

# Study on Gain in Knowledge through Different Combination of Teaching Methods and their Association with Selected Socio-economic Factors

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## Authors' contributions

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## ABSTRACT

The present study was conducted by Krishi Vigyan Kendra, Chatra for two years i.e. 2018-19 & 2019-20 to find out the effectiveness of the different combinations of teaching tools on knowledge gain by vegetable growers farmers of the district. Farmers trained through a combination of teaching method i.e. group meeting + lecture + exposure visit (TO<sub>3</sub>) gained higher level of knowledge score (70%) followed by a medium level of knowledge score (30%). Positive and significant relationship had been observed between the knowledge gain and annual income of the respondent's group who received training through group meeting + lecture + exposure visit. Respondent education and gain in knowledge by lecture method, lecture + exposure visit, and group meeting + lecture + exposure visit had positive and significant association.

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## 1. INTRODUCTION

The everyday application of agricultural technologies knowledge lags behind the pace of scientific advance in its field. As a result, a significant proportion of farmers in India does not enjoy the scientific improvement in the field of agriculture, which is potentially attainable. Scientific agriculture education appears one of the most promising means to close this gap, learning will be effective if more than one sense is stimulated. Hence careful selection of teaching methods is the first and foremost step for effective education [1].

A teaching method comprises principles and methods used by teachers to enable student learning. These strategies are determined partly on the subject matter to be taught and partly by the nature of the learner. For a particular teaching method to be appropriate and efficient it has to be about the characteristic of the learner and the type of learning it is supposed to bring about for designing and selected of teaching methods must take into account not only the nature of the subject matter but also how students learn.

Social psychologists have confirmed that age, education, income, motives, and belief of an individual can modify or sometimes completely distort the meaning of a given message, Response of an individual can't be accounted for without reference to his/her social world [1]. Thus the present study aimed to study the effect on the gain in knowledge, change in attitude and skill through selected combination of teaching methods and their correlation of different socio-economic variables of farmers of Chatra district in Jharkhand.

## 2. RESEARCH METHODOLOGIES

In the present study three types of teaching methodologies were planned and adopted as treatments viz. first group (TO<sub>1</sub>: only Lecture); second group (TO<sub>2</sub>: Lecture + Exposure visit); and third group (TO<sub>3</sub>: meeting + Lecture + Exposure visit) and each group were administered separately to a purposively set objective of study. Each selected group consists of 40 farmers i.e. a total of 120 farmers were selected as participants' respondents during the study. The participants were literates, > 30 years of age, and readiness to extend cooperation

were the main criteria used for selection of respondents. Before and after (without a control group) treatment imposition was the experimental design used for assessment of learners skill with subject matter of "Improved production technologies of cauliflower".

### 2.1 Method of Scoring

To test the knowledge level of the respondent two different types of question set were prepared one for pre and other for the post imposition for each study group. The pre question was same for every group and different question sets were for the different group. Respondents were briefed about the purpose of the study and time allotted to answer the test questions and adopted fair practices during the test. Respondents were asked to reply each and every question included in the knowledge test. Each correct answer assigned 1(one) marks and zero marks for incorrect or no answer during examine questions. Knowledge test comprises of 21 questions and thus, the maximum obtainable knowledge score was 21. The raw knowledge scores were expressed in terms of percentage. The percentage knowledge scores of the respondents were calculated using the below mentioned formulae:

$$\text{Knowledge (\%)} = \frac{\text{No. of correct answers}}{\text{Total no of questions}} \times 100$$

The respondents were further classified into four groups, i.e., obtaining percentage score from 1 to 30; 30 to 60; 60 and above. The question was prepared in the regional language by the experts of the subject covering entire package of practices about the cauliflower. A simple teacher was assigned to conduct the test and examine the question paper with answer keys after each test for the group. A day before imposition of the treatment the test was conducted and the second test was immediately after the treatment imposition. The difference in the knowledge score of the respondents between pretest and immediate post test was quantified as "gain in knowledge". The data on socio-economic variables of respondents were collected by a well-structured interview schedule. The collected data correlation coefficient was calculated to determine the nature of the relationship between the socio-economic variable and gain in knowledge.

### 3. RESULTS

To assess the effect on cauliflower cultivation by grower knowledge (respondents) conducted standard test at the three periods of interval i.e. pre-training, immediately after training (Post-training) and after harvesting of crops. A score of one was given for each correct answer and no score for incorrect or unattempt and thus total score gained by the respondents were classified as high (60% and above) medium 30% to 60%, and low (0% to 30%) level of knowledge.

#### 3.1 Pre Training Knowledge

Level of knowledge score about the Off-season cauliflower cultivation technologies among the respondent were conducted by the KrishiVigyan Kendra before participation in a training programme using a different combination of the teaching method. Results of pretest conducted for different group viz. TO<sub>1</sub>, TO<sub>2</sub> and TO<sub>3</sub> indicated that majority of the farmers possessed low level of knowledge with their corresponding values (90%), (85%) and (92.5%), respectively; few in medium level with values (10%), (15%) and (7.5%) respectively, and none of the farmers obtained a high level (Table 1).

#### 3.2 Post Training Knowledge

Results from Table 2 clearly revealed that change in the knowledge level had been

observed among respondents and 70% gain in knowledge level was recorded in combination of different teaching methodology i.e. TO<sub>3</sub>: group meeting + lecture + exposure visit followed by a medium level of the knowledge level of the score (30%) while none of the farmers obtained the lower level of knowledge score related to off-season cauliflower technologies. Change in level of knowledge among respondents happened due to formulation of required training course content after discussion with farmers during group meeting and on the other hand whatever farmers learnt in the classroom were visualized and acquired knowledge through method demonstration in actual farm field condition during exposure visit on the concept of learning by doing it. In TO<sub>2</sub>: (Lecture + exposure visit) group farmers only 25% respondents had a high level of knowledge score and 70% had medium level of knowledge and only 5% respondents falls under the lower level of knowledge score whereas, in lecture method (TO<sub>1</sub>) 85% of the farmers obtained the medium level of knowledge and none of the respondents obtained a high level of knowledge score. It has happened because when trainer imparts training only through lecture method farmers do not concentrate for long time on the topic and also missed practical aspect of the topic. These findings are in accordance with the finding of Pandey et al. [2] observed in vocational training on value addition in knowledge and adoption of rural women.

**Table 1. Pre training knowledge score of respondents (N=120)**

Knowledge level	TO <sub>1</sub> : only Lecture (N=40)		TO <sub>2</sub> : Lecture + Exposure visit (N=40)		TO <sub>3</sub> : Group meeting + Lecture + Exposure visit N=40	
	N	P	N	P	N	P
Low level (0% to 30%)	36	90	34	85	37	92.5
Medium level (30% to 60%)	4	10	6	15	3	7.5
High level (60 % and above)	-	-	-	-	-	-

\*N=Number of farmers; P= Percentage of Farmers

**Table 2. Post training knowledge score of respondents N=120**

Knowledge level	TO <sub>1</sub> : only Lecture (N=40)		TO <sub>2</sub> : Lecture +Exposure visit (N=40)		TO <sub>3</sub> : Group meeting + Lecture + Exposure visit N=40	
	N	P	N	P	N	P
Low level (0% to 30%)	6	15	2	5	-	-
Medium level (30% to 60%)	34	85	28	70	12	30
High level (60 % and above)	-	-	10	25	28	70

### 3.3 Relationship between the Gain in Knowledge with Selected Socio-Economic Variables of the Respondents

**Table 3. Relation between gain in knowledge and selected socio economic variables through different combination of teaching tools**

S.No.	Knowledge level	TO <sub>1</sub> : only Lecture (N=40)	TO <sub>2</sub> : Lecture + Exposure visit (N=40)	TO <sub>3</sub> : Group meeting + Lecture + Exposure visit N=40
01	Aspiration	0.1924	0.2044	0.3724*
02	Age	-0.0462	0.3241	-0.3771*
03	Respondent education	0.6806**	0.4203*	0.5049**
04	Land holding	0.2433	- 0.1695	0.3464*
05	Annual Income	0.2478	- 0.0478	0.4334*
06	Extension Contact	0.2936	0.1953	0.4074
07	Extension Participation	0.6446	0.4511*	0.6133
08	Mass media participation	0.3035	0.3247	0.4144

\*Significant at 5% level \*\* Significant at 1% level

It is clear from Table 3 that the aspiration level of respondents associated significantly with knowledge gain in TO<sub>3</sub>(Group meeting + Lecture + Exposure visit) did not associate with TO<sub>1</sub> (lecture only) and TO<sub>2</sub> (lecture + exposure visit). The combination implies the interaction of young, literate and highly interactive category of respondents who were assumed to be high aspirers. Biradar et al. [3] also reported that less associates in knowledge level and aspiration level among only lecture and lecture + exposure visit.

The variable age had significantly negative association with the knowledge gain by group meeting + lecture + exposure visit. It might be possible that the young group had reacted better during the discussion in a group meeting for formulation of course content after being encouraged by fascinating in lecture and exposure visit. The interest created by the exposure visit might have acted as a positive stake to participate actively in discussion to gain more knowledge. The present findings are in agreement with the finding of Kumar et al. [4].

Respondent education and gain in knowledge by lecture method, lecture + exposure visit, and group meeting + lecture + exposure visit had positive and significant association. A similar finding was also reported by Reddy [5] and Manchanda and Hansra [6] who observed positive relationship between knowledge gain by teaching methods and respondents' education.

Positive and significant relationship had been observed between the knowledge gain and annual income of the respondent's group who

received training through group meeting + lecture + exposure visit. This might be due to high-income group respondent were actively involved in discussion by expert and acquire more knowledge through lecture and visualized thing through exposure visit on the other hand for poor and ignorant respondents exposure visit became a source of entertainment rather than an avenue of knowledge gain.

A positive and significant relationship between the knowledge gain by group meeting + lecture + exposure visit and extension contact was an appreciable outcome. This combination provided more opportunity for interpersonal interaction as compared to other methods. The person having a high level of extension contact might be benefited from this interpersonal communication. Murthy [7] also reported a positive relation between extension contact and knowledge gain by selected teaching methods.

Extension participation and knowledge gain by group meeting + lecture + exposure visit had positive and significant relation. The findings could be attributed to the combination that was in vogue and that the trainers were not commonly used to the combination like group meeting + lecture + exposure visit as were introduced by the researcher. Reddy [5] and Murthy [7] also reported a significant relation of knowledge gain by extension methods and combination with extension participation [8,9].

#### 4. CONCLUSION

The study showed that through group meetings + lecture + exposure visit a combination of

teaching tools trained respondents to acquire more knowledge compared to other combinations. Generally extension agencies which are involved in the transfer of technologies among farmers use the only single method on different farmers and the participants do not acquire more knowledge. Based on the above finding it was suggested that extension agencies should use this combination i.e. group meeting for finalization of training course content + lecture using LCD projected with appropriate photograph and diagram+exposure visit so that farmers what they learn in the classroom they can be visualized in a farmer's field on the concept of seeing is believing.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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