$) and slides ($r = 0.3235$). The lecture alone method was not significant but positively correlated with the gain in knowledge of neo-literates.

The results of the present study were in line with the results of the studies conducted by Knight and Singh (1975), Somasundaram and Singh (1978), Suryaprakash (1979), Kamarudeen (1981) and Siddaramaiah and Rajanna (1984).

Cosmopoliteness is a measure of the respondent's contact with those from outside the group or village.

Rogers and Svenning (1969) defined it as the extent of contact outside the village, such as visiting the nearest town and membership in organisations outside the village.

A neo-literate with high level of cosmopoliteness would have an orientation towards innovative ideas and information from outside his immediate surroundings. This might have equipped him to open new vistas of information (knowledge) in a more efficient way, thus contributing positively and significantly to the gain in knowledge.

3.2. Regression analysis of gain in knowledge with the independent variables.

Regression analysis was done to determine the relative importance of the different independent variables on the gain in knowledge of neo-literates. Since the gain in knowledge was measured in terms of four treatments namely lecture alone (T_0) lecture plus slides (T_1), lecture plus flash cards (T_2) and lecture plus flannel graph (T_3), the results of the regression analysis were judiously examined for their R^2 values.

3.2.1. Regression of gain in knowledge by lecture alone method with the independent variables.

The regression analysis of gain in knowledge by

lecture alone (Y_1) with the independent variables was done and the results are presented in Table 3.2.

Table 3.2. Regression analysis of gain in knowledge by lecture alone method (Y_1) with the independent variables.

Variable no.	Variable	Regression coefficient (b)	SE of b	't' value
X_1	Age	-0.0164	0.1208	-0.1359
X_2	Family size	-0.4103	0.7130	-0.5755
X_3	Average annual income	-0.0004	7.7324	-0.5651
X_4	Exposure to information sources	0.2905	0.2998	0.9690
X_5	Socio-political participation	-0.0465	0.3994	-0.1163
X_6	Cosmopoliteness	-0.1922	0.2505	-0.7672

$F = 1.3199$ $R^2 = 0.1013$

The F value (1.3199) was found to be not significant from Table 3.2. Moreover the R^2 value is very low ($R^2 = 0.1013$), which means that only 10.13 per cent of the total variation in gain in knowledge due to lecture alone

method (T_0) is explained by the independent variables. Hence this result was not elaborated further.

3.2.2. Regression of gain in knowledge by lecture plus slides with the independent variables.

The regression analysis of gain in knowledge by lecture plus slides (Y_2) with the independent variables was done and the results are presented in Table 3.3.

Table 3.3. Regression analysis of gain in knowledge by lecture plus slides (Y_2) with the independent variables.

Variable no.	Variable	Regression coefficient (b)	SE of b	't' value
X_1	Age	-0.1910	0.1213	-1.5742
X_2	Family size	-0.4758	0.7158	-0.6647
X_3	Average annual income	0.0003	7.7636	0.3871
X_4	Exposure to information sources	0.1933	0.3009	0.6423
X_5	Socio-political participation	-0.3743	0.4010	-0.9334
X_6	Cosmopoliteness	0.1542	0.2515	0.6131

$F = 3.0648^{**}$ $\quad R^2 = 0.2074$

** Significant at 1 per cent level of probability.

A perusal of Table 3.3 reveals that F value (F = 3.0648) is high but only 20.74 per cent of the variation in gain in knowledge due to lecture plus slides (T_1) is explained by the independent variables.

3.2.3. Regression of gain in knowledge by lecture plus flash cards with the independent variables.

The regression analysis of gain in knowledge by lecture plus flash cards (Y_3) with the independent variables was done and the results are shown in Table 3.4.

Table 3.4. Regression analysis of gain in knowledge by lecture plus flash cards (Y_3) with the independent variables.

Variable no.	Variable	Progression coefficient (b)	SE of b	't' value
X_1	Age	-0.3600	0.1356	-2.6552*
X_2	Family size	0.1032	0.7999	0.1290
X_3	Average annual income	0.0012	8.6760	1.4376
X_4	Exposure to information sources	-0.1138	0.3364	-0.3383
X_5	Socio-political participation	0.8366	0.4482	1.8668
X_6	Cosmopoliteness	0.5951	0.2810	2.1172*

$F = 7.1875^{**}$ $R^2 = 0.3803$

*Significant at 5 per cent level of probability.

** Significant at 1 per cent level of probability.

The results as given in table 3.4 indicate that all the six independent variables taken together contributed to more than 38 per cent of the variation in gain in knowledge for the treatment lecture plus flash cards (Y_3). This is indicated by an R^2 value of 0.3803. The F value was found to be highly significant.

The results are revealed that out of the six independent variables, only two variables, viz., age (X_1) and cosmopoliteness (X_6) were significant in predicting the variation in the gain in knowledge of the neo-literates when flash cards were used along with lecture (Y_3).

3.2.4 Regression of gain in knowledge by lecture plus flannel graph with the independent variables.

The regression analysis of gain in knowledge by lecture plus flannel graph (Y_4) with the independent variables was done and the results are presented in Table 3.5.

Table 3.5 Regression analysis of gain in knowledge by lecture plus flannel graph (Y_4) with independent variables.

Variable no.	Variable	Regression coefficient (b)	SE of b	't' value
X_1	Age	-0.3233	0.1230	-2.6278*
X_2	Family size	-0.6199	0.7259	-0.8540
X_3	Average annual income	0.0088	7.8724	0.9577
X_4	Exposure to information sources	0.0369	0.3052	0.1208
X_5	Socio-political participation	-0.1059	0.4067	-0.2605
X_6	Cosmopoliteness	0.0232	0.2550	9.0840**

$F = 6.9599;^{**}$ $R^2 = 6.3727$

*Significant at 5 per cent level of probability.
** Significant at 1 per cent level of probability.

Table 3.5 presents the results of regression analysis of the gain in knowledge of neo-literates for the treatment lecture plus flannel graph (Y_4) and the independent variables of the study. The table reveals that more than 37 per cent of the variation in gain in knowledge due to lecture plus

flannel graph is explained by the six independent variables. This is indicated by an R^2 value of 0.3727. The F value (6.9599) was found to be highly significant. As in the case of Y_3, here also the two independent variables viz., age and cosmopoliteness were significant in explaining the variation in gain in knowledge by lecture plus flannel graph (Y_4).

4. Relative effectiveness of selected visual aids on retention of knowledge by neo-literates.

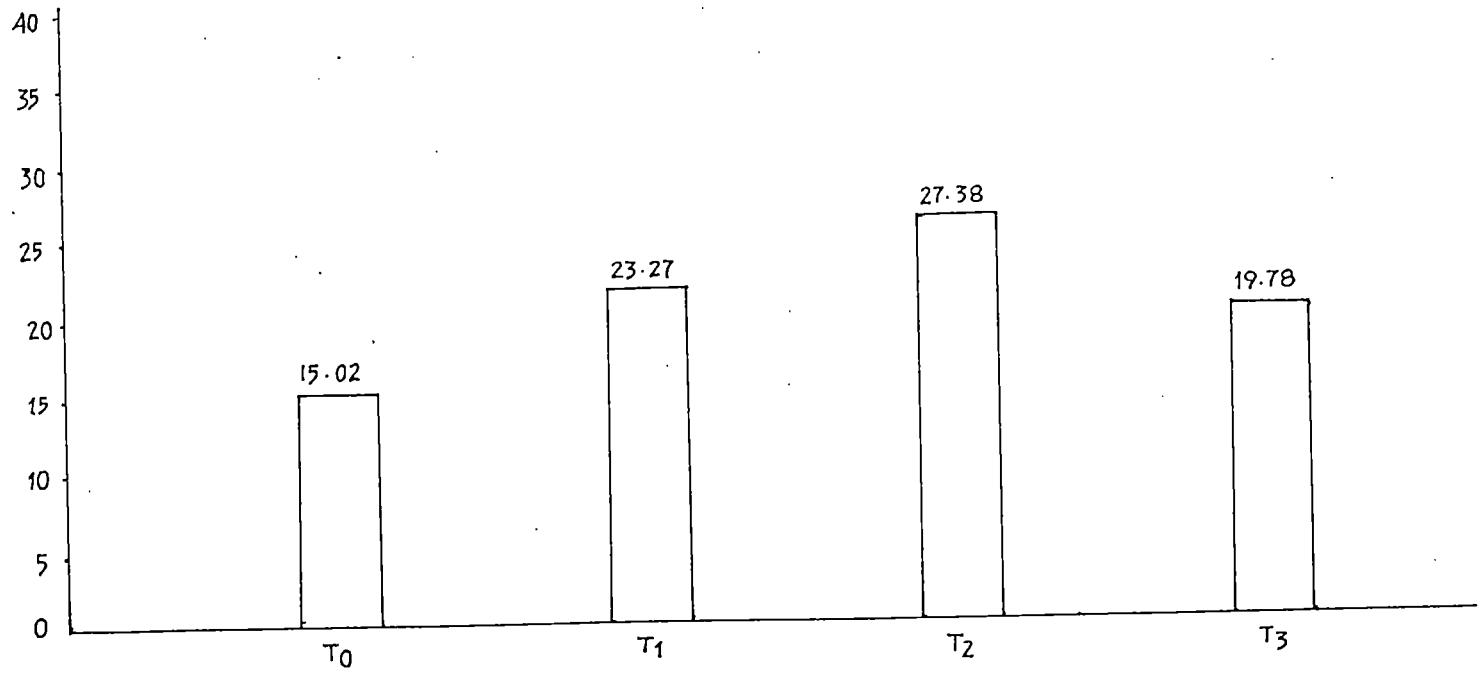
The relative effectiveness of different selected visual aids on retention of knowledge by neo-literates was studied and the results are presented in Table 4.1 and 4.2.

Table 4.1. Mean scores of retention of knowledge by neo-literates as influenced by different treatments.

n = 90

Sl. No.	Treatments	Mean scores of retention of knowledge
1	Lecture alone (T_0)	15.02
2	Lecture plus slides (T_1)	23.27
3	Lecture plus flash cards (T_2)	27.38
4	Lecture plus flannel graph (T_3)	19.78

FIG. 14 MEAN SCORES OF RETENTION OF KNOWLEDGE OF RESPONDENTS AS INFLUENCED BY DIFFERENT TREATMENTS.



T_0 - LECTURE ALONE

T_1 - LECTURE PLUS SLIDES

T_2 - LECTURE PLUS FLASH CARDS

T_3 - LECTURE PLUS FLANNEL GRAPH

Table 4.1 shows the mean scores for retention of knowledge by neo-literate respondents under the four treatments (T_0, T_1, T_2 and T_3). It could be seen that there was significant difference between and among the different visual aids, combined with lecture method in retaining knowledge by neo-literates.

Among the four treatments, lecture combined with flash cards (T_2) was found to be superior to other treatments for the retention of knowledge, with the highest mean score of 27.38. This was followed by lecture plus slides (T_1) which secured a mean score of 23.27 and lecture plus flannel graph (T_3) with a mean score of 19.78. Lecture alone method with a mean score of 15.02 was the least effective treatment for retention of knowledge.

The data were again subjected to analysis of variance (ANOVA) to find out whether the variance due to the experimental treatments is statistically significant and the results are presented in Table 4.2.

Table 4.2. Analysis of variance (ANOVA) or retention of knowledge by neo-literates as influenced by different visual aids.

Sources	df	Sum of squares (SS)	Mean squares (MSS)	F
Treatments	3	252.55	84.18	49.69**
Replication	2	0.635	0.318	
Error	6	10.165	1.694	
Total	11	263.35		

CD = 0.531

**Significant at 1 per cent level of probability.

From Table 4.2. the 'F' ratio (F = 49.69) was found to be highly significant indicating that the variation in retention of knowledge was due to the different visual aids in the study.

Critical difference (CD) revealed that all the three visual aids used in the study viz., slides, flash

cards and flannel graph, when combined with lecture were significantly superior to the lecture alone (T_0) method. Among the three significantly superior treatments (T_1, T_2 and T_3) - lecture plus flash cards (T_2) was found to have significantly greater influence on the retention of knowledge by neo-literates. T_1 (lecture plus slides) was contributing next to T_2 (lecture plus flash cards) in the study which was in turn significantly superior to T_3 (lecture plus flannel graph).

From the results it could be concluded that all the three visual aids selected for the study in combination with lecture were significantly superior to lecture alone method in retaining the knowledge by neo-literates. It was also found from Table 4.2 that among the three visual aids used in the study flash cards combined with lecture had the maximum contribution in retention of knowledge of neo-literate respondents.

This result was in line with results of the studies reported by Leagans (1961), Mahajan and Bhaskaram (1966) and Malviya and Verma (1987). All the above studies reported about the effectiveness of flash cards as a visual aid in combination with lecture method in retaining more knowledge over the lecture alone method.

The null hypothesis set for the study that there would not be any significant difference between the treatments involving lecture plus visual aids and lecture alone method in their effect on retaining the knowledge by neo-literate respondents was rejected. Similarly, the null hypothesis that there would not be any significant difference between the visual aids on their effect in increasing the retention of knowledge by neo-literates, was also rejected.

The neo-literate respondents were subjected to the post-delay test after a time lag of 15 days of the message presentation and exposure of the visual aids. Perhaps it may be difficult for the neo-literates to retain in their memory all the details of the message presented with the help of slides and flannel graph since they were more in number (24 and 18 respectively). Flash cards, on the other hand, presented very brief messages with illustrations to emphasize the key-points of the lecture. The number of flash cards used were also less (10) when compared to slides and flannel graph strips. Moreover, there was more involvement on the part of the respondents during the exposure of the message by using flash cards since they were taken near the audience to have a closer look at the illustrations on the cards.

These reasons could be attributed to the superiority of flash cards in the retention of knowledge, over slides, flannel graph andlecture alone method. Apart from these, the effect of suspense of the respondent, kept in the case of using flash cards also makes it ~~a~~atop.

5. Relationship between retention of knowledge and the socio-personal characteristics of neo-literates.

The retention of knowledge by the neo-literate respondents was studied for the four treatments namely the lecture alone method (T_0) lecture plus slides (T_1), lecture plus flash cards (T_2) and lecture plus flannel graph (T_3). The scores of the knowledge retained for each of the four treatments were correlated with the six independent variables of the study viz., age, family size, average annual income, exposure to information sources, socio-political participation and cosmopoliteness. The corresponding correlation coefficients (r) were worked out and the results are presented in Table 5.1.

Table 5.1. Correlation between retention of knowledge and the independent variables.

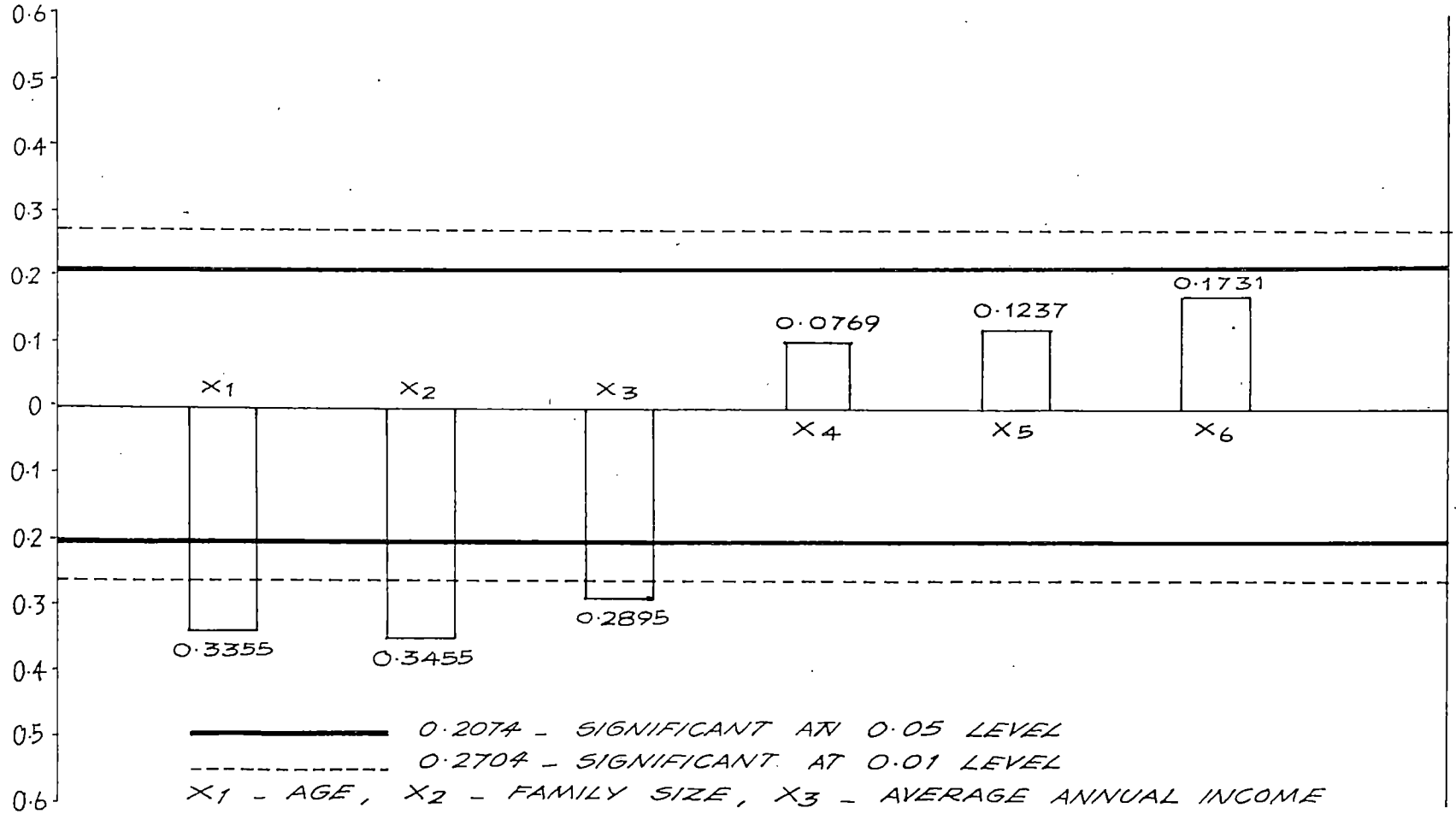
Variable no.	Independent variable	Correlation coefficient (r) Lecture alone (T_0)	Lecture plus slides (T_1)	Lecture plus flash cards (T_2)	Lecture plus flannel graph (T_3)
X_1	Age	-0.3355**	-0.3477**	-0.6232**	-0.6154**
X_2	Family size	-0.3455**	-0.2869**	-0.4958**	-0.5276**
X_3	Average annual income	-0.2895**	-0.2093*	-0.3439**	-0.3879**
X_4	Exposure to information sources	0.0769	0.0383	0.2183*	0.2472*
X_5	Socio-political participation	0.1237	-0.0523	0.1121	-0.1076
X_6	Cosmopoliteness	0.1731	0.1954	0.5471**	0.4688**

**Significant at 1 per cent level of probability.
*Significant at 5 per cent level of probability.

5.1.1. Relationship between age and retention of knowledge

A perusal of Table 5.1 reveals that retention of knowledge was significant but negatively correlated with

FIG. 15 CORRELATION BETWEEN RETENTION OF KNOWLEDGE BY LECTURE ALONE METHOD (T0) AND INDEPENDENT VARIABLES



age for all the four treatments. The correlation coefficient (r) was maximum for lecture plus flash cards (¯0.6232) followed by lecture plus flannel graph (¯0.6154), lecture plus slides (¯0.3477) and lecture alone method (¯0.3355).

It is obvious from the negative sign of the 'r' values that as the age of the respondents increased, their retention of knowledge decreased. This result is in conformity with the findings reported by Bhaskaram and Majahan (1968), Sharma and Dey (1970) and Subramanyan (1975).

In the present study, young neo-literates were found to have retained more knowledge than the old group which could be attributed to the dynamism and better memory power of the younger respondents and weakened nervous system and poor memory power of the old as it was suggested by psychologists. Moreover, in this study, the respondents, being fishermen, do not take much pain for memorizing the information gathered, for they have their routine hard work in the sea every day.

The results also indicated that the visual aids when used along with lecture as a supplement had a profound influence on the retention of knowledge by neo-literates. Among the four treatments, lecture plus flash cards was found to be more effective in retention of knowledge.

5.1.2. Relationship between family size and retention of knowledge

Size of the family was also highly significant but negatively correlated with the retention of knowledge as depicted in Table 5.1. The value of correlation coefficient computed was maximum for T_3, ie., lecture plus flannel graph ($r = \bar{}0.5276$) followed by T_2, ie., lecture plus flash cards ($r = \bar{}0.4958$), and T_1, ie., lecture plus slides ($r = \bar{}0.2899$).

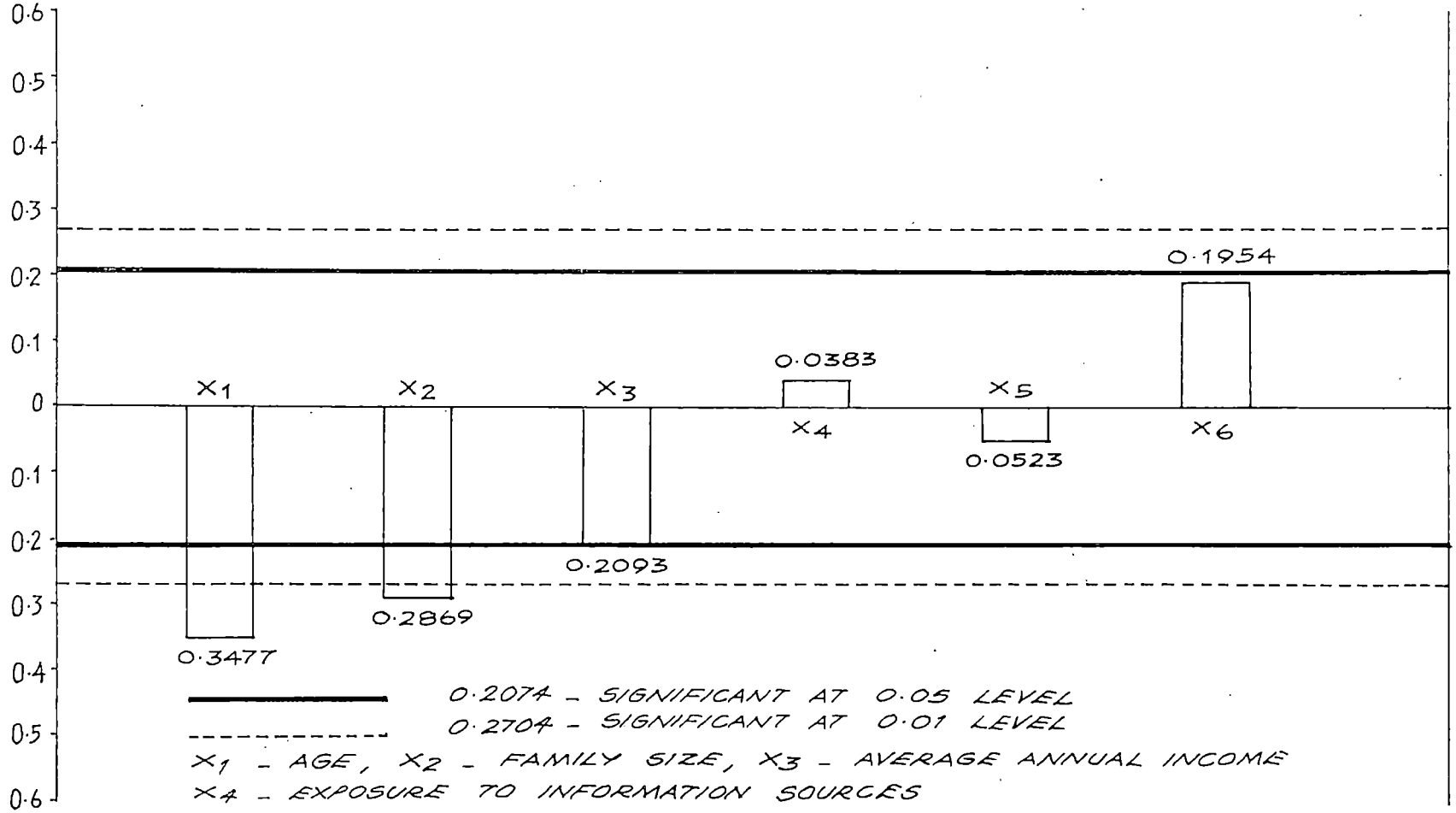
As the size of the family increased the capacity for retention of information by its members found to be reduced in the study. This might be due to the higher family burden imposed as the size of the family increased. This increased family burden thrust upon the individuals might be making the retention of knowledge practically not feasible.

The results of the present investigation is in line with that of the study reported by Malviya and Verma (1987).

5.1.3. Relationship between average annual income and retention of knowledge

An examination of Table 5.1 reveals that the retention of knowledge was significantly and negatively correlated with the average annual income of the respondent neo-literates, in the case of all the four treatments. The correlation

FIG. 16 CORRELATION BETWEEN RETENTION OF KNOWLEDGE BY LECTURE PLUS SLIDES (T_1) AND INDEPENDENT VARIABLES



coefficient (r) was maximum for T_3 ($\bar{}$0.3879) followed by T_2 ($\bar{}$0.3439), T_0 ($\bar{}$0.2894) and T_1 ($\bar{}$0.2093). Flannel graph when combined with lecture had the highest significant and negative correlation with retention of knowledge followed by flash cards, lecture alone method and slides.

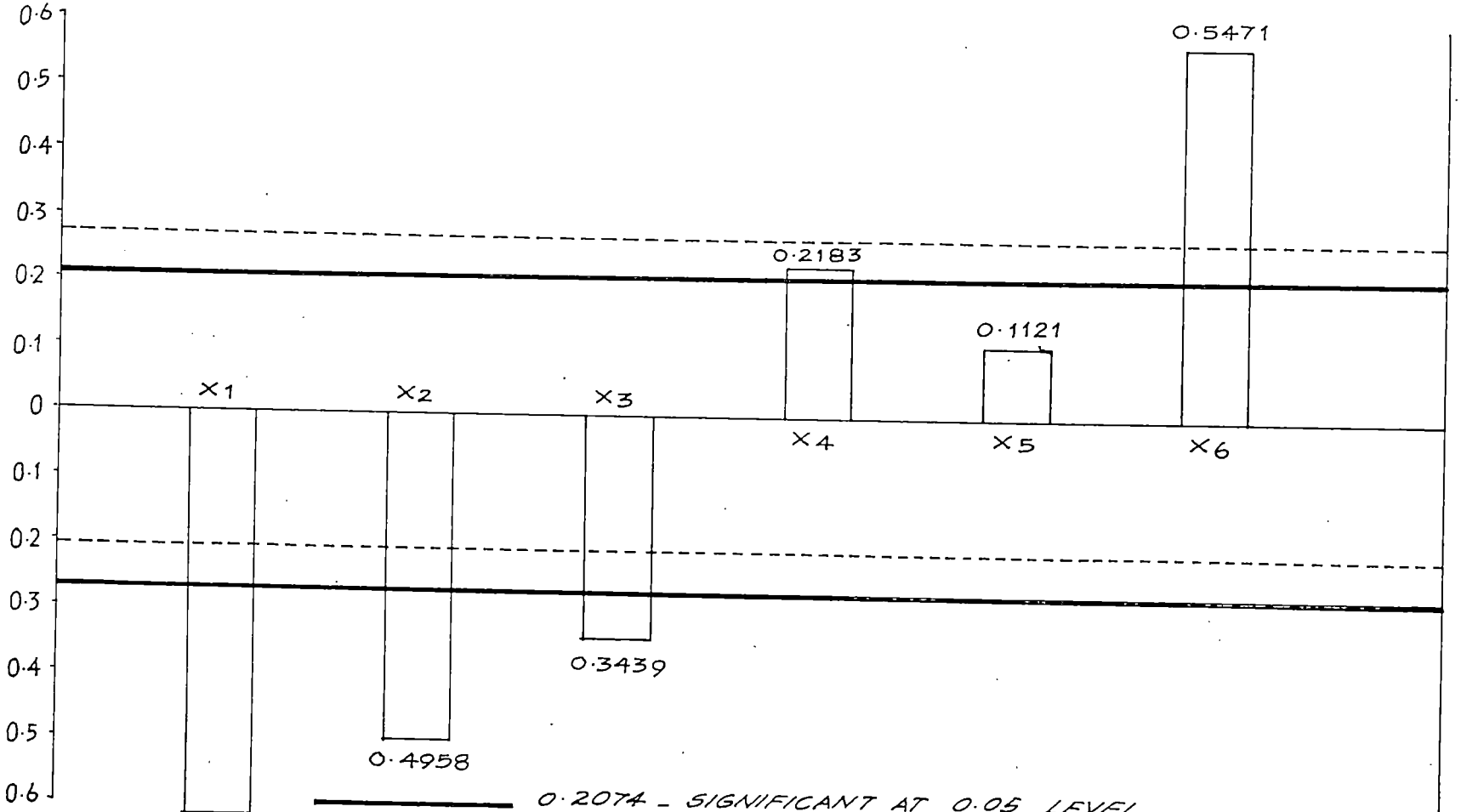
It could be concluded from the results that the increase in average annual income did not influence the retention of knowledge. The results revealed that the high income group retained less information when compared to the low income group of respondents.

People with high average annual income perhaps may not evince much interest in gaining new information and retain it in the memory for longer period. Hence this result could be justified in the case of neo-literates also.

5.1.4. Relationship between exposure to information sources and retention of knowledge

A glance at Table 5.1 shows that the exposure to information sources was positively correlated with all the four treatments. But, significant results were obtained only in the case of lecture plus flash cards, (r = 0.2183) and lecture plus flannel graph (r = 0.2472). The 'r' value was not significant in the case of lecture alone method (0.0769) and lecture plus slides (0.0383).

FIG. 17 CORRELATION BETWEEN RETENTION OF KNOWLEDGE BY LECTURE PLUS FLASH CARDS (T_2) AND INDEPENDENT VARIABLES



0·2074 - SIGNIFICANT AT 0.05 LEVEL

0·2704 - SIGNIFICANT AT 0·01 LEVEL

X_1 - AGE, X_2 - FAMILY SIZE, X_3 - AVERAGE ANNUAL INCOME

X_4 - EXPOSURE TO INFORMATION SOURCES

X_5 - SOCIO. POLITICAL PARTICIPATION, X_6 - COSMOPOLITENESS

Among the two significantly correlated visual aids, flannel graph exerted greater influence on the retention of knowledge.

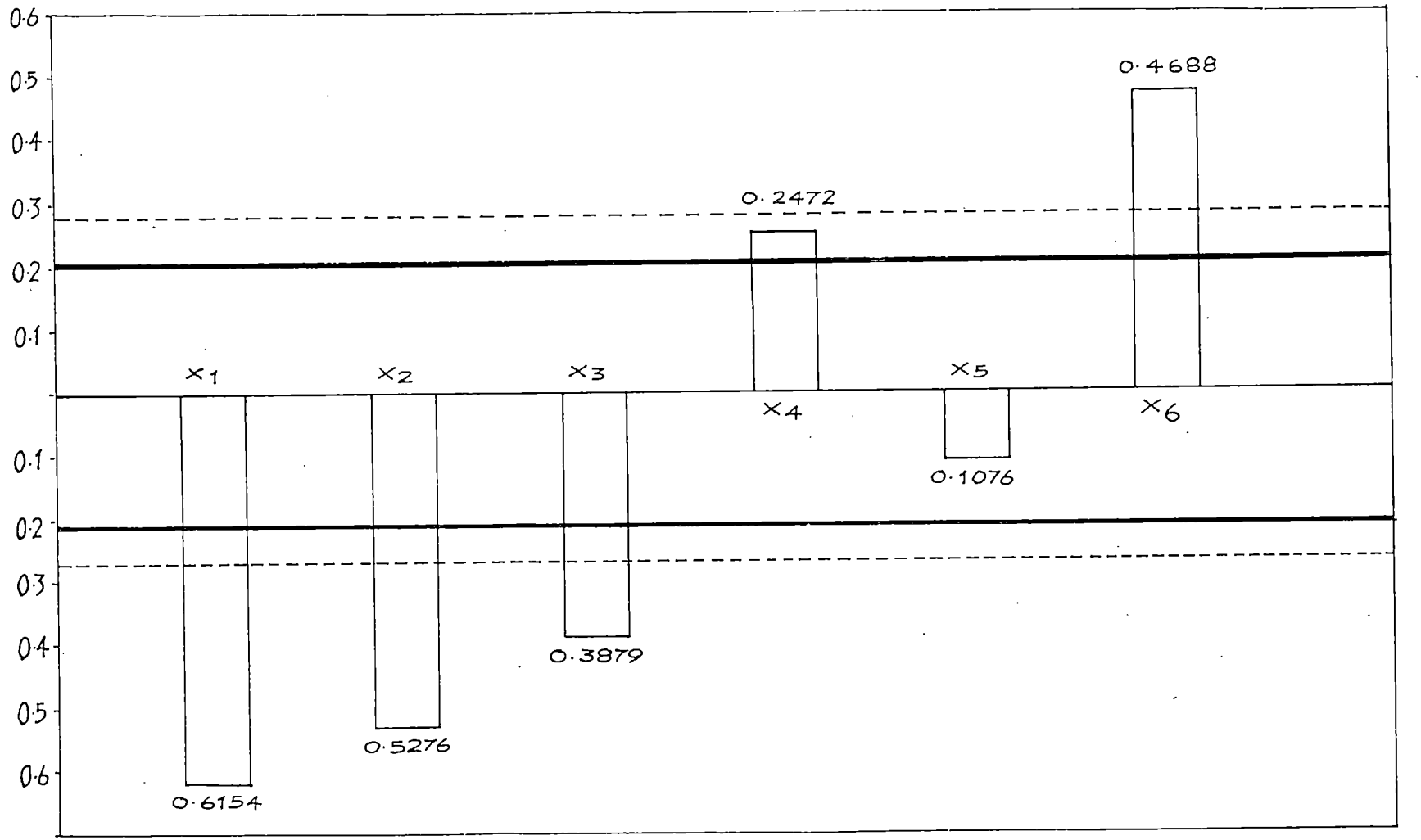
The result indicated that the neo-literates exposed to information sources had increased retention of knowledge when flannel graph and flash cards were used along with lecture. It is quite natural that people exposed to a variety of information sources tend to gather more informations and retain in the memory. The results exhort the need for exposing the neo-literates to various information sources.

5.1.5. Relationship between socio-political participation and retention of knowledge.

There was no significant correlation between the socio-political participation of neo-literate respondents and their retention of knowledge in the case of all the four treatments (Table 5.1.). Rather, the correlation was negative for treatments, T_1 (lecture plus slides) and T_3 (lecture plus flannel graph).

The results indicate that there is no profound influence for socio-political participation in the retention of knowledge of participants for all the treatments. Still more important is that socio-political participation and retention of knowledge were negatively correlated in the case of T_1 and T_3.

FIG. 18 CORRELATION BETWEEN RETENTION OF KNOWLEDGE BY LECTURE PLUS FLANNEL GRAPH (T_3) AND INDEPENDENT VARIABLES



——— 0·2074 – SIGNIFICANT AT 0·05 LEVEL

– – – – – – 0·2704 – SIGNIFICANT AT 0·01 LEVEL

X_1 – AGE, X_2 – FAMILY SIZE, X_3 – AVERAGE ANNUAL INCOME

X_4 – EXPOSURE TO INFORMATION SOURCES, X_5 – SOCIO-POLITICAL PARTICIPATION

X_6 – COSMOPOLITENESS

It may be noted that 43.30 per cent of the neo-literates had only low socio-political participation and 31.10 per cent had medium level participation. Only the remaining 25.60 per cent had high socio-political participation. The general trend, however, conclusively proved that any extent of socio-political participation of neo-literates did not help them in retaining the knowledge imparted to them through different teaching aids. This could be attributed to the fact that socio-political participation is mostly to satisfy social need and self esteem need. Only when these needs are satisfied, the acquisition and retention of knowledge, which is higher need in the hierarchy could act.

5.1.6. Relationship between cosmopoliteness and retention of knowledge.

A perusal of Table 5.1. reveals that retention of knowledge was positively correlated with cosmopoliteness. Among the four treatment, T_3 (lecture plus flash cards) with an 'r' value of 0.5471 and T_4 (lecture plus flannel graph) with r = 0.4688 were significantly correlated with retention of knowledge. In the case of the other two treatments, lecture plus slides (T_1) contributed more (r = 0.1956) than the lecture alone method (T_0) with an 'r' value of 0.1731.

This result was in conformity with the result of the study reported by Chandrakandan (1982), who found that urban contact which is a measure of cosmopoliteness, had a positive significant effect on the retention of knowledge.

In the present study, the results lead to the conclusion that the higher cosmopoliteness has a positive and significant correlation with the retention of knowledge, when flash cards and flannel graph were used along with lecture. Among the two, lecture plus flash cards was more effective than lecture plus flannel graph in the retention of knowledge by neo-literates. Encourging the fishermen to have frequent contact with those from outside their own group might accelerate the process of knowledge acquisition and retention.

5.2. Regression analysis of retention of knowledge with the independent variables.

Regression analysis was done to determine the relative importance of the different independent variables on the retention of knowledge of neo-literates. Since the retention of knowledge was measured in terms of four treatments namely lecture along (T_0), lecture plus slides (T_1), lecture plus flash cards (T_2) and lecture plus flannel graph (T_3), the results of the regression analysis were carefully examined for their R^2 values.

5.2.1. Regression of retention of knowledge by lecture alone method with independent variables.

The regression analysis of retention of knowledge by lecture alone method (Y_5) with the independent variables was done and the results are presented in Table 5.2.

Table 5.2. Regression analysis of retention of knowledge by lecture alone method (Y_5) with the independent variables.

Variable no.	Variable	Regression coefficient (b)	SE of b	't' value
X_1	Age	-0.1001	0.1177	-0.8507
X_2	Family size	-0.6067	0.6942	-0.8740
X_3	Average annual income	-0.0001	7.5290	-8.1862**
X_4	Exposure to information sources	-0.1477	0.2919	-0.5059
X_5	Socio-political participation	0.5529	0.3889	1.4216
X_6	Cosmopoliteness	-0.1872	0.2439	-0.7676

$F = 2.2066$; $R^2 = 0.1585$

*Significant at 5 per cent level of probability.
**Significant at 1 per cent level of probability.

From the table, F value (2.2066) was found significant. Since the R^2 (coefficient of determination) value is very low (R^2 = 0.1585) only 15.85 per cent of the total variation in retention of knowledge due to lecture alone method (T_0) is explained by the independent variables. Average annual income (X_3) was the only independent variable significantly contributing to Y_5 (retention of knowledge by lecture alone method).

5.2.2. Regression of retention of knowledge by lecture plus slides with independent variables.

The regression analysis of retention of knowledge by lecture plus slides (Y_6) with the independent variables was done and the results are presented in Table 5.3.

Table 5.3. Regression analysis of retention of knowledge by lecture plus slides (Y_6) with the independent variables.

Variable no.	Variable	Regression coefficient (b)	SE of b	't' value
X_1	Age	-0.3527	0.1508	-2.3396*
X_2	Family size	0.1343	0.8895	0.1509
X_3	Average annual income	0.0009	9.6472	0.9007
X_4	Exposure to information sources	-0.3971	0.3470	-0.0618
X_5	Socio-political participation	-0.2813	0.4983	-0.5645
X_6	Cosmopoliteness	-0.2111	0.3125	-0.6756

$F = 2.0268$; $R^2 = 0.1475$

*Significant at 5 per cent level of probability.

Since F value (2.0268) was not significant the R^2 value is very low ($R^2 = 0.1475$), which means that only 14.75 per cent of the total variation in retention of knowledge due to lecture plus slides (T_1) is explained by the independent variables (Table 5.3) this result was not examined further.

5.2.3. Regression of retention of knowledge by lecture plus flash cards with the independent variables.

The regression analysis of retention of knowledge by lecture plus flash cards (Y_7) with the independent variables was done and the results are presented in Table 5.4.

Table 5.4. Regression analysis of retention of knowledge with the independent variables.

Variable no.	Variable	Regression coefficient (b)	SE of b	't' value
X_1	Age	-0.4979	0.1346	-3.6994**
X_2	Family size	0.4239	0.7940	0.5339
X_3	Average annual income	0.0011	8.6116	1.2628
X_4	Exposure to information sources	-0.3095	0.3339	-0.9269
X_5	Socio-political participation	0.6260	0.4448	1.4072
X_6	Cosmopoliteness	0.5303	0.2790	1.9010

$F = 9.9521^{**}$; $R^2 = 0.4593$

**Significant at 1 per cent level of probability.

As shown in Table 5.4. the results of regression analysis of retention of knowledge of neo-literates by lecture plus flash cards (Y_7) revealed that more than 45 per cent of the variation in retention of knowledge by lecture plus flash cards (Y_7) are explained by all the six independent variables of the study taken together. This was indicated by a comparatively higher R^2 value of 0.4593 which was highly significant (F = 9.9521). It could be observed from table 5.4 that out of the six independent variables, only one variable viz., age was significant in explaining the variation in retention of knowledge by lecture plus flash cards (Y_7).

5.2.4 Regression of retention of knowledge by lecture plus flannel graph with the independent variables.

The regression analysis of retention of knowledge by lecture plus flannel graph (Y_8) with the independent variables was done and the results are presented in Table 5.5.

Table 5.5 Regression analysis of retention of knowledge by lecture plus flannel graph (Y_8) with the independent variables.

Variable no.	Name of the independent variables	Regression coefficient (b)	SE of (b)	't' value
X_1	Age	-0.3681	0.1118	-3.2938**
X_2	Family size	-0.0678	0.6593	-0.1029
X_3	Average annual income	0.0012	7.1508	1.6186
X_4	Exposure to information sources	-0.0383	0.2772	-0.1381
X_5	Socio-political participation	-0.4942	0.3694	-1.3379
X_6	Cosmopoliteness	0.0785	0.2317	0.3390

$F = 8.0481$; $R^2 = 0.4072$

**Significant at 1 per cent level of probability.

FIG. 19 EMPIRICAL MODEL OF THE STUDY

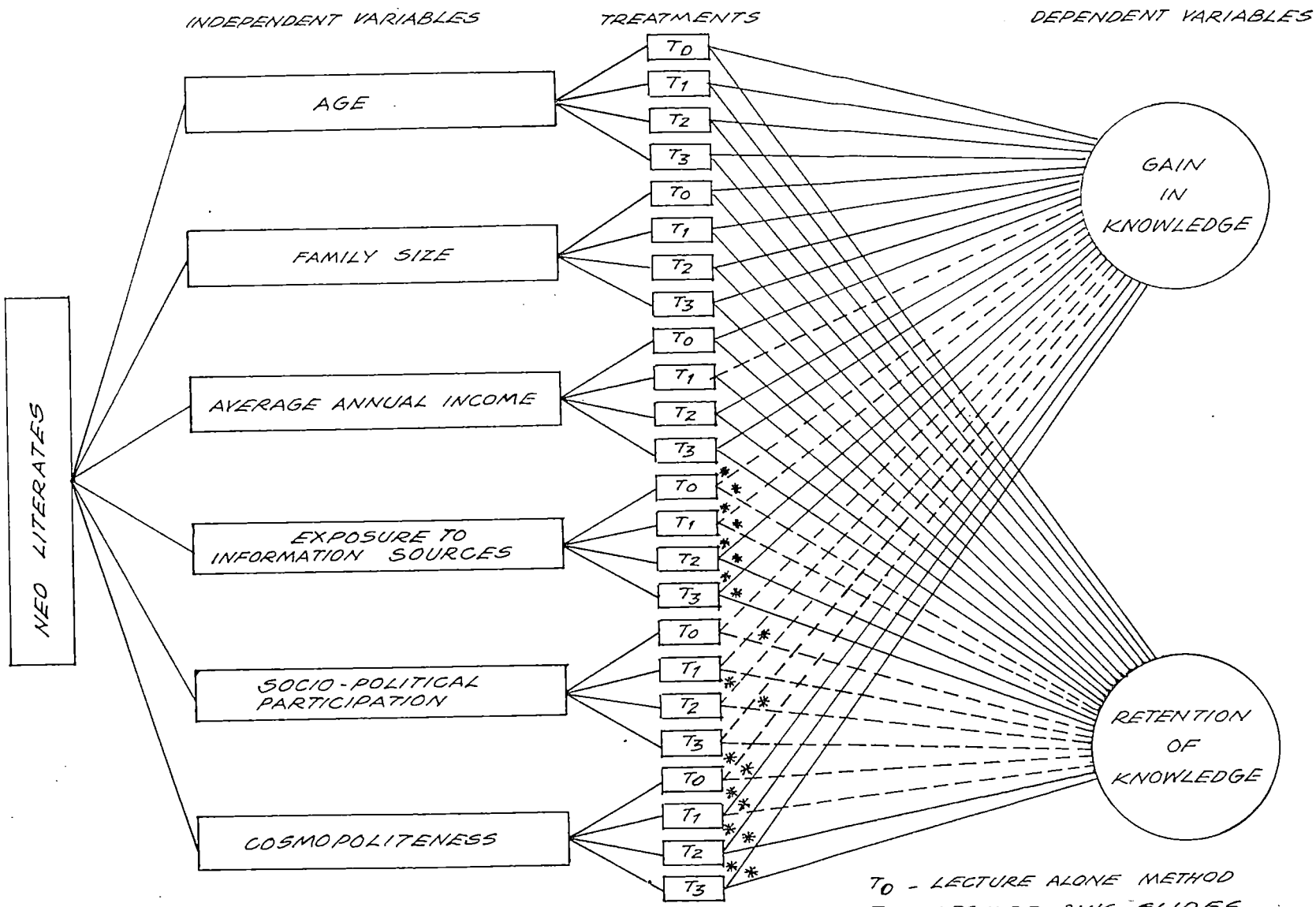


Table 5.5. presents the resultsof the regression analysis of retention of knowledge by lecture plus flannel graph (Y_8) with the independent variables of the study. A perusal of the table indicated that more than 40 per cent of the variation in the retention of knowledge by lecture plus flannel graphs (Y_8) could be explained by all the independent variables taken together as indicated by a relatively higher R^2 value of 0.4072 which was highly significant (F = 8.0481).

It could be clearly observed from Table 5.5 that out of the six independent variables only one variable, namely age was significant in explaining the variation in retention of knowledge by lecture plus flannel graph (Y_8).

SUMMARY

V. SUMMARY

Communication to be effective and meaningful, not only the meaning be imparted but also be understood properly. In other words, communication is the transference and understanding of meaning. This principle is of greater significance when a message is communicated to neo-literates. The spoken word supplemented by visual aids suitable to the situation and type of audience make communication still more effective.

No systematic efforts have been made in Kerala so far, to study the effectiveness of visual aids in teaching neo-literates. Hence, it was felt worthwhile to undertake an experimental study on the effectiveness of three selected visual aids, viz., slides, flash cards and flannel graph in combination with lecture method in the gain and retention of knowledge of neo-literates. The study was designed with the following specific objectives.

1. To assess the relative effectiveness of selected visual aids in the gain in knowledge of the neo-literates.
2. To assess the relative effectiveness of selected visual aids in the retention of knowledge by the neo-literates.
3. To study the relationship of certain selected socio-personal characteristics of the neo-literates with their gain in knowledge and retention.

The experiment was conducted in Adimalathura and Pulluvila villages of Kottukal Panchayath in Trivandrum district. Kottukal Panchayath was selected purposively since it had the maximum number of neo-literate groups organised by voluntary agencies like KANFED. Ninety fishermen respondents were selected from the two villages for the study.

The dependent variables selected for the study were gain in knowledge and retention of knowledge by neo-literates. The independent variables for the study included age, family size, average annual income, exposure to information sources, socio-political participation and cosmopoliteness.

Lecture alone (T_0) lecture plus slides (T_1), lecture plus flash cards (T_2) and lecture plus flannel graph (T_3) were the four treatments in the experimental study.

The knowledge level of each of the respondents was measured (i) before the exposure (ii) immediately after it and (iii) 15 days after the exposure, in the case of each of the treatment. The data pertaining to the independent variables were collected with the help of a structured, pre-tested interview schedule. The collected data were tabulated, analysed statistically and results interpreted.

The salient findings of the study are summarised and presented below:-

1. Majority of the neo-literates in the study belonged to middle-age category. Half of the respondents had medium family size. Majority of them belonged to medium income group when their average annual income was analysed. In the case of exposure to information sources, half of the neo-literates belonged to medium group. Socio-political participation of majority of the neo-literate fishermen was found low. More than half of the neo-literate respondents belonged to the medium category of cosmopoliteness.

2. There was significant variation in the gain in knowledge of neo-literates due to the use of selected visual aids.

3. There was significant difference between the lecture alone method and the other treatments. Similarly, the th visual aids experimented were significantly different from each other in imparting knowledge to the neo-literates.

4. Among the three treatments involving the visual aids, lecture plus slides (T_1) had the maximum influence on gain in knowledge of the experimental group followed by T_2 and T_3.

5. Age was significant but negatively correlated with gain in knowledge in the case of all the four treatments. As the age of the respondents increased gain in knowledge decreased.

6. Size of the family was significant but negatively correlated with gain in knowledge of neo-literates in all the four treatments.

7. Gain in knowledge was significantly and negatively correlated with average annual income of the respondents in T_0, T_2 and T_3. In the case of T_1 gain in knowledge was negatively correlated with average annual income but not significant. The high income group of neo-literate respondents gained less knowledge than the low income group.

8. The relationship between gain in knowledge and exposure to information sources was positively correlated for all the treatments, but it was significant only in the case of T_2 and T_3. The neo-literates with higher exposure to information sources demonstrated significantly higher gain in knowledge when compared with those having low exposure.

9. There was no significant correlation between the socio-political participation of neo-literates and their gain in knowledge. But positive relationship was found when lecture plus flash cards (T_2) was used.

10. There was significant, positive correlation between the cosmopoliteness and the three selected visual aids when used in combination with lecture; in increasing the knowledge. Flash cards contributed maximum gain in knowledge followed by flannel graph and slides.

11. In the regression analysis, age and cosmopoliteness were found to be significant in predicting the variation in gain in knowledge of the neo-literates when flash cards and flannel graph were used along with lecture method (T_2 & T_3).

12. There was significant difference in the retention of neo-literates, due to the different selected visual aids.

13. The three visual aids in combination with lecture were significantly different from the lecture alone method in retaining the knowledge of neo-literates. Similarly, the visual aids themselves were significantly different from each other.

14. Among the significantly superior treatments, lecture plus flash cards (T_2) was superior to the other treatments. This was followed by lecture plus slides (T_1) and lecture plus flannel graph (T_3).

15. Retention of knowledge was significant but negatively correlated with age for all the four treatments. The relationship was maximum in the case of lecture plus

flash cards (T_2) followed by lecture plus flannel graph (T_3) and lecture plus slides (T_1).

16. The size of the family and retention of knowledge by neo-literates was highly significant, but negatively correlated in the case of all the four treatments.

17. The retention of knowledge was significantly and negatively correlated with the average annual income of the neo-literates in the case of all the four treatments.

18. The exposure to information sources was positively correlated with the retention of knowledge of neo-literates in the case of all the four treatments, but significant only in the case of lecture plus flash cards (T_2) and lecture plus flannel graph (T_3). Among these two significantly correlated visual aids, flannel graph exerted maximum influence on the retention of knowledge.

19. There was no significant correlation between socio-political participation of neo-literate respondents and their retention of knowledge through any of the four treatments. Rather, the correlation was negative in the case of lecture plus slides (T_1) and lecture plus flannel graph (T_3).

20. The retention of knowledge was positively correlated with cosmopoliteness in the case of all the four treatments. Only two treatments viz., lecture plus

flash cards (T_3) and lecture plus flannel graph (T_4) were significantly correlated in which T_3 ranked superior to T_4.

21. Age was the only independent variable which explained significant variation in the retention of knowledge of neo-literate respondents by means of lecture plus flash cards (T_2) and lecture plus flannel graph (T_3).

Implications of the study

The following implications emerge out of the findings of the present study.

1. The study revealed that lecture method was more effective when it was combined with slides, flash cards, and flannel graph. Therefore, for teaching neo-literates, extension workers should make use of visuals during their oral method of presentation.
2. Since age has got significant but negative correlation with the gain and retention of knowledge, particular attention needs be given to the older section of neo-literates.
3. While teaching neo-literates, slides could be used along with lecture method which play an unique role in attracting and holding attention and thereby increasing the gain in knowledge.

4. For retaining the knowledge for a long period, flash cards could be used to suppliment the lecture method.

Suggestions for future research

1. This study was confined to the fishermen neo-literates of one panchayath in Trivandrum district. Similar studies could be taken up in every district taking larger areas. Similar studies can be conducted among other neo-literate farmers also.
2. In order to have a general recommendation, a combination of visual aids could be used in the treatments.
3. There is ample scope to standardise the methods used for measuring gain in knowledge and retention of knowledge of neo-literates.
4. A study could be designed to identify the most effective visual aids from among the projected and non-projected visual aids.

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* Original not seen.

APPENDICES

APPENDIX I

DESIGN OF TREATMENTS

Date / Replications	16..10..1988		30..10..1988			13..11..1988			27..11..1988			11..12..1988	
Replication. 1 Group I (n_1 = 30)	$C.X.P_t$	$C.X.K_t$	$C.X.R_t$	$Sl.A.P_t$	$Sl.A.R_t$	$Sl.A.R_t$	$F_c.B.P_t$	$F_c.B.K_t$	$F_c.B.R_t$	$F_g.C.P_t$	$F_g.C.K_t$	$F_g.C.R_t$	Bio-data survey
Replication. 2 Group II (n_2 = 30)	$C.X.P_t$	$C.X.K_t$	$C.X.R_t$	$F_c.A.P_t$	$F_c.A.K_t$	$F_c.A.R_t$	$F_g.B.P_t$	$F_g.B.K_t$	$F_g.B.R_t$	$Sl.C.P_t$	$Sl.C.K_t$	$Sl.C.R_t$	Bio-data survey
Replication. 3 Group III (n_3 = 30)	$C.X.P_t$	$C.X.K_t$	$C.X.R_t$	$F_g.A.P_t$	$F_g.A.K_t$	$F_g.A.R_t$	$Sl.B.P_t$	$Sl.B.K_t$	$Sl.B.R_t$	$F_c.C.P_t$	$F_c.C.K_t$	$F_c.C.R_t$	Bio-data survey

Legend

(1)

P_t - Pretest

K_t - Knowledge test

R_t - Retention test

(2)

C - Lecture alone

F_g - Flannel graph

F_c - Flash card

S_l - Slides

(3)

A - Sub topic 'a' (Balanced diet)

B - Sub topic 'b' (Deficiency diseases)

C - Sub topic 'c' (Environmental hygien

X - Sub topic 'd' (Dysentary - Reasons / Remedies

APPENDIX II (Continued)

ക്രമനം ബർ :

പേര് :

തീയതി :

ചോദ്യാവലി

വിഷയം : (ബി) നൃനപോഷണരോഗങ്ങൾ

താഴെകൊടുത്തിരിക്കുന പ്രസ്താവനകൾ ശരിയോ, തെറ്റോ എന്ന് രേഖപ്പെടുത്തുക

1. ഏതാണ്ട് ഇരുപത്തിരണ്ടിലേറെ ജീവകങ്ങൾ നമ്മുടെ ശരീരത്തിനാവശ്യമുണ്ട്.
2. ജീവകങ്ങളുടെയും ധാതുലവണങ്ങളുടെയും കുറവുമൂലം നൃനപോഷണരോഗങ്ങൾ ഉണ്ടാകുന്നു.
3. നമ്മുടെ തൊലിയ്ക്ക് ഒരു ജീവകവും നിർമ്മിക്കാൻ കഴിവില്ല.
4. കുടികളിലും, ഗർഭിണികളിലും നൃനപോഷണരോഗങ്ങൾ കൂടുതൽ കാണുന്നു.
5. ജീവകം എ യുടെ കുറവുമൂലം കാഴ്ചശക്തി കുറയുന്നു.
6. പപ്പായയിൽ ധാരാളം ജീവകം എ ഉണ്ട്.
7. കാരറ് കഴിയ്ക്കുന്നത് കാഴ്ചശക്തിയ്ക്ക് നല്ലതാണ്.
8. മുരിങ്ങയില, കറിവേപ്പില എന്നിവയിൽ ജീവകം എ അടങ്ങിയിട്ടില്ല.
9. ഉലകറികളിൽ ധാരാളമുള്ളത് ജീവകം സി ആണ്.
10. ജീവകം 'എ' യും 'ഡി' യും അടങ്ങിയ ഗുളികകൾ ലഭിക്കും.

11. പിള്ളവാതം, സന്നിപാതജ്വരം എന്നീരോഗങ്ങൾ അശുദ്ധ ജലത്തിൽകൂടി പകരുന്നു.

12. മഞ്ഞപിത്തം വെള്ളത്തിൽകൂടി പകരില്ല.

13. ക്ഷയം, ടൈഫോയ്ഡ് തുടങ്ങിയ രോഗങ്ങളും, പരിസരശുചിത്വവുമായി ബന്ധമൊന്നുമില്ല.

14. കക്കൂസുപയോഗിക്കുന്നത് പരിസരശുചിത്വത്തിന്റെ ഭാഗമാണ്.

15. കക്കൂസും, കിണറും തമ്മിൽ കുറഞ്ഞത് അടി അകലമെങ്കിലും വേണം.

16. വിരശല്യമുള്ള കുടികൾ മൺതുനിഞ്ഞാൻ ശ്രമിക്കും.

17. വളം കടിക്കുന്നതിന് കാരണം നാടവിരയാണ്.

18. പാദരക്ഷ ഉപയോഗിച്ചാൽ കൊക്കോപ്പുഴുശല്യം തടയാം.

19. കൊക്കോപ്പുഴു മനുഷ്യന്റെ ചെറുകുടലിൽ ജീവിക്കുന്നു.

20. കൊക്കോപ്പുഴുവിന് കൊളുത്തുകളില്ല.

21. നഖം വളർത്തുന്നവരിൽ കൃമിശല്യം കൂടുന്നു.

22. ദേഹം ചൊറിഞ്ഞുതടിക്കുന്നത് വിരശല്യത്തിന്റെ ലക്ഷണമല്ല.

23. വലവീക്കമുള്ളവരുടെ വസ്ത്രങ്ങൾ കുളത്തിന്റെ വെള്ളത്തിൽ കഴുകണം.

24. ഫാക്ടറികളിൽനിന്നുയരുന്ന പുക ആരോഗ്യത്തെ ബാധിക്കുന്നു.

25. മോട്ടോർ വാഹനങ്ങളുടെ പുക ആരോഗ്യത്തെബാധിക്കയില്ല.

APPENDIX II

OBJECTIVE TYPE KNOWLEDGE TEST ON SUB-TOPICS

ക്രമനം ബർ :

പേര് :

തിയതി :

ചോദ്യാവലി

വിഷയം : (എ) സമീകൃതാഹാരം

താഴെകൊടുത്തിരിക്കുന്ന പ്രസ്താവനകൾ ശരിയോ തെറ്റോ എന്ന് രേഖപ്പെടുത്തുക

1. ജോലിചെയ്യാൻ ശരീരത്തിൽ ഊർജ്ജമുണ്ടാകണം.
2. ഏതുതരം ആഹാരം കഴിച്ചാലും ശരീരത്തിന് വേണ്ടത്ര ഊർജ്ജം നിർമ്മിക്കപ്പെടും.
3. സമീകൃതാഹാരത്തിൽ എല്ലാപോഷക ഘടകങ്ങളും വേണ്ടത്ര അളവിലുണ്ട്.
4. സമീകൃതാഹാരത്തിന് ചെലവ് കൂടും.
5. കടലോരപ്രദേശത്തുള്ളവർക്ക് സമീകൃതാഹാരം ഉണ്ടാക്കാനാവില്ല.
6. കഠിനാദ്ധ്വാനം ചെയ്യുന്ന ആളിന് കൂടുതൽ ഊർജ്ജം നല്കുന്ന സമീകൃതാഹാരം വേണം.
7. ആദ്ധ്വാനിച്ചാലും ഇല്ലെങ്കിലും ആഹാരം ഒരേഅളവിൽ കഴിക്കണം.
8. സ്ത്രീയും പുരുഷനും കഴിക്കേണ്ട ആഹാരത്തിന്റെ അളവിൽ വ്യത്യാസമില്ല.
9. ശരീരത്തിന്റെ ഘടനയ്ക്കും വളർച്ചയ്ക്കും മാംസ്യം ആവശ്യമാണ്.

10. പാൽ, മീൻ, ഇറച്ചി എന്നിവയിൽ ധാരാളം മാംസ്യമുണ്ട്.

11. മൽസ്യത്തിൽ മാംസ്യത്തിന് പുറമെ ചില ജീവകങ്ങളുണ്ട്.

12. ദിവസവും കപ്പയും മീനും കഴിക്കുന്നതാണ് ഏറ്റവും നല്ലത്.

13. മൽസ്യത്തിനും ഇറച്ചിക്കും പകരം പച്ചറുവർഗ്ഗം കൂടുതൽ കഴിച്ചാൽ മതിയാകും.

14. പഞ്ചസാരയും ശർക്കരയും കൂടുതൽ ഊർജ്ജമുണ്ടാകാനുള്ള ആഹാരസാധനങ്ങളാണ്.

15. ശരീരവളർച്ചയ്ക്ക് മാംസ്യം വേണമെന്നില്ല.

16. ആരോഗ്യമുള്ള രക്തമുണ്ടാവാൻ ഇരുമ്പ് അത്യാവശ്യമാണ്.

17. ഇരുമ്പിന്റെ അളവ് കുറയും പോൾ വിളർച്ചയുണ്ടാകുന്നു.

18. ദിവസവും മീനും കഴിക്കുന്നവർ പച്ചക്കറികൾ ഉപയോഗിക്കേണ്ടതില്ല.

19. മൽസ്യത്തിൽ ജീവകങ്ങൾ ധാരാളമുണ്ട്.

20. പച്ചക്കറികളിലും, പഴങ്ങളിലും ജീവകങ്ങൾ ധാരാളമുണ്ട്.

21. പച്ചക്കറികൾ വേകിക്കും പോൾ ചെറുതായി കൊത്തിയിരിക്കണം.

22. ജീവകങ്ങൾ ക്രമാതീതമായി കുറഞ്ഞാൽ നൂനപോഷണ രോഗങ്ങളുണ്ടാകും.

23. ചോറിൽനിന്നും കിടുന്ന ഊർജ്ജം പയറിൽനിന്നും കിടില്ല.

24. പാലിനെക്കാൾ നല്ലത് കാപ്പിയോ, ചായയോ ആണ്.

25. പപ്പായ, കാരറ്റ്, മത്തൻ എന്നിവ കഴിച്ചാൽ കാഴ്ചശക്തികൂടുന്നു.

APPENDIX II (Continued)

ക്രമനം ബർ :

പേര് :

തീയതി :

ചോദ്യാവലി

വിഷയം : (ശീ) വയറിളക്കം - കാരണവും പ്രതിവിധിയും.

താഴെകൊടുത്തിരിക്കുന്ന പ്രസ്താവനകൾ ശരിയോ, തെറ്റോ എന്ന് രേഖപ്പെടുത്തുക.

1. വയറിളക്കം യഥാസമയം നിയന്ത്രിച്ചില്ലെങ്കിൽ മരണം വരെ സംഭവിക്കാം.
2. വയറിളക്കമുണ്ടാകും പോൾ ശരീരത്തിൽനിന്നും ജലവും ലവണവും നഷ്ടപ്പെടുന്നു.
3. വയറിളക്ക മുള്ളപ്പോൾ അധികം വെള്ളം കുടിക്കാൻ പാടില്ല.
4. വയറിളക്കമുള്ളപ്പോൾ പ്രത്യേക രീതിയിലുള്ള കഞ്ഞി ഉപയോഗിക്കണം.
5. വയറിളക്കമുള്ളപ്പോൾ ആഹാരം കഴിക്കരുത്.
6. കോളറ രോഗിക്ക് നാരങ്ങാവെള്ളം കൊടുക്കാൻ പാടില്ല.
7. കടുപ്പം കുറഞ്ഞ ചായ വെള്ളവും, കരിക്കിൻവെള്ളവും വയറിളക്കമുള്ളപ്പോൾ കുടിക്കണം.
8. കോളറ ഗുരുതരമായാൽ രോഗിയുടെ കണ്ണുകൾ കുഴിഞ്ഞ വരണ്ടിരിക്കും.
9. കോളറ രോഗിക്ക് പനി അതിരെ ഉണ്ടായിരിക്കില്ല.
10. കോളറ ബാധിച്ച കുടിയുടെനിറുക പൊങ്ങിവിർത്തിരിക്കും.

11. കണ്ണിൽ വെള്ള കുത്തുകൾ കാണുന്നത് ജീവകം സി കുറയും പോഴാണ്.

12. 'ബെറി - ബെറി' ഉണ്ടാവുന്നത് ജീവകം സി കുറയും പോഴാണ്.

13. എല്ലാ ജീവകങ്ങളും വെള്ളത്തിൽ ലയിക്കുന്നു.

14. ജീവകം 'എ' യും 'സി' യും മാത്രമാണ് വെള്ളത്തിൽ ലയിക്കുന്നവ.

15. മുലപ്പാലിൽ ജീവകം സി അടങ്ങിയിടില്ല.

16. പശുവിൻപാൽ തിളപ്പിക്കും പോൾ അതിലെ ജീവകം സി നഷ്ടപ്പെടുന്നു.

17. ഇരുമ്പിന്റെ കുറവ്മൂലം എല്ലുകൾക്ക് വളവുണ്ടാകുന്നു.

18. ഇരുമ്പുപാത്രത്തിൽ പാചകം ചെയ്യുന്നതിലൂടെ ശരീരത്തിന് ധാരാളം ഇരുമ്പ് ലഭിക്കും.

19. ജീവകം ഡി യുടെ അഭാവത്തിൽ എല്ലുകൾ വളയുന്നു.

20. ജീവകം സി കുറയും പോൾ സ്കർവി ഉണ്ടാകുന്നു.

21. ധാന്യങ്ങളുടെ തവിട് മാറേണ്ടത് അത്യാവശ്യമാണ്.

22. വിളർച്ച ബാധിച്ചവരുടെ നഖം പരന്നോ കരണ്ടിയുടെ ആകൃതിയിലോ കാണപ്പെടുന്നു.

23. ജീവകം കെ കുറയും പോൾ തൊണ്ടമുഴ ഉണ്ടാവുന്നു.

24. 'പെല്ലാഗ്ര' എന്ന രോഗം വന്നാൽ ശരീരത്തിലെ തൊലി വരണ്ട് ചെമ്പൻ പലുകൾ പോലെ കാണപ്പെടുന്നു.

25. കിഴ് ചുണ്ടു വെടിച്ച കീടുന്നവർ പല്ലർകഴിക്കാൻ പാടില്ല.

APPENDIX II (Continued)

ക്രമനം ബർ :

പേര് :

തിയതി :

ചോദ്യാവലി

വിഷയം : (സി) പരിസര ശുചിത്വം

താഴെകൊടുത്തിരിക്കുന്ന പ്രസ്താവനകൾ ശരിയോ, തെറ്റോ എന്ന് രേഖപ്പെടുത്തുക.

1. പരിസര ശുചിത്വം എന്നത് മണ്ണിന്റെയും, ജലത്തിന്റെയും മാത്രം ശുചിത്വമാണ്.
2. കേരളം ഒരു ഉഷ്ണമേഖലാ പ്രദേശമാണ്.
3. ഉഷ്ണമേഖലാപ്രദേശങ്ങളിൽ വിരശലും കുറവാണ്.
4. പരിസരം വൃത്തിയായി സൂക്ഷിച്ചാൽ വിരശല്യവും കോളറ തുടങ്ങിയ രോഗങ്ങളും ഉണ്ടാവില്ല.
5. കിണർജലം താരതമ്യേന ശുദ്ധമാണ്.
6. എല്ലാമാസവും കിണർ വറ്റിക്കുന്നതാണ് നല്ലത്.
7. കിണറിൽ ബ്ലീച്ചിംഗ് പൗഡർ ഇട്ടാൽ ഒരുമാസത്തേക്ക് ആ വെള്ളം കുടിക്കാൻ പാടില്ല.
8. കിണറിൽനിന്ന് കുളിക്കാൻ പാടില്ല.
9. കിണറുവെള്ളം ശുദ്ധീകരിയ്ക്കാൻ പൊട്ടാസ്യം പെർമാംഗനേറ്റ് ഉപയോഗിക്കുന്നു.
10. കിണറുവെള്ളം ശുദ്ധീകരിയ്ക്കാതെ കുടിക്കാം.

11. വയറിളക്കമുണ്ടാകും പോൾ നാവ് ഉണങ്ങിവരണ്ടിരിക്കും.

12. വയറിളക്ക മുണ്ടായാൽ ജീവരക്ഷിയ്ക്കുള്ള പ്രത്യേ പാനീയം നല്കണം.

13. ജീവരക്ഷയ്ക്കുള്ള പ്രത്യേക പാനീയം വീടിൽ തയ്യാറാക്കാൻ പറ്റില്ല.

14. ഈ പ്രത്യേ പാനീയത്തിന് കണ്ണുനീരിനേക്കാൾ ഉപ്പുരസം വേണം.

15. തിളപ്പിച്ച വെള്ളമാണ് ഏറ്റവും ശുചിയായ വെള്ളം.

16. ഓരോതവണ വയറിളകും പോഴും മൂന്നു ഗ്ലാസ്സ പാനീയം കുടിക്കണം.

17. പ്രത്യേക പാനീയം കുടിക്കും തോറും വയറിളക്കം കുറയുന്നു.

18. വയറിളക്കമുള്ള കുട്ടിയ്ക്ക് മുലപ്പാൽ കൊടുക്കരുത്.

19. വയറിളക്കമുള്ള കുടിയ്ക്ക് ചോറ് തൈര് ചേർത്ത് കൊടുക്കാൻ പാടില്ല.

20. വയറിളക്കത്തിന് കാരണം ചില സൂക്ഷ്മാണുക്കളാണ്.

21. ഈച്ച, പൊടി, മലിനജലം, മലം എന്നിവയിൽ ഈ അണുക്കൾ കാണുന്നു.

22. ഈച്ചകളാണ് വയറിളക്കം പരത്തുന്നത്.

23. മൈലാഞ്ചി കഷിണിച്ച കുടികൾ വയറിളക്കത്തെ ചെറുത്തു നില്ക്കുന്നു.

24. വയറിളക്കം ഒരുപരിധിവരെ തടയാം - മലവിസർജ്ജനത്തിന് കക്കൂസ് ഉപയോഗിച്ചാൽ.

25. ശുചിത്വം പാലിച്ചാൽ വയറിളക്കം പൂർണ്ണമായും തടയാം.

APPENDIX III

INTERVIEW SCHEDULE FOR THE STUDY

Sl.No.

Date:

Name of Village ::

I. a. Name ::

b. Age (in completed yrs.) ::

II. Total number of members in the family ::

III. Average annual income of the family ::

IV. Type of house :: a. Shed thatched

b. Mud wall & thatched

c. Brick wall and thatched

d. Brick wall and tiled.

V. Exposure to information sources:

Sources	Frequency		
	Regular (Daily)	Occassional (Once in a week)	Never
A. Impersonal sources:			
1. Radio			
2. Newspaper			
3. Printed material			
B. Formal personal sources:			
1. V.L.W./Agril.Demonstrator.			
2. Fisheries Officer			
3. B.D.O/Agril.Officer			

Sources	Frequency		
	Regular (Daily)	Occassional (Once in a week)	Never

C. Informal/ personal sources:

1. Family members
2. Friends/ Relatives
3. Neighbours/ fellow fishermen

VI. Socio-political participation:

1. Without any official position in socio-political organisation ::
2. Official position in one or more organisation/institution ::
3. Official position in social and political committee/ bodies ::
4. Financial contribution or raising fund for common work ::
5. Active office bearer ::
6. Involvement in community work ::

VII. Cosmopoliteness:

Statements	SA	A	UD	DA	SDA
1.A fisherman can learn everything from the experiences of his own village.					
2.A man can escape numerous troubles and worries if he consults friends and neighbours.					
3.A fisherman can fulfil all his needs with the help of his village folks.					
4.Many things a fisherman ought to know are his village, but are alike in other villages.					
5.These days when communication has so much advanced, a fisherman should know more outside life.					
6.He who doesn't consult other can act better.					

APPENDIX IV

CORRELATION MATRIX OF VARIABLES

	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7	Y_8	X_1	X_2	X_3	X_4	X_5	X_6
0000													
0503	1.0000												
2161*	0.1088	1.0000											
.2034	0.2643*	0.3985**	1.0000										
.7505*	0.0837	0.2779**	0.2972**	1.0000									
.2490*	0.6140**	0.2007	0.3452**	0.2939**	1.0000								
.2293*	0.2240*	0.8871**	0.4574**	0.3415**	0.3225**	1.0000							
.2767**	0.2225*	0.3801**	0.8002**	0.4100**	0.3050**	0.4576**	1.0000						
.2520*	-0.3884**	-0.5254**	-0.6004**	-0.3355**	-0.3477**	-0.6232**	-0.6154**	1.0000					
.2742**	-0.3427**	-0.4143**	-0.5446**	-0.3455**	-0.2869**	-0.4958**	-0.5276**	0.8804**	1.0000				
.2761**	-0.2047	-0.2454*	-0.3915**	-0.2895**	-0.2093*	-0.3439**	-0.3879**	0.7376**	0.7915**	1.0000			
.1703	0.2039	0.2316*	0.2491*	0.0769	0.0383	0.2183*	0.2472*	-0.3874**	-0.3051**	-0.2088*	1.0000		
.0339	-0.1170	0.1716	-0.0366	0.1237	-0.0523	0.1121	-0.1076	0.0471	0.0908	0.1675	0.0582	1.0000	
.1285	0.3235**	0.5023**	0.4364**	0.1731	0.1954	0.5471**	0.4688**	-0.7080**	-0.6222**	0.4998**	0.3536**	-0.0649	1.0000

* Significant at 5 per cent level.
** Significant at 1 per cent level.

AN EXPERIMENTAL STUDY ON THE RELATIVE EFFECTIVENESS OF SELECTED VISUAL AIDS IN TEACHING NEO-LITERATES

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ABSTRACT

In order to assess the relative effectiveness of selected visual aids in teaching neo-literates, an experimental study was carried out in Kottukal Panchayath of Trivandrum district, Kerala State. Three selected visual aids, viz., slides, flash cards and flannel graph, were tested for their effectiveness along with lecture method on a sample of 90 neo-literate fishermen. Gain in knowledge and its retention were the dependent variables. Age, family size, average annual income, exposure to information sources, socio-political participation and cosmopoliteness were studied as the independent variables.

Results revealed that slide was the most effective visual aid in terms of gain in knowledge whereas flash cards contributed maximum to retention of knowledge when used in combination with lecture method.

The analysis of correlation coefficients revealed that age and family size were significant but negatively correlated with both gain in knowledge and its retention, in the case of all the four treatments. Similarly, average annual income of the respondents was significantly and negatively correlated with the gain in knowledge in the case of T_0, T_2 and T_3. For T_1 the correlation was negative but not significant. In the case of retention of knowledge, the

average annual income was negatively and significantly correlated for all the four treatments. The retentionship of exposure to information sources of the respondents with gain in knowledge as well as with its retention was positive in the case of all the four treatments but significant only for T_2 and T_3. There was no significant relationship between the dependent variables and the socio-political participation of the neo-literates. The cosmopoliteness of respondents had significant and positive correlation with the gain in knowledge when the three selected visual aids were used along with lecture method. Significant, positive relationship was found between the cosmopoliteness and retention of knowledge when flash cards and flannel graphs were used along with the lecture method.

The regression analysis revealed that out of the six independent variables, only two variables, viz., age and cosmopoliteness were significant in predicting the variation in gain in knowledge of neo-literates when flash cards and flannel graph were used along with lecture. But in the case of retention of knowledge, only one independent variable, viz., age was significant in explaining the variation when flash cards as well as flannel graph were used along with the lecture method.