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ASSESSING THE EFFECTIVENESS OF PAMETI TRAININGS ON EXTENSION PERSONNEL'S KNOWLEDGE IN PUNJAB STATE

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ABSTRACT

The current study named "Assessing the Effectiveness of PAMETI Trainings on Extension Personnel's Knowledge in Punjab State" was performed with the objective to find the knowledge level of extension personnel who attended training programmes. The Study was conducted in Punjab Agricultural Management and Extension Training Institute (PAMETI), Ludhiana, Punjab. The sample consists of trainees from various competency development training programmes organised by PAMETI in 2017–2018. In total 5 trainings on communication skill, crop residue management, fertilizer quality control, ICT and human research development and 24 trainees from each training were selected by purposive and random sampling respectively. Total 120 trainees from PAMETI were taken for the study. With the assistance of a specifically created interview schedule, the data was directly gathered from the trainees. Most of the trainees had high level of knowledge in communication skill (41.67%) and fertilizer quality control (45.84%),whereas the trainees attaining training in crop residue management (54.17%), human resource development (45.84%) and information and communication technology (45.83%) had moderate level of knowledge. The training programmes conducted by PAMETI created significant differences in knowledge in case of communication skill, crop residue management, fertilizer quality control, human resource development, and information and communication technology between trainees and non-trainees.

Keywords : *extension personnel, ICT, knowledge, PAMETI, trainings*

INTRODUCTION

Agriculture, being the largest economic sector in terms of population involvement, significantly contributes to India's socio-economic well-being. Amidst a swiftly evolving global landscape, agricultural extension has garnered recognition as a crucial mechanism for delivering current knowledge and information, thereby bolstering contemporary farming practices. Extension organizations are concerned with identifying appropriate methods and approaches to disseminate agricultural information to farmers effectively (Kishor et al., 2022). The importance of information and knowledge as crucial production factors has grown, particularly as the agricultural sector faces environmental changes (Babu et al., 2021). Researchers and farmers are directly connected through agricultural extensionists who necessitate their access to updated agricultural information to fulfil their roles effectively and efficiently. However, challenges such as lack of knowledge, awareness, and attitude among extension personnel hinder their access to updated information (Nagam & Husain, 2016). The dynamic nature of technology requires extension professionals to continually enhance their knowledge and skills (Trede & Whitaker, 2000). A person's collection of comprehended information is referred to a s their knowledge (Bhatt & Patel, 2009). The success of extension programs relies heavily on extension personnel's' ability to achieve the necessary competencies and transfer knowledge, skills, and technologies effectively to its clients (Lakai et al., 2014). Insufficient access to timely and relevant information often hampers program progress, leading to a variety of knowledge gaps among extension personnel, including cognitive, attitudinal, perceptual, and institutional factors. These knowledge gaps can ultimately impede program implementation (Vijayan et al., 2022). Therefore, it is crucial to evaluate the knowledge of extension personnel, who provide a crucial contribution in the program's execution (Vijayan et al., 2023).

Effective training empowers extension workers to not only understand the intricate relationships between various agricultural processes but also to effectively communicate this knowledge to farmers in a relatable and understandable manner (Swanson & Rajalahti 2010). Moreover, De Tienne et al. (2008) emphasized that training

programmes can serve as platforms for networking and knowledge-sharing among extension personnel, thereby fostering a collaborative environment that enhances the overall effectiveness of extension services. Therefore, each state approved operating a single SAMETI to improve the skill of extension staff. In the case of Punjab, it is referred to as PAMETI. For the purpose of improving the knowledge, attitude, and abilities of extension workers PAMETI offers a variety of training programmes (Haneef et al., 2020; Patil et al., 2024; Das et al., 2022; Yeragorla et al., 2023). It holds need based capacity-building programmes on a regular basis identified by extension personnel during the planning workshop (Thangjam et al., 2017). While numerous studies have explored the impact of training on farmers' adoption of new practices, only a limited number have homed in on the actual changes in the knowledge levels of the intermediaries delivering the information – the extension workers themselves. However, no systematic efforts are available to quantify the knowledge level of the extension functionaries especially who attended training in PAMETI for extension personnel. This research paper seeks to bridge this gap by conducting a comprehensive study with a specific objective to measure the knowledge level of extension personnel after specific training programmes.

OBJECTIVE

To measure the knowledge level of extension personnel after specific training programmes.

METHODOLOGY

This research employed the Ex-post facto design, commonly known as after-the-fact research (Kerlinger, 1964). The participants were chosen using a combination of purposive and random sampling methods. The study focused on trainees who had taken part in various competency development training programs organized by PAMETI between 2017 and 2018. From the roster provided by PAMETI, a random subset was drawn, specifically targeting five distinct training programs that were purposively selected. Ultimately, the research gathered data from a total of 120 trainees associated with PAMETI, PAU of Ludhiana to constitute the final dataset. Knowledge level of the extension personnel who attended trainings in PAMETI was assessed with a specifically designed knowledge test. The preliminary knowledge test was given to the non- sampled trainees. Scores of 1 and 0 were assigned for right and wrong responses respectively. The score for each trainees was computed by summation of the scores for each item. The "Discrimination Index" and "Difficulty Index" were calculated separately for each item. The proportion of trainees who correctly answered a specific question is known as the difficulty index. (Ray and Mondal 2014) and calculating the Discrimination Index means the degree to which a particular item discriminates respondents with greater knowledge of the topic from those with less knowledge. Later, point biserial correlation was computed when a dichotomized response to a particular item appears, the internal consistency of the item and its relationship to the overall score are examined. (Kumar et al., 2016).

Those questions that satisfied the following criteria were ultimately chosen for the knowledge test: Difficulty index (DI) value ranges from 30 and 80 (Ray and Mondal 2014), discrimination index ranges from 0.30 and 0.55 (Ray and Mondal 2014), and point bi-serial correlation coefficient significant at five per cent and one per cent level of significance (Garret 1966), however, care was taken to avoid removing any significant elements. Hence, following consultation with experts and thorough discussion in the advisory committee a total of 20 items for Human Resource Development, 22 for Communication skill, 17 for Crop residue management, 16 for Information and Communication Technology and 20 for Fertilizer quality control were retained finally, for the final knowledge test. A z-test was also used to compute significance of difference between two means of trainees and non-trainees of each training where all the trainees who attended the training are considered as experimental group and remaining trainees became the control group.

RESULTS AND DISCUSSION

Knowledge level of the trainees about different aspects of trainings

Data given in Table 1 revealed the knowledge level of the trainees pertaining to various trainings conducted by PAMETI. On the basis of observed knowledge scores for all five trainings, trainees were distinguished as having low knowledge, medium knowledge or high knowledge.

The data presented in table 1 indicated that more than 40.00 per cent of the trainees possessed high level of knowledge regarding communication skill followed by medium level of knowledge (33.33%) and the most (45.84%) of the trainees had high level of knowledge in fertilizer quality control followed by 33.33 per cent having medium level of knowledge . In table 1 it was also clear that more than half (54.17%) of trainees had medium level of knowledge in crop residue management followed by high (25.00%) level of knowledge. Nearly 46.00 % of the trainees possessed medium level of knowledge regarding human resource development followed by 33.33 per cent possessing high level of knowledge whereas most (45.83%) of trainees had medium level of knowledge in Information and communication

technology followed by high (29.17%) level of knowledge .The mean score of knowledge of communication skill, crop residue management, fertilizer quality control, human resource management, information and communication technology were 17.63, 14.38, 12.17, 16.50 and 12.29 respectively.

Table 1 : Distribution of trainees based on knowledge levels towards facets of the training (n=120)

Sr. No.	Parameters	Categories	frequency	Percentage
1	**Communication skill**	Low(14-16)	06	25.00
	Mean score-17.63	Medium(16-18)	08	33.33
	(n =24)	High(18-20)	10	41.67
2	**Crop residue management**	Low(10-12)	05	20.83
	Mean score-14.38	Medium(13-15)	13	54.17
	(n =24)	High(16-18)	06	25.00
3	**Fertilizer quality Control**	Low(8-10)	05	20.83
	Mean score-12.17	Medium(11-13)	08	33.33
	(n =24)	High(14-16)	11	45.84
4	**Human resource development**	Low(13-15)	05	20.83
	Mean score-16.50	Medium(16-18)	11	45.84
	(n =24)	High(19-21)	08	33.33
5	**Information and communication Technology**	Low(8-10)	06	25.00
	Mean score-12.29	Medium(11-13)	11	45.83
	(n =24)	High(14-16)	07	29.17

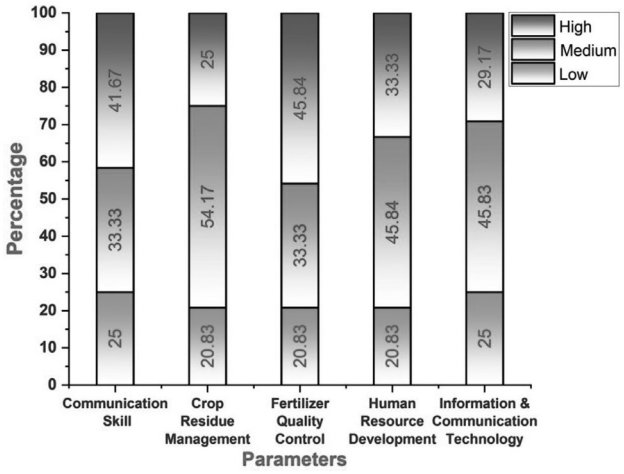

Fig. 1 Distribution of trainees' proportionate to various parameters of the training

It can be concluded that the trainees possess high to medium knowledge in communication skill and fertilizer quality control and medium to high knowledge in rest of the three trainings. These findings are in line with Nagalakshmi & Swamy (2011) where the extension personnel had medium to high knowledge of Information and Communication technology. The results of the study are also supported by Singh et al. (2002) where the extension personnel were perceived to have high knowledge after exposure to the training programme.

Undoubtedly effective communication is a fundamental aspect of an extension worker's role as they need to convey complex agricultural information to diverse audiences, ranging from small-scale farmers to local communities and policymakers. Extension personnel have high communication skills due to the demands of their role, which involves conveying agricultural knowledge, building relationships, customizing information, and facilitating behavior change within farming communities. Their training and on-the-job experience help them develop and refine these critical communication skills. On the other hand, they are entrusted with the role of fertilizer inspectors who are solely responsible for educating the farmers about the importance of using quality fertilizers and how to identify reliable sources of fertilizers through different training sessions, field demonstrations, workshops, etc. We can say extension personnel's high knowledge in fertilizer quality control results from a combination of formal education, job requirements, access to information, hands-on experience, and their role as educators and facilitators of best practices in agriculture. This extensive public engagement, interaction, and activities of fertilizer quality control in practical level naturally contribute to their elevated knowledge levels. Furthermore, the trainings which exposed the trainees a wealth of information, resources and practical experiences related to communication skill and fertilizer quality control enriched their knowledge base to improve their expertise and proficiency compared to those who did not attend this training programme. Conversely, the medium level of knowledge among trainees in crop residue management, human resource development, and ICT

indicates that there is room for improvement in the design and delivery of training programs in these subjects.

Comparative analysis of different aspects of trainings conducted by PAMETI

Test of significance of difference between two means of trainees and non-trainees was computed. Hence z- test was applied, as the sample size was large. All the five knowledge tests were administered to all the trainees and then data were collected from all the trainees of all the training programmes. Those who received the training became the experimental group and all others became the control group.

Table 2 : Comparative analysis of different aspects of trainings between trainees and non-trainees (n=120)

Sr. No.	Parameters	Categories	Mean	Standard Deviation	z-value
1	**Knowledge on Communication skill** (n=24)	Trainee	17.63	1.55	6.18**
		Non-trainees	14.21	2.43	
2	**Knowledgeon CRM** (n=24)	Trainee	14.38	1.76	10.79**
		Non-trainees	9.70	2.03	
3	**Knowledge onFQL** (n=24)	Trainee	12.17	2.27	7.35**
		Non-trainees	9.56	1.75	
4	**Knowledge onHRD** (n=24)	Trainee	16.50	1.72	10.30**
		Non-trainees	12.46	1.58	
5	**Knowledge onICT** (n=24)	Trainee	12.29	1.94	7.518**
		Non-trainees	10.03	1.44	

**-Significant at 0.01level of probability

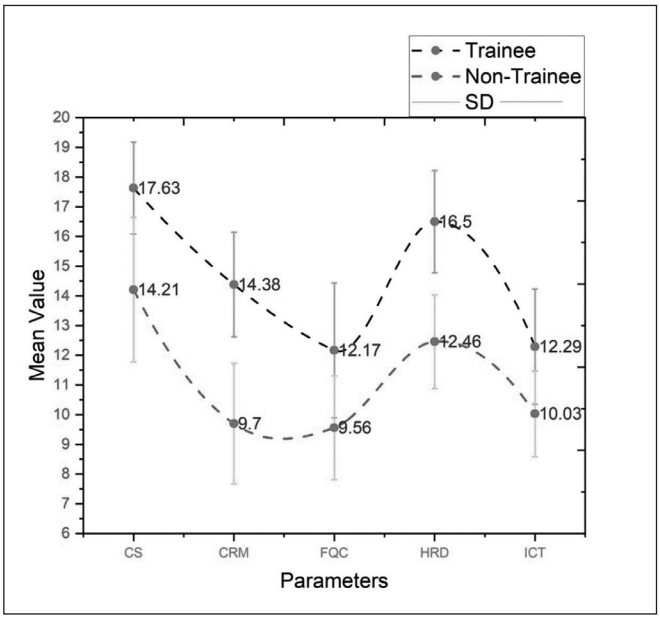

Fig. 2 : Comparative analysis of different aspects of trainings between trainees and non-trainees

Data in Table 2 indicated that the computed value of z for knowledge on communication skill, crop residue management, fertilizer quality control, human resource development and information and communication technology are 6.18, 10.79, 7.35, 10.30 and 7.518, respectively at 0.01 level of probability.

It was deduced that a significant disparity exists in knowledge level of trainees and non-trainees in all five training programmes that means trainees were found to have more knowledge than non-trainees. Banerjee et al. (2022) concluded in his research that respondents, who attended the training, had more knowledge as compared to the non-trainees.

Trainees were found to have more knowledge than non-trainees. This can be attributed that the training might have helped to increase the knowledge of the trainees. The training programmes are mainly designed to impart in-depth knowledge, relevant resources, best practices, etc., which the non-trainees may not have access to. Practical field demonstrations and workshops offered during the training enable trainees to apply their knowledge in real-world scenarios and the trainees also received guidance from the experts in various aspects. The training programmes incorporated the latest findings, updated information and technological advancements so that the trainees can cope up with the changing trend of the agricultural and allied sectors. Trainees are often motivated to learn and succeed in their training programs, whether it be for career advancement, personal development, or organizational requirements. This motivation, coupled with accountability to complete training tasks, encourages trainees to actively engage with

the material and strive for mastery. Training programs often facilitate peer interaction and collaboration, allowing trainees to learn from one another through discussions, group activities, and knowledge sharing. These positive aspects of the training programmes, which are not readily available to the non-trainees, might be the probable reasons for the notable knowledge disparity between trainees and non-trainees.

Table 3 : Relationship between profile of trainee and knowledge levels towards various trainings

(n=120)

Sr. No.	Factors	Correlation Coefficient 'r'
X_1	Age	0.234*
X_2	Education	0.119NS
X_3	Job Experience	0.253*
X_4	Mass media exposure	0.254**
X_5	Number of trainings	0.612**
X_6	Annual income	0.067NS
X_7	Scientific orientation	0.165NS
X_8	Risk orientation	0.098NS
X_9	Information seeking behaviour	0.412*
X_{10}	Innovativeness	0.062NS

*Significant at 0.05 level of probability
**Significant at 0.01 level of probability
NS Non-significant

As per the data depicted from table 3, it can be said that variables like 'age', 'job experience' and 'information seeking behaviour' had expressed positively significant relationship with knowledge level of trainees towards various trainings at 0.05 level of probability whereas the 'mass media exposure' and 'number of trainings' expressed positively significant relationship with knowledge level of trainees towards various trainings at the probability of 0.01 level. ' Research illustrates a positive correlation of age and experience with knowledge. As individuals grow older, they accumulate diverse experiences in various situations, which in turn enhances their overall knowledge level. This suggests that the increased exposure and learning opportunities that come with age contribute significantly to the development of knowledge. Information-seeking behavior exhibited a positive relationship with knowledge development, as actively seeking information enhances understanding across various aspects, contributing to greater overall knowledge. Mass media exposure provides valuable insights into issues, enabling the rapid and timely gathering of information, which subsequently enhances knowledge. Attending more training sessions allows individuals to gather additional information, enhance skills, and ultimately increase their knowledge. It was is accordance with the result of Jayan et al (2023), Jangir et al (2023), Agale et al and Bellagi et al (2022).

CONCLUSION

The study provides clear evidence of the substantial impact of the training programs offered by PAMETI on enhancing the knowledge of extension personnel. The knowledge assessment indicated that the trainees exhibited a high level of knowledge in communication skills and fertilizer quality control. On the other hand, trainees who participated in the training programs focused on crop residue management, human resource development, and information and communication technology displayed a medium level of knowledge. However, a significant difference can be observed between the knowledge levels of the trainees and non-trainees who were exposed to different training initiatives. Overall, this research paper serves as a valuable foundation for future policymakers, training institutes, and extension service providers in designing targeted training programs to further enhance the knowledge and expertise of extension personnel in various domains they have low knowledge to address the evolving challenges and contribute to the sustainable growth of agriculture.

POLICY IMPLICATION

The findings revealed that trainers possessed a medium level of knowledge in crop residue management, human resource development, and information and communication technology. Consequently, policymakers should focus on enhancing training programs in these areas to improve knowledge levels.

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CONFLICT OF INTEREST

This is to declare that there is "No conflict of interest" among researcher.

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