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ATTITUDE OF EXTENSION SCIENTISTS TOWARDS EXTENSION SERVICES

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ABSTRACT

The present study aimed to assess the attitude of 150 extension scientists in Punjab and Odisha states towards extension services in 2023. Respondents were selected following probability proportionate to the number of extension scientists in each university, resulting in 73 from Punjab Agricultural University (PAU) and 77 from Odisha University of Agriculture and Technology (OUAT). Attitude was measured by constructing a scale using Likert technique on a five-point continuum. The mean scores of both universities were compared and it also included z value to check significance difference between the two. It was found that 54 per cent respondents were having favourable attitude towards extension service whereas 46 per cent respondents had unfavourable attitude towards extension services. The attitude of the respondents towards extension service of both the universities had no significant difference. Recognizing and promoting innovative approaches and success stories of extension scientists can inspire others and instill a positive attitude. Correlation showed job satisfaction, field exposure and institutional support positively influenced attitude. Regression confirmed all three as significant predictors explaining substantial variation in attitude.

Keywords: *attitude, extension services, likert scale*

INTRODUCTION

Extension services in agriculture refer to the provision of information, advice, training and support to farmers and rural communities by agricultural experts and organizations. These services aim to enhance agricultural productivity, sustainability and rural livelihoods by disseminating up-to-date knowledge, best practices and technologies. Extension services bridge the gap between research institutions and farmers, helping them adopt innovative techniques and make informed decisions for improved agricultural practices. Attitude is the degree of favourable and unfavourable feelings of the Extension Scientists towards Extension Service. As important players in this process, extension scientists are in charge of carrying out training initiatives, demonstrations and consulting services meant to raise rural livelihoods and agricultural output. Their perspective on extension services has a big impact on these programs' impact, reach and efficacy. Positive attitudes among extension scientists can result in increased dedication, creative outreach and better farmer technology adoption. On the other hand, a pessimistic or uninterested mindset could make expansion initiatives less successful. Therefore, strengthening extension systems and improving their contribution to agricultural growth require an understanding of the attitudes, drives and difficulties experienced by extension scientists (Harikrishna et al., 2021; Harikrishna et al., 2023a; Harikrishna et al., 2023a). This study is likely to be of great use and significance in improving the frequency and quality of communication between the Extension scientists and the farmers. Harikrishna *et al.* (2023) found that most ATMA personnel had a neutral to positive attitude towards e-extension, while only half of KVK staff agreed. A significant positive correlation existed between both groups' profiles regarding ICT training, innovativeness, communication, mass media use and professional orientation. Burman *et al* (2021) found in the study that the attitude of KVK scientists towards IARI-Post Office Linkage Extension Model was highly favorable. The scientists endorsed the statements that they were happy to be related to such an innovative model (Mean Score 4.7), that high-quality seeds were provided and that the source increased the credibility of the seeds (Mean Score 4.5). Pandey et al (2020) studied "Attitude of the Field Functionaries towards the Agricultural Extension System of State Department of Agriculture" and the outcome of the study revealed that more than one-third of respondents (36.23%) had the most positive attitudes towards the agriculture department's extension system, with a mean attitude score of 3.63, while 25 per cent of respondents had positive attitudes towards the department's technology transfer system. Kaiser *et al* (2019) revealed in the study that

94.90 percent of extension workers were found to have a fairly positive attitude towards e-agriculture, while 3.80 percent had an extremely positive attitude. The results also showed that the SAAOs' attitudes were positively and significantly correlated with their annual income, understanding of e-agriculture, access to ICT resources and consumption of media related to e-agriculture. Modem *et al* (2023) stated in their study that moderately favourable attitude would convert highly favourable attitude towards technology dissemination system of State department of Agriculture with regular capacity building programmes to the extension personnel on technology dissemination methodologies. Notably, the studies revealed that factors like educational qualification, training and exposure to modern technology played a significant role in shaping extension personnel's attitudes. Positive correlations were observed between educational attainment and favourable attitudes, as well as between training and the acceptance of new technological tools.

OBJECTIVE

To study the attitude of extension scientists towards extension services and comparative analysis between two universities i.e. PAU and OUAT**.**

METHODOLOGY

An Ex-post research design was followed for the study. A total of 300 extension scientists are working in both universities, out of which 145 extension scientists are working at PAU and 155 extension scientists are working at OUAT. A total of 150 extension scientists, including 73 from PAU and 77 from OUAT, were selected following probability proportionate to the number of extension scientists employed by each university as well as the number of extension scientists employed at both their headquarters and outposts. Attitude was measured by constructing an scale using Likert technique on a five-point continuum, i.e., strongly agree, agree, neutral, disagree and strongly disagree assigning the scores 5, 4, 3, 2 and 1 respectively. Scores of attitudes were summed for each respondent. Attitude towards extension services was categorized into two categories i.e. favourable and unfavourable.

Construction of scale

i. Initial selection of statements

Fifty statements covering all dimensions of attitudes towards extension services were initially selected and refined using Edwards' (1957) 14 informal criteria. From these, 26 non-ambiguous, clearly worded and balanced (positive and negative) statements were shortlisted. These were evaluated by eight subject matter experts on a trichotomous scale—relevant, partially relevant and irrelevant. Based on their feedback, 19 statements were found suitable and selected for further analysis.

ii. Finalizing the statements

Among the 19 statements, 9 were positive and 10 negative. These were administered to 60 non-sampled extension scientists using a five-point Likert scale. A score of 5,4, 3, 2, 1 was given respectively to the positive statements whereas the reverse scoring was given in case of negative statements. 25 per cent respondents with highest and lowest score values were selected (15 each from low and high group) were selected for t-test analysis. Statements with a t-value greater than 2, indicating clear differentiation between groups, were finalized resulting in the selection of 15 statements for data collection.

iii. Reliability of the scale

In the present study, Cronbach alpha coefficient of testing internal consistency was used to measure reliability of the scale and coefficient of reliability is 0.949.

iv. Validity of the scale

With the assistance of specialists from state agricultural universities, content validity was confirmed. Therefore, the current scale met the content validity requirements with value 0.974.

Statistical analysis

Descriptive statistics such as frequency, percentage and mean scores were first used to summarise the responses under each attitude statement. Since the distribution of attitude scores of PAU and OUAT respondents did not meet the assumptions of normality, the Mann–Whitney U test was employed to compare the mean rank scores of the two groups.

To examine the association between the overall attitude score and key contributing variables derived from the attitude scale, Pearson's correlation coefficient was computed. This enabled identification of the variables that showed positive or negative relationships with the attitude of extension scientists. To understand the relative influence of these variables, a multiple linear regression analysis was carried out by considering the overall attitude score as the dependent variable. Selected components such as job satisfaction, field exposure, institutional support and workload-related perceptions were treated as predictor variables. The regression model helped to determine the proportion of variation explained and the strength of contribution of each predictor. All statistical results were interpreted at 1% and 5% levels of significance.

RESULTS AND DISCUSSION

i. Attitude of PAU respondents towards extension service

Table 1 reveals attitude of PAU respondents regarding extension services. About 60.27% agreed that trainings and demonstrations do not yield satisfactory adoption among farmers. Around 46.57% agreed that extension services enhance field exposure, Patel and Chauhan (2016) similarly reported that extension personnel who received adequate field exposure and supportive institutional environments expressed more favourable attitudes towards extension services, while 56.19% strongly disagreed that such programmes are wasteful. Nearly half (49.31%) agreed that extension aids effective teaching and 52.07% strongly agreed that solving farmers' problems brings job satisfaction. About 43.86% strongly agreed to devoting enough time for extension and nearly 50% felt these activities are not valued equally to research. Responses were split between disagreement (35.65%) and neutrality (31.50%) on the difficulty of communicating ideas through agri-publications. Neutral attitudes were also noted for stress due to lack of fixed field hours (41.09%) and inadequate departmental support (45.20%). Views were mixed on university infrastructure sufficiency. Regarding work-life imbalance, 36.98% remained neutral. Additionally, 36.98% strongly agreed and 42.48% agreed that farmer participation gives satisfaction. Lastly, 34.67% disagreed that interdepartmental coordination is time-wasting.

Table 1: Item wise attitude of PAU respondents towards extension service (n=73)

Sr. No.	Attitude Statements	Response categories				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
		f (%)	f (%)	f (%)	f (%)	f (%)
1	Trainings and demonstrations imparted to the farmers don't provide satisfactory results/adoption of practices.	6 (8.25)	44 (60.27)	3 (4.10)	13 (17.80)	7 (9.58)
2	Extension service helps me to get more field exposure.	29 (39.75)	34 (46.57)	7 (9.58)	3 (4.10)	-
3	Training programmes/demonstrations are wasteful expenditure	-	4 (5.47)	2 (2.73)	26 (35.61)	41 (56.19)
4	Extension services helps in teaching effectively.	21 (28.79)	36 (49.31)	13 (17.80)	3 (4.10)	-
5	Providing solutions to farmers' problem gives me job satisfaction.	38 (52.07)	30 (41.09)	5 (6.84)	-	-
6	I try to devote sufficient time for carrying out extension activities.	32 (43.86)	19 (26.02)	15 (20.54)	7 (9.58)	-
7	Extension activities are not acknowledged at par with the research.	18 (24.69)	37 (50.68)	6 (8.21)	7 (9.58)	5 (6.84)
8	It is difficult to address ideas through Agril-publication.	10 (13.69)	4 (5.47)	23 (31.50)	26 (35.65)	10 (13.69)
9	No fixed field working hours in extension gives stress.	12 (16.47)	9 (12.32)	30 (41.09)	14 (19.17)	8 (10.95)
10	Existing infrastructure at university is not enough to meet needs of extension scientists.	16 (21.91)	19 (26.02)	20 (27.39)	18 (24.68)	-
11	The work pressure due to extension services cause work-life imbalance.	11 (15.06)	15 (20.54)	27 (36.98)	20 (27.42)	-
12	Travelling long distance for extension field work is exhaustive and impacts health.	13 (17.80)	18 (24.65)	22 (30.13)	16 (21.95)	4 (5.47)
13	Farmers' enthusiastic participation in extension activities gives satisfaction.	27 (36.98)	31 (42.48)	15 (20.54)	-	-
14	Difficult to get support from departments and senior officials in performing extension activities.	3 (4.10)	12 (16.47)	33 (45.20)	22 (30.13)	3 (4.10)
15	Requirement of too much interdepartmental coordination for extension services is a waste of time.	3 (4.10)	15 (20.54)	17 (21.34)	24 (34.67)	14 (19.35)

* Figures in parenthesis are the percentage to their respondents total

ii. Attitude of OUAT respondents towards extension service

Table 2 reveals key insights into respondents' perceptions of extension services. Over half (51.94%) agreed that trainings and demonstrations often fail to yield satisfactory results or adoption of practices. A significant portion (41.55%) acknowledged that extension services enhance field exposure. More than half (54.56%) strongly disagreed that such programmes are a wasteful expenditure. An equal percentage (51.94%) agreed that extension helps in effective teaching. A notable 58.45% strongly agreed that solving farmers' problems brings job satisfaction. Around 46.77% strongly agreed they dedicate sufficient time to extension. Similarly, 51.94% agreed that extension efforts are not valued on par with research. Responses to communication challenges via agricultural publications were mixed, with 36.36% disagreeing and 35.06% neutral. Neutral responses also dominated for stress from lack of fixed working hours (48.05%) and limited departmental support (49.35%). Sharma et al. (2015) also emphasised that clarity in job roles and adequate institutional facilitation significantly improve the perception and effectiveness of extension functionaries. Regarding infrastructure adequacy, 33.78% remained neutral, while 38.98% were neutral on work-life imbalance. Farmer participation brought satisfaction to 46.77%, while 29.89% disagreed on excessive coordination being time-wasting.

Table 2: Item wise attitude of OUAT respondents towards extension service (n=77)

Sr. No.	Attitude statements	Response categories				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
		f (%)	f (%)	f (%)	f (%)	f (%)
1	Trainings and demonstrations imparted to the farmers don't provide satisfactory results/adoption of practices.	13 (16.88)	40 (51.94)	03 (3.89)	13 (16.88)	08 (10.38)
2	Extension service helps me to get more field exposure.	26 (33.78)	32 (41.55)	12 (15.58)	07 (9.09)	-
3	Training programmes/demonstrations are wasteful expenditure	-	04 (5.19)	03 (3.89)	28 (36.36)	42 (54.56)
4	Extension services helps in teaching effectively.	24 (31.16)	40 (51.94)	10 (13.01)	03 (3.89)	-
5	Providing solutions to farmers' problem gives me job satisfaction.	45 (58.45)	27 (35.06)	05 (6.49)	-	-
6	I try to devote sufficient time for carrying out extension activities.	36 (46.77)	21 (27.27)	17 (22.07)	03 (3.89)	-
7	Extension activities are not acknowledged at par with the research.	20 (25.97)	40 (51.94)	10 (13.01)	04 (5.19)	03 (3.89)
8	It is difficult to address ideas through Agril-publication.	13 (16.88)	02 (2.61)	27 (35.06)	28 (36.36)	07 (9.09)
9	No fixed field working hours in extension gives stress.	15 (19.48)	06 (7.79)	37 (48.05)	16 (20.79)	3 (3.89)
10	Existing infrastructure at university is not enough to meet needs of extension scientists.	21 (27.27)	18 (23.37)	26 (33.78)	12 (15.58)	-
11	The work pressure due to extension services cause work-life imbalance.	17 (22.07)	12 (15.58)	30 (38.98)	18 (23.37)	-
12	Travelling long distance for extension field work is exhaustive and impacts health.	20 (25.97)	15 (19.48)	24 (29.87)	17 (22.07)	02 (2.61)
13	Farmers' enthusiastic participation in extension activities gives satisfaction.	24 (31.16)	36 (46.77)	17 (22.07)	-	-
14	Difficult to get support from departments and senior officials in performing extension activities.	02 (2.61)	15 (19.48)	38 (49.35)	18 (23.37)	04 (5.19)
15	Requirement of too much interdepartmental coordination for extension services is a waste of time.	05 (6.49)	20 (25.97)	23 (29.89)	21 (27.27)	8 (10.38)

* Figures in parenthesis are the percentage to their respondents total

iii. Difference between attitude of both universities

Table 3 shows that in both PAU and OUAT, the highest mean scores (4.32 and 4.29) were recorded for the statement that providing solutions to farmers' problems gives job satisfaction. Extension services helping in field exposure also received high scores (4.27 in PAU and 4.26 in OUAT), followed by their role in effective teaching (4.06 and 4.03, respectively). Statements related to work-life imbalance (3.20 and 3.31), inadequate infrastructure (3.38 and 3.45) and exhaustion due to long travel hours (3.17 and 3.23) had moderate scores, with insignificant differences between universities. The lowest mean scores (1.54 and 1.46) were for the statement that trainings/demonstrations are a wasteful expenditure, indicating general disagreement. Overall, the data suggest that extension services contribute positively to job satisfaction, teaching and field exposure and both universities share similar attitudes, with no significant difference in perceptions among extension scientists.

Table 3: Comparison of attitude mean score of both the universities. (n=150)

Sr. No.	Attitude Statements	Mean score		Z test #
		PAU (n_1=73)	OUAT (n_2=77)	
1	Trainings and demonstrations imparted to the farmers don't provide satisfactory results/adoption of practices.	3.45	3.45	-0.048
2	Extension service helps me to get more field exposure.	4.27	4.26	-0.083
3	Training programmes/ demonstrations are wasteful expenditure	1.54	1.46	-0.416
4	Extension services help in teaching effectively.	4.06	4.03	-0.248
5	Providing solutions to farmers' problem gives me job satisfaction.	4.32	4.29	-0.183
6	I try to devote sufficient time for carrying out extension activities.	4.00	3.93	-0.472
7	Extension activities are not acknowledged at par with the research.	3.80	3.80	-0.006
8	It is difficult to address ideas through Agril-publication.	2.79	2.83	-0.218
9	No fixed field working hours in extension gives stress.	3.00	3.07	-0.403
10	Existing infrastructure at university is not enough to meet needs of extension scientists.	3.38	3.45	-0.377
11	The work pressure due to extension services cause work-life imbalance.	3.20	3.31	-0.613
12	Travelling long distance for extension field work is exhaustive and impacts health.	3.17	3.23	-0.313
13	Farmers' enthusiastic participation in extension activities gives satisfaction.	4.11	4.10	-0.048
14	Difficult to get support from departments and senior officials in performing extension activities.	2.86	2.89	-0.256
15	Requirement of too much interdepartmental coordination for extension services is a waste of time.	2.53	2.49	-0.250

Mann-Whitney U test

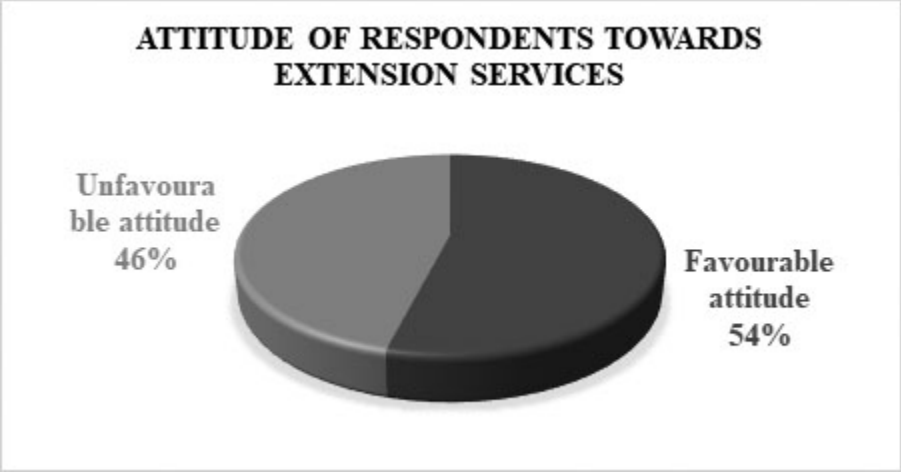

Fig 1 : Attitude of respondents towards extension services

From the above figure, it can be concluded that 54 per cent respondents were having favourable attitude towards extension service whereas 46 per cent respondents had unfavourable attitude towards extension services. These findings are in line with those of Sahebo (2017) and Pandey *et al* (2020).

iv. Correlation between key determinants and overall attitude

Correlation analysis was carried out to understand the pattern of relationships between selected determinants and the overall attitude of extension scientists towards extension services.

Table 4 : Correlation between key determinants and overall attitude score (n = 150)

Variable	Pearson r	Significance
Job satisfaction	0.62	$p < 0.01$
Field exposure	0.58	$p < 0.01$
Institutional support	0.44	$p < 0.05$
Role overload	–0.21	$p < 0.05$

The results presented in Table 4 reveal that job satisfaction had the strongest positive association with attitude ($r = 0.62$, $p < 0.01$). Field exposure also showed a strong positive correlation ($r = 0.58$, $p < 0.01$), indicating that respondents who frequently interacted with farmers during field activities tended to hold more favourable attitudes.

Institutional support exhibited a moderate but significant positive correlation ($r = 0.44$, $p < 0.05$), suggesting that the availability of adequate guidance and cooperation from universities contributes to the development of a positive outlook towards extension work. On the other hand, role overload demonstrated a weak negative correlation ($r = –0.21$), meaning that increased work pressure and the absence of fixed working hours may slightly reduce favourable attitudes. These results highlight that psychological and institutional factors play an important role in shaping the perception of extension scientists.

v. Regression analysis: Predictors of attitude towards extension services

To further identify the strength of contribution of selected variables towards the overall attitude, a multiple linear regression model was developed (Table 5). The model was statistically significant ($F = 22.31$, $p < 0.01$) and explained 48 per cent of the variance ($R^2 = 0.48$) in attitude scores.

Table 5 : Multiple regression analysis showing predictors of attitude towards extension services (n=150)

Predictor Variable	Beta (β)	t-value	Significance
Job satisfaction	0.41	4.92	$p < 0.01$
Field exposure	0.33	3.88	$p < 0.01$
Institutional support	0.27	2.45	$p < 0.05$
Role overload	–0.08	–1.12	NS

Job satisfaction emerged as the most influential predictor ($\beta = 0.41$, $p < 0.01$). Field exposure also had a strong positive contribution ($\beta = 0.33$, $p < 0.01$), highlighting the importance of practical engagement with farmers in shaping favourable perceptions. Institutional support ($\beta = 0.27$, $p < 0.05$) was also found to be a significant predictor, reflecting the role of organisational encouragement and cooperation. Parmar and Singh (2020) similarly found that job performance and attitude of extension officers were closely linked with their role perception and organisational support systems.

Role overload had a negative but non-significant effect on attitude ($\beta = –0.08$), indicating that while workload may cause stress, it does not substantially affect the overall attitude when other positive factors are present. The findings underline the need to strengthen supportive institutional environments and enhance field-oriented activities to foster better attitudes among extension scientists.

CONCLUSION

In PAU and OUAT, more than fifty per cent of the total respondents were having favorable attitude towards extension services and rest having unfavorable attitude. As it was found that nearly half of the extension scientists were not having favorable attitude towards extension services. Thus, recognizing and promoting innovative approaches and success stories of extension scientists can inspire others and instill a positive attitude. The correlation results showed that job satisfaction, field exposure and institutional support were positively and significantly associated with the overall attitude of extension scientists, whereas role overload exhibited a weak negative association. The regression analysis also confirmed that job satisfaction, field exposure and institutional support were the major contributing predictors of attitude, together explaining a sizeable proportion of its variation. These findings indicate that strengthening institutional support systems, encouraging meaningful field exposure and acknowledging extension efforts can contribute to developing more favourable attitudes among extension scientists across both universities.

RECOMMENDATION

Acknowledging the valuable contributions of extension scientists and offering appreciation in the form of certificates/letters and providing incentives can boost their motivation and commitment towards extension services. Not only quantitative but qualitative parameters should be assessed and included in the Career advancement scheme (CAS). Extension activities carried out in respective universities should be acknowledged at par with the research to enhance the efficiency of extension services.

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CONFLICT OF INTEREST

Authors declare that there is no conflict of interest associated with this research work.

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