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Impact of key factors influencing the attitude of extension personnel's towards e-Extension

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ABSTRACT

This study examines the impact of key factors influencing the attitudes of extension personnel towards e-Extension in Uttar Pradesh, India, during the year 2023-2024. Uttar Pradesh, hosting the maximum number of Krishi Vigyan Kendra (KVKs) across India, was chosen purposively, with a focus on the KVKs under Acharya Narendra Deva University of Agriculture and Technology (ANDUAT), which hosts the highest number of KVKs in the state. Data was collected from 137 extension personnel using a Google Form questionnaire. The study highlights the diverse motivational profiles, workload perceptions, and varying degrees of job satisfaction, scientific orientation, and innovativeness among extension personnel. The results reveal that achievement motivation among extension personnel was mostly moderate, with 53.28% of respondents exhibiting medium motivation levels. Workload perception varied, with 40.88% perceiving a medium workload. Job satisfaction levels were predominantly moderate, with 59.12% reporting moderate satisfaction. A significant majority demonstrated a high level of scientific orientation (54.74%) and medium innovativeness (50.37%).

Keywords- e-Extension, extension personnel, achievement motivation, perceived work load, and innovativeness.

1. INTRODUCTION

The agricultural sector, which remains the backbone of India's economy, is continually evolving with the integration of advanced technologies. Among these advancements, Information and Communication Technology (ICT) has played a transformative role. E-extension, a modern approach to agricultural extension services, utilizes ICT tools to disseminate information, provide training, and facilitate communication between farmers and experts. This method contrasts with traditional extension services, which rely heavily on face-to-face interactions and physical meetings. The shift towards e-extension aims to overcome the limitations of traditional methods, such as geographical barriers, limited reach, and high operational costs **(Meera *et al.*, 2004)**.Krishi Vigyan Kendras (KVKs), as the key players in India's agricultural extension system, are at the forefront of implementing e-extension services. These centers, affiliated with agricultural universities and the Indian Council of Agricultural Research (ICAR), focus on technology assessment, refinement, and transfer to improve the productivity and sustainability of agricultural practices. The successful adoption of e-extension in KVKs can significantly enhance their outreach and effectiveness, making crucial agricultural knowledge and innovations more accessible to farmers, particularly in remote areas **(Reddy & Swanson, 2006)**.e-extension is indispensable in Krishi Vigyan Kendras (KVKs) due to its ability to ensure timely dissemination of agricultural information, which includes crucial advice on

crop management, pest control, weather updates, and market trends, thus enhancing decision-making **(Glendenning *et al*., 2010; Aker, 2011).** By leveraging digital platforms like mobile phones and the internet, e-extension extends its reach even to remote and inaccessible areas, overcoming geographical barriers effectively **(Davis &Rudestam, 2001)**. Moreover, it proves cost-effective by reducing the need for extensive travel and large-scale gatherings, allowing for better resource allocation within the extension system **(Zijp, 1994)**. Interactive features such as webinars, video calls, and online forums facilitate direct communication between farmers and experts, fostering peer learning and personalized advice **(Mittal & Mehar, 2012)**. Additionally, e-extension's data-driven approach enables the collection and analysis of farmer feedback and field conditions, leading to tailored interventions that significantly enhance the relevance and impact of agricultural advisory services **(Ferroni& Zhou, 2012)**. These integrated benefits highlight e-extension as a pivotal tool in advancing agricultural productivity and sustainability through KVKs.

1.2 Research Problem

While e-extension offers considerable benefits, its successful implementation is not guaranteed. Extension personnel play a crucial role in this process, and their attitudes towards e-extension are pivotal. Positive attitudes can drive the successful adoption and utilization of e-extension services, whereas negative attitudes can hinder their effectiveness (Rogers, 2003). Understanding the factors that shape these attitudes is essential for enhancing the adoption and impact of e-extension in KVKs.

This study focuses on examining the influence of five key factors: Achievement Motivation, Perceived Work Load, Job Satisfaction, Scientific Orientation, and Innovativeness. By understanding how these variables affect attitudes, the study seeks to provide insights that can help in designing strategies to improve the effectiveness of e-extension services.By examining these variables, the study aims to develop a comprehensive understanding of the factors that influence the attitudes of extension personnel towards e-extension, thereby contributing to the successful implementation of these services in KVKs.

The relevance of key variables in understanding the adoption and effectiveness of e-extension technologies by extension personnel can be elucidated through several critical factors. Achievement motivation, as described by **McClelland (1961)**, influences the drive of personnel towards professional goals, affecting their acceptance and utilization of e-extension tools. Perceived workload, according to **Cooper and Marshall (1976)**, shapes their willingness to engage with new technologies like e-extension, with high workload potentially hindering adoption. Job satisfaction, a concept linked by **Locke (1976)** to positive attitudes towards workplace innovations, also plays a crucial role in fostering acceptance of e-extension among personnel. Moreover, the scientific orientation of personnel, highlighted by **Rogers (2003)**, enhances their propensity to adopt and effectively utilize new methods such as e-extension, while innovativeness, also emphasized by **Rogers (2003)**, shapes their perception and implementation of e-extension services. These variables collectively underscore the complex interplay of motivational, organizational, and personal factors that influence the integration and success of e-extension initiatives within extension services.

2. RESEARCH METHEDOLOGY

2.1 STUDY AREA

This study was conducted in Uttar Pradesh during the year 2023-2024. Uttar Pradesh was chosen purposively because it has the maximum number of Krishi Vigyan Kendra (KVKs) across India, totalling 89. In Uttar Pradesh, four types of organizations host KVKs: Non-Governmental Organizations (NGOs), Indian Council of Agricultural Research (ICAR) Institutes, State Agricultural Universities, and other educational institutes. Among these, Acharya Narendra Deva University of Agriculture and Technology (ANDUAT) was selected for the study because it hosts the maximum number of KVKs in the state.

2.2 DATA COLLECTION

Data was collected using a Google Form questionnaire from the extension personnel of the KVKs under ANDUAT. Out of 158 extension personnel, 137 responded to the questionnaire, resulting in a sample size of 137. The data was classified, tabulated, and analysed to ensure meaningful interpretation and accurate inferences. Various statistical methods were used to analyse the data effectively.

By focusing on the extension personnel from ANDUAT's KVKs, the study aims to gather insights into those who are directly involved in agricultural extension activities. This targeted approach helps to understand the specific context and challenges faced by extension workers in Uttar Pradesh, providing a robust basis for drawing conclusions and making recommendations for future improvements in e-Extension practices.

3. RESULT AND DISCUSSION

The study gathered responses from 137 extension personnel to assess their perceptions of the benefits of e-Extension tools. Here is a summary of the findings for each statement:

3.1 Achievement Motivation

Table 3.1.1 Statement wise distribution of Extension Personnel according to their Achievement Motivation n=137

S. N.	Statement	S. A.		A.		U. D.		D. A.		S. D. A.	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1.	One should always follow motto "service before self."	38	27.74	57	41.60	20	14.60	17	12.41	05	03.65
2.	It is better to be content with whatever little one has, than to be always struggling for more.	27	19.71	65	47.45	23	16.79	13	9.49	09	06.57
3.	I always strive to gain more knowledge & skill for facing latest problem.	44	32.12	53	38.69	19	13.87	18	13.14	03	02.19
4.	One should aim high to achieve highest post in job.	62	45.26	44	32.12	13	9.489	10	7.30	08	05.84
5.	The way things are going now-a-days discourage one to work hard.	37	27.01	58	42.34	24	17.52	08	5.84	10	07.30
6.	One should succeed in service even if one has to neglect his family.	19	13.87	21	15.33	42	30.66	25	18.25	30	21.90
7.	One should be satisfied with what he has achieved.	48	35.04	59	43.07	17	12.41	09	6.57	04	2.92
8.	I always attend seminars to upgrade my knowledge.	36	26.28	62	45.26	39	28.47	00	00.00	00	00.00
9.	I always go for exposure tours to attached myself with farming community.	54	39.42	47	34.31	36	26.28	00	00.00	00	00.00

f=frequency, %= percentage S.A.= Stronglyagree,A.=Agree,U.D.= Undecided, D.A.=Disagree, S.D.A.=StronglyDisagree

Table 3.1.2 Distribution of Extension Personnel according to their Overall Achievement Motivation n=137

S. N.	Categories	*f*	%
1.	Low (Up to 35)	35	25.55
2.	Medium (36 to 39)	73	53.28
3.	High (40 and above)	29	21.17
	Total	**137**	**100.00**

Mean=35.95, SD=1.22, Min=27, Max=43, f=frequency, %= percentage

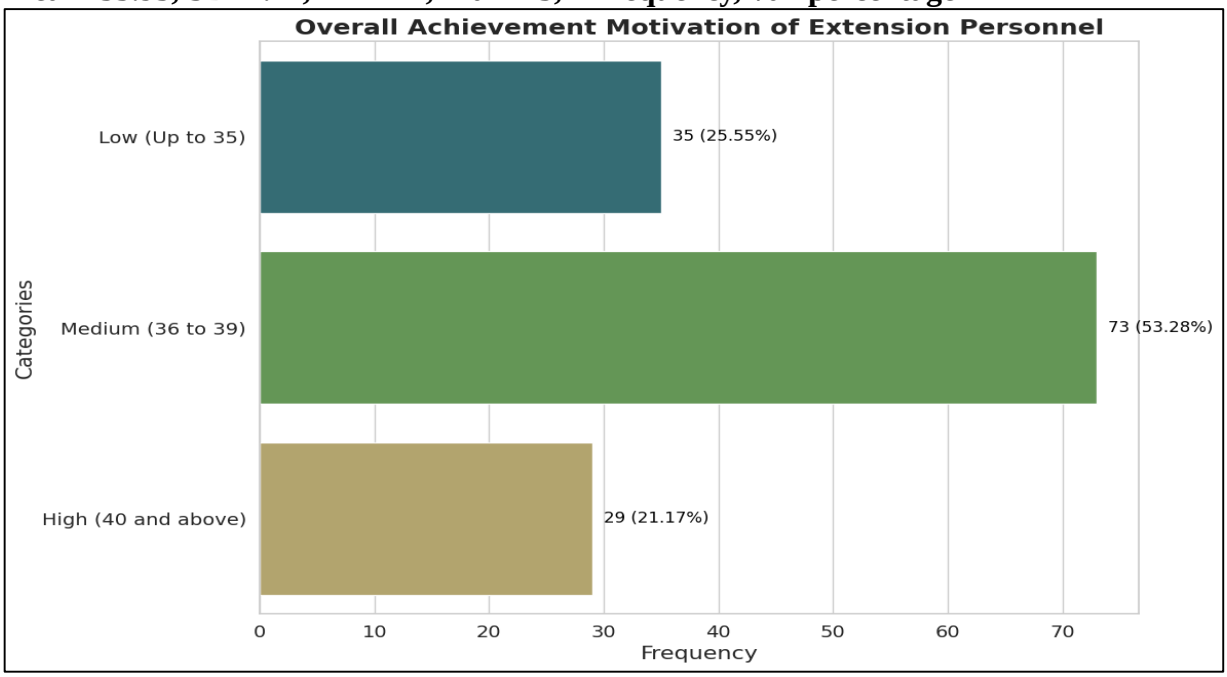

Fig.- 3.1 Distribution of Extension Personnel according to their Overall Achievement Motivation

Table 3.1.2 reveals a varied distribution of achievement motivation levels among extension personnel. A majority, constituting 53.28% of respondents, exhibit medium achievement motivation, while 25.55% have low motivation and 21.17% have high motivation. These findings suggest a diverse range of motivational profiles within the surveyed group, with a notable portion demonstrating moderate levels of achievement motivation. A similar findings is also reported by **Deotale (2017), Ayushi (2018), Hossain *et al*. (2019).**

3.2Perceived work load

Table 3.2.1 Statement wise distribution of Extension Personnel according to their Perceived work load n=137

S. N.	Statement	S. A.		A.		U. D.		D. A.		S. D. A.	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1	My workload negatively affects my job performance.	41	29.93	48	35.04	27	19.71	17	12.40	04	02.92
2	I am satisfied with the balance between my workload and personal life.	47	34.31	52	37.96	18	13.14	14	10.20	06	04.38
3	I feel that amount of work I did interfered with how well it got done.	34	24.82	39	28.47	42	30.66	09	6.57	13	09.49
4	I feel that the number of requests, complaints, problems dealt with were more than expected.	38	27.74	32	23.36	40	29.20	20	14.60	07	05.11
5	my workload is reasonable.	28	20.44	31	22.63	19	13.87	42	30.70	17	12.40
6	I often feel overwhelmed by the amount of work I have to do.	45	32.85	37	27.01	29	21.17	15	10.90	11	08.03
7	I believe my workload is distributed fairly among team members.	15	10.95	23	16.79	44	32.12	55	40.10	00	00.00
8.	I feel busy or rushed	64	46.72	33	24.09	23	16.79	09	06.57	08	05.84
9.	I feel pressured.	57	41.61	37	27.01	14	10.22	11	08.03	18	13.10

f=frequency, %= percentage S.A.= Stronglyagree,A.=Agree,U.D.= Undecided, D.A.=Disagree, S.D.A.=StronglyDisagree

Table 3.2.2 Distribution of Extension Personnel according to their overall work load n=137

S. N.	Categories	*f*	%
1.	Low work load (Up to 18)	32	23.36
2.	Medium Work load (19-27)	56	40.88
3.	High Work load (28 and Above)	49	35.77
	Total	**137**	**100**

Mean=20.44, SD=1.98, Min=13, Max=36, f=frequency, %= percentage

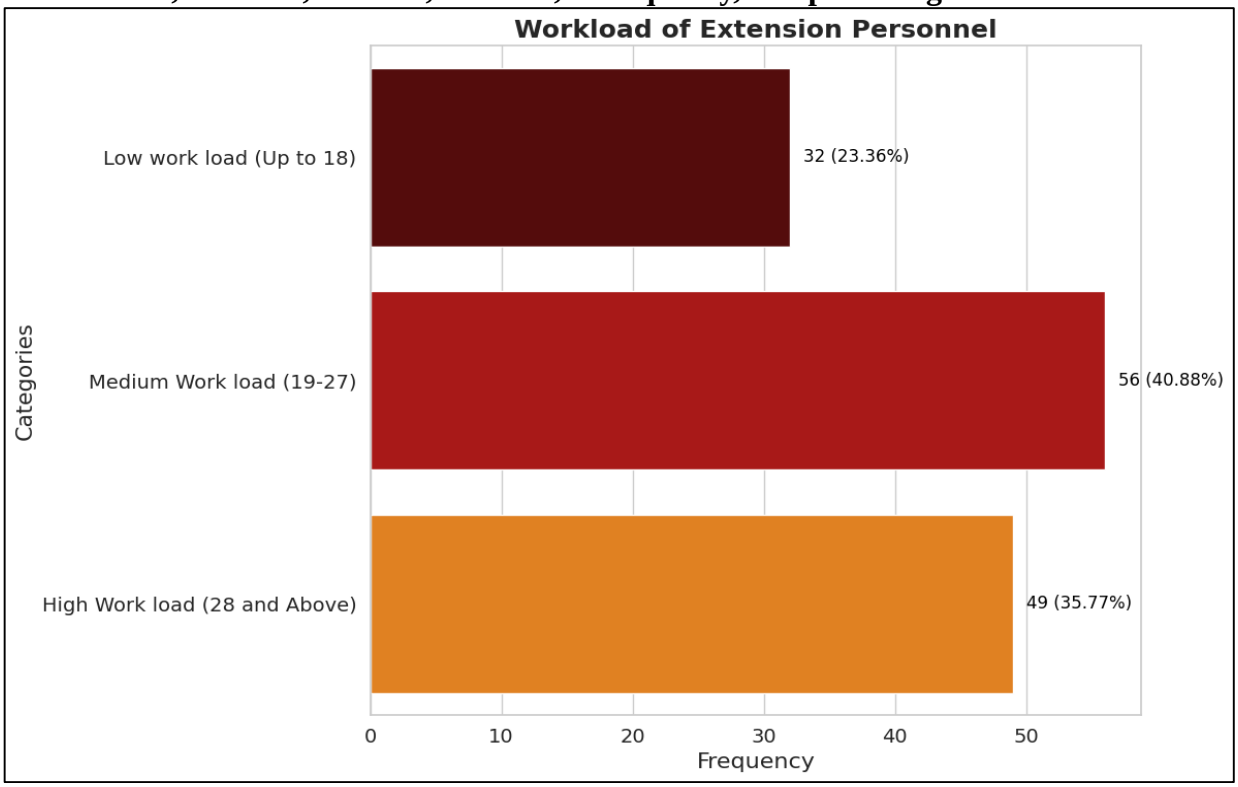

Fig. 3.2 Distribution of Extension Personnel according to their work load

Table 3.2.2 indicates a varied perception of workload among extension personnel, with 23.36% perceiving it as low (up to 18), 40.88% as medium (19-27), and 35.77% as high (28 and above). This suggests a balanced distribution of workload perception, with a significant portion of personnel feeling either medium or high levels of workload.

3.3Job Satisfaction

Table 3.3.1 Statement wise distribution of Extension Personnel according to their Job Satisfaction n=137

S. N.	Statement	S. A.		A.		U. D.		D. A.		S. D. A.	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1	I am satisfied with my job as an extension personnel.	49	35.77	45	32.85	24	17.52	13	09.48	06	04.38
2	I feel valued for the work I do.	26	18.98	21	15.33	34	24.82	29	21.17	27	19.71
3	Job security.	39	28.47	43	31.39	27	19.71	18	13.14	10	07.29
4	Promotion policy of the university.	19	13.87	17	12.41	22	16.06	42	30.66	37	27.01
5	I receive adequate support from my supervisors and colleagues.	24	17.52	32	23.36	16	11.68	37	27.01	28	20.44
6	Freedom of flexibility in work.	14	10.22	23	16.79	31	22.63	39	28.47	30	21.90
7	I am satisfied with the level of recognition I receive for my work.	27	19.71	34	24.82	41	29.93	22	16.06	13	9.48

f=frequency, %= percentage S.A.= Stronglyagree,A.=Agree,U.D.= Undecided, D.A.=Disagree, S.D.A.=StronglyDisagree

Table 3.3.2 Distribution of Extension Personnel according to their Job Satisfaction

n=137

S. N.	Categories	*f*	%
1.	Low satisfied (up to 15)	20	14.60
2.	Moderate satisfied (16-24)	81	59.12
3.	Highly Satisfied (25 and Above)	36	26.28
	Total	**137**	**100.00**

Mean=18.61, SD=3.19, Min=12, Max=31, f=frequency, %= percentage

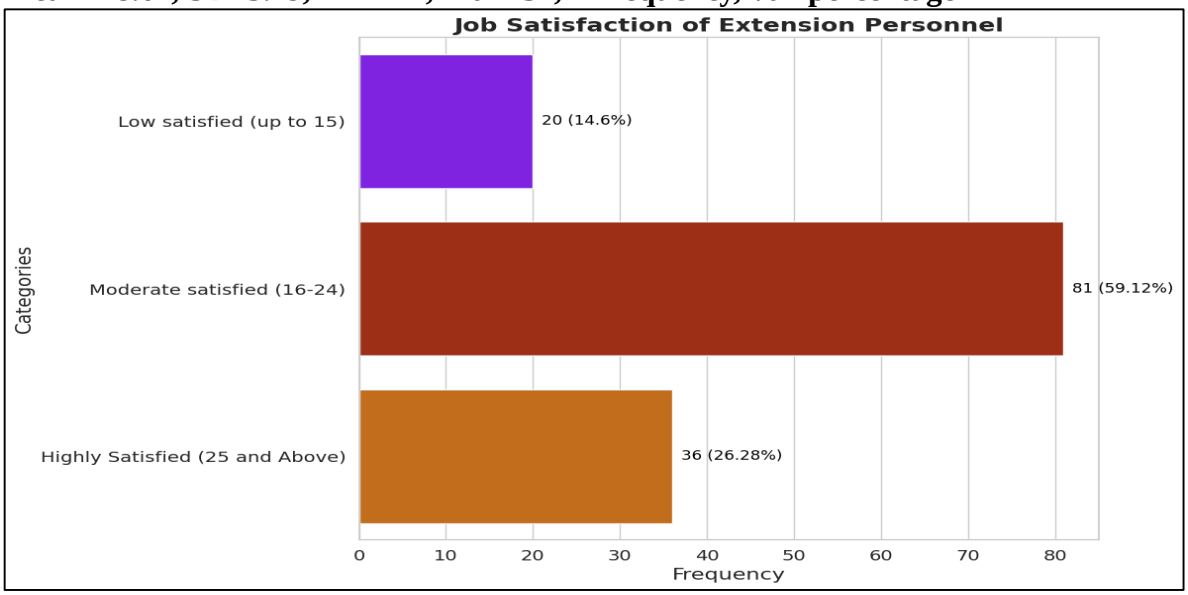

Fig.- 3.3 Distribution of Extension Personnel according to their Job Satisfaction

The table 3.3.2 reveals varying levels of job satisfaction among extension personnel, with 14.60% reporting low satisfaction (up to 15), 59.12% reporting moderate satisfaction (16-24), and 26.28% reporting high satisfaction (25 and above). This suggests a generally positive sentiment among personnel, with a significant portion expressing either moderate or high levels of satisfaction with their work. The findings also highlight the importance of understanding and addressing factors contributing to job satisfaction to ensure the well-being and retention of extension personnel in their roles. This finding was in line with the findings of**Sarnaik*et al.* (2020), Kshatriya (2020).**

3.4 Scientific Orientation

Table 3.4.1 Statement wise distribution of Extension Personnel according to their Scientific Orientation n=137

S. N.	Statement	S. A.		A.		U. D.		D. A.		S. D. A.	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1.	KVK scientists should investigate the root causes of farming problems rather than providing superficial solutions.	57	41.61	41	29.93	18	13.14	21	15.33	00	00.00
2.	Success in extension work requires impartiality in dealing with people and identifying problems.	48	35.04	34	24.82	29	21.17	18	13.14	08	05.83
3.	Extensive systematic planning may not always be useful, as extension personnel often encounter unexpected problems daily.	52	37.96	39	28.47	23	16.79	13	9.489	10	07.29
4.	A good extension personnel is willing to experiment with new ideas.	31	22.63	43	31.39	29	21.17	19	13.87	15	10.95
5.	Solving farmers problems can be challenging due to limited available solutions.	38	27.74	53	38.69	31	22.63	08	5.83	07	05.10
6.	I dedicate a significant amount of time to analyzing the issues faced by farmers and finding solutions for them.	42	30.66	61	44.53	19	13.87	15	10.95	00	00.00

f=frequency, %= percentage S.A.= Strongly agree, A. = Agree, U.D.= Undecided, D.A.= Disagree, S.D.A.=Strongly Disagree

Table 3.4.2 Distribution of Extension Personnel according to their Overall Scientific Orientation n=137

S. N.	Categories	*f*	%
1.	Low (Up to 13)	19	13.87
2.	Medium (14-21)	43	31.39
3.	High (22 and Above)	75	54.74
	Total	**137**	**100.00**

Mean=14.34, SD=1.73, Min=19, Max=27, f=frequency, %= percentage

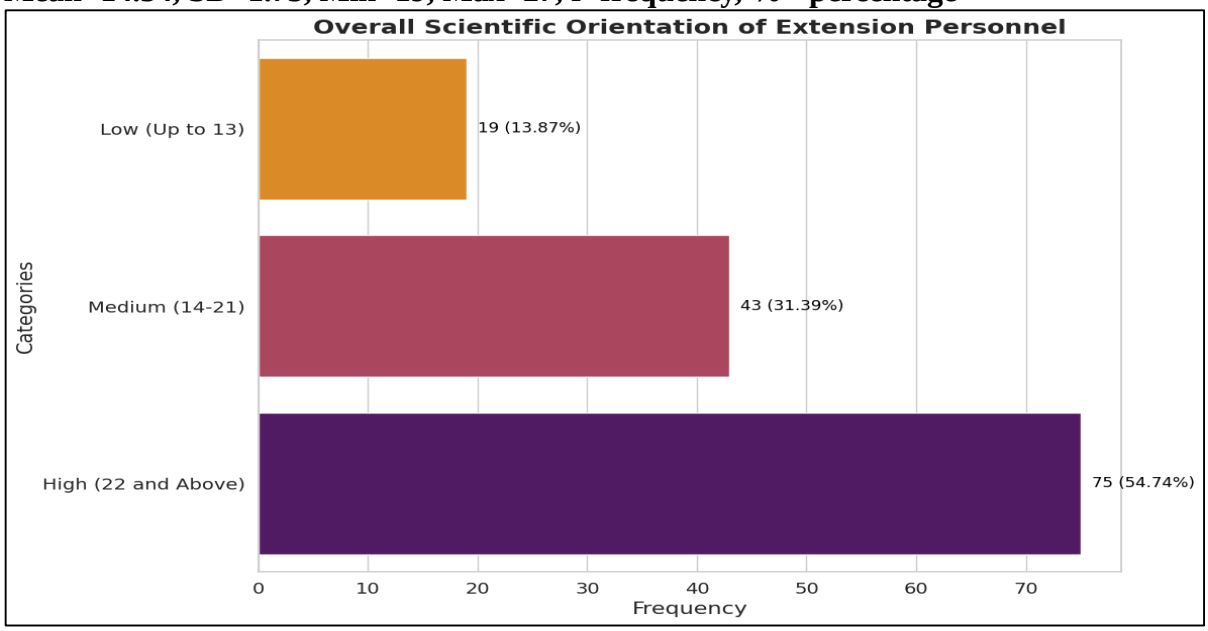

Fig.- 3.4 Distribution of Extension Personnel according to their Overall Scientific Orientation

Table 3.4.2 reveals a predominantly high level of scientific orientation among extension personnel, with 54.74% exhibiting this characteristic (22 and above), indicating a strong inclination towards scientific principles and methodologies in their work. Additionally, 31.39% exhibit a medium level of scientific orientation (14-21), while 13.87% exhibit a low level (up to 13). These findings suggest a generally positive orientation towards scientific approaches among extension personnel, which is crucial for implementing evidence-based practices and driving innovation in agricultural extension services. Thisfinding was in line with the findings of **Nagaraj *et al.* (2018), James (2020).**

3.5Innovativeness

Table 3.5.1 Statement wise distribution of Extension Personnel according to their Innovativeness n=137

S. N.	Statement	S. A.		A.		U. D.		D. A.		S. D. A.	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1.	I make an effort to stay informed about the latest e-Extension technology, but that doesn't mean I try out every new technology that comes along.	54	39.42	34	24.82	27	19.71	14	10.22	08	05.83
2.	I am eager to try out new e-Extension tools as soon as i hear about them.	29	21.17	47	34.31	25	18.25	19	13.87	17	12.41
3.	I have come across various new e-Extension tools and have tried nearly all of them in the past two years.	43	31.39	38	27.74	34	24.82	12	08.75	06	04.38
4.	New e-Extension tools can be expensive. However, if they are affordable, I am definitely interested in using them.	53	38.69	39	28.47	23	16.79	22	16.06	00	00.00
5.	I tend to adopt new communication techniques in my extension work more quickly than others do.	37	27.01	42	30.66	31	22.63	18	13.14	09	06.56
6.	I am cautious about trying new e-Extension tools.	29	21.17	48	35.04	41	29.93	16	11.68	03	02.19

f=frequency, %= percentage S.A.= Strongly agree, A. = Agree, U.D.= Undecided, D.A.= Disagree, S.D.A.=Strongly Disagree

Table 3.5.2 Distribution of Extension Personnel according to their Overall Innovativeness

n=137

S. N.	Categories	*f*	%
1.	Low (Up to 13)	13	09.48
2.	Medium (14-19)	69	50.37
3.	High (20 and Above)	55	40.15
	Total	**137**	**100.00**

Mean=13.21, SD=0.64, Min=, Max=28, f=frequency, %= percentage

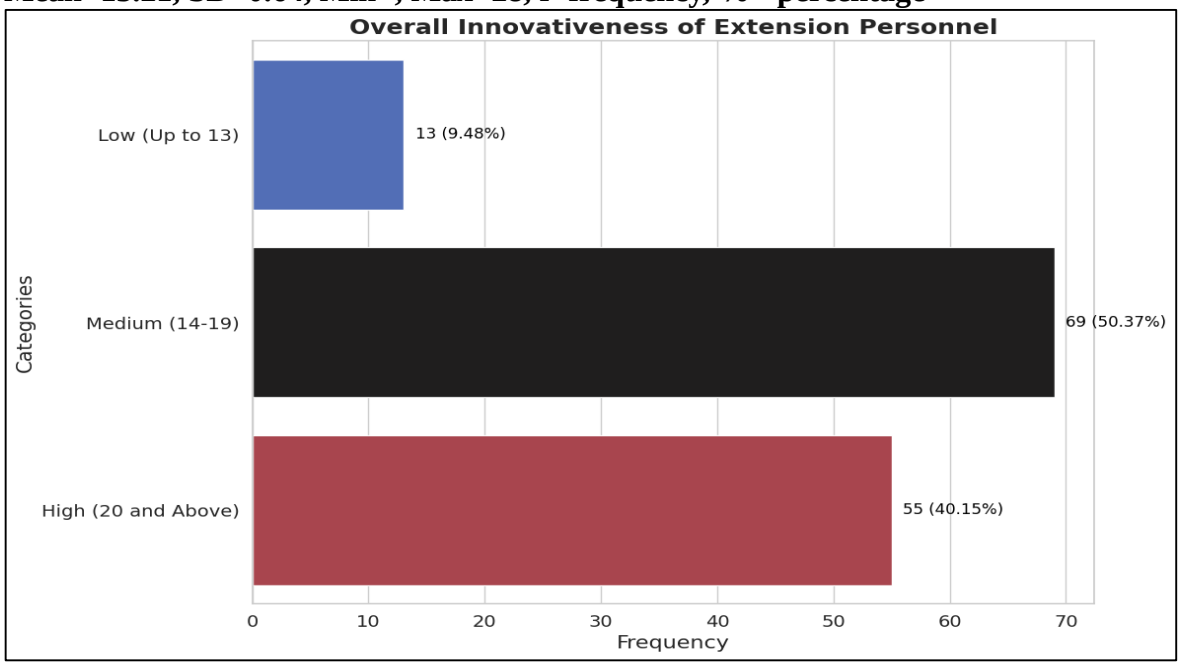

Fig.- 3.5 Distribution of Extension Personnel according to their Overall Innovativeness

Table 3.5.2 illustrates a varied level of innovativeness among extension personnel, with 9.48% exhibiting low innovativeness (up to 09), 50.37% demonstrating medium innovativeness (10-17), and 40.15% showing high innovativeness (18 and above). This suggests a generally positive attitude towards adopting new ideas and approaches within the surveyed group. The significant portion with a high level of innovativeness indicates a strong willingness to innovate and implement new methods, which can be valuable for enhancing agricultural practices and extension services. Similar observations were reported by **Lohita (2016), Ayushi (2018).**

4. CONCLUSION

This study explores the impact of key factors influencing the attitude of extension personnel towards e-Extension. The results reveal diverse levels of achievement motivation among the personnel, with a majority (53.28%) demonstrating medium motivation, 25.55% exhibiting low motivation, and 21.17% showing high motivation. The perception of workload varies as well, with 23.36% perceiving it as low, 40.88% as medium, and 35.77% as high, indicating a balanced distribution with a significant portion experiencing medium to high workloads. Job satisfaction levels are also varied, with 14.60% reporting low satisfaction, 59.12% reporting moderate satisfaction, and 26.28% reporting high satisfaction. Notably, the personnel exhibit predominantly high scientific orientation (54.74%), suggesting a strong inclination towards scientific methodologies, with 31.39% showing medium and 13.87% low scientific orientation. Innovativeness among the personnel is generally positive, with 9.48%

showing low, 50.37% medium, and 40.15% high levels of innovativeness, reflecting a favourable attitude towards adopting new ideas and approaches. These findings indicate that achievement motivation, workload perception, job satisfaction, scientific orientation, and innovativeness are critical factors influencing the attitude of extension personnel towards e-Extension, ultimately impacting their effectiveness and performance.

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