Research Article

Indian Journal of Extension Education
Vol. 59, No. 2 (April–June), 2023, (79-83)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Professional Competence of Extension Personnel in Karnataka State of India

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ARTICLE INFO

Keywords: Extension personnel, Professional competence, In-service training

http://doi.org/10.48165/IJEE.2023.59217

Conflict of Interest: None

ABSTRACT

The study examines the level of professional competence among agricultural extension personnel in the Karnataka state of India. The study population was composed of agricultural extension personnel in development departments and Krishi Vigyan Kendra's (Farm science center). During 2021-2022, 285 extension personnel completed self-administered surveys. The design for the data collection instrument was based on a literature review and focus group recommendations. The findings showed that respondents thought they were highly competent in the areas of program evaluation, organizational skills, human relations skills, and communication skills and moderately competent in the areas of knowledge, administration, teamwork, leadership, program planning, and implementation. Respondents' competency differed by their cadre also; ADAs, ADHs, and SMSs had high competence levels than their counterparts- AOs, AAOs, and AHOs. The findings imply that there is a need for in-service training of extension professionals in all core competency areas. Pre-service extension education curricula need to be reviewed and updated, incorporating the core competencies highlighted in the study.

INTRODUCTION

Agricultural systems and practices are changing across the world and producers' needs are changing too, farmers of the developing world are increasingly aware of new technologies and improved practices. They are demanding credible information about the benefits of adopting these improved practices. Specifically, they are demanding services such as quality seeds, timely supply of inputs such as fertilizer, credit to buy needed inputs, and access to market information and services. These challenges put pressure on extension professionals to be more knowledgeable, skillful, and able, not only in technical subject matter but also in process skills (Suvedi, 2015). David McClelland proposed the concept of competency for the first time in the 1970s, challenging traditional assessment criteria that emphasized intelligence evaluation in the higher education system. Competency is a skill, a personal quality, or a motivation displayed via a variety of behaviors that contribute to exceptional job performance. In general, competency refers to the attribute of being sufficiently or highly competent to accomplish a task (Cernusca & Dima et al., 2007).

Professional competence can be defined as the employee's general knowledge and abilities used to carry out both specified and unspecified tasks leading to the satisfaction of all stakeholders' current and future desired standards (Khadayata et al., 2019). In this era of globalization, a knowledgeable and skilled individual can play a vital role in the success of an organization. According to Seevers et al., (1997), future extension professionals need to be more skillful and futuristic to serve the needs of a diverse audience. Extension staff must learn new knowledge and skills since it is only a knowledgeable and skillful individual can play a vital role in the success of an organization in today's technological environment (Rohit et al., 2020). To be a successful extension

Received 15-03-2023; Accepted 28-03-2023

agent today, one must be competent not only in technical matters but also in areas such as management, programming, communication, human relations, and leadership (Graham, 2009). With this consideration, an attempt has been made in the present investigation to know the professional competency of the extension personnel.

METHODOLOGY

The study sought to assess the professional competence of extension personnel working in public extension organizations-developmental departments (Department of Agriculture and Department of Horticulture) and Krishi Vigyan Kendra's (KVKs) in Karnataka state, India. The study population comprised of extension personnel –Assistant director of agriculture (ADA), agriculture officer (AO), assistant agriculture officers (AAO), Assistant director of horticulture (ADH), assistant horticulture officers (AHO), and subject matter specialist (SMS). Five respondents from every nine KVKs and 240 respondents from development departments were selected following a simple random sampling technique. Hence, the total sample size was 285. The data was collected from October 2021 to February 2022 through face-to-face contact (interview) and by mailing the questionnaire. A scale was developed to assess the professional competence of extension personnel. The professional competence index of the respondents was determined by using the following formula.

$$\text{Professional competence index} = \frac{\text{Actual score}}{\text{Maximum score}} \times 100$$

RESULTS AND DISCUSSION

Professional competence of extension personnel

Nine components of competence namely; knowledge, administration skill, program planning skill, program implementation skill, program evaluation skill, organizing skill, human relation skill, communication skill, team work, and leadership were separately measured for each respondent (Table 1). The majority (56.14%) of the extension personnel were found to have a medium level of knowledge competence, followed by 26.31 and 10.87 percent with a high and very high level of knowledge competence respectively. whereas a very less percentage (6.66) of respondents belonged to the low knowledge competence category. While none of them belonged to the very low category of knowledge competence. This may be because most of the extensionists had M.Sc. degrees. So they considered them selves to have adequate knowledge of their subject matter. This implies that extension agents were better prepared for serving the technical information needs of clients. About three-fifths (60.70%) of the extension personnel had a medium level of administration skill, while 34.74, 2.81, and 1.75 per cent of the extension personnel had high, very high, and low levels of administration skills respectively. This denotes that they must have digested the lesson that effective development of the organization cannot be done without proper administration skills among the other extension personnel and departments.

The majority (63.50%) of the extension personnel had a medium level of program planning skill, followed by 14.73 per

Table 1. Component-wise professional competence of extension personnel

S.No.	Category	*f*	%
A.	Knowledge		
1	Very low (7.0-12.6)	0.00	0.00
2	Low (12.7-18.2)	19	6.66
3	Medium (18.3-23.8)	160	56.14
4	High (23.9-29.4)	75	26.31
5	Very High (29.5-35)	31	10.87
B.	Administration		
1	Very Low (5.0-9.0)	0.00	0.00
2	Low (9.1-13.0)	5	1.75
3	Medium (13.1-17.0)	173	60.70
4	High (17.1-21.0)	99	34.74
5	Very High (21.1-25.0)	8	2.81
C.	Program planning		
1	Very Low (9.0-16.2)	0.00	0.00
2	Low (16.3-23.4)	26	9.12
3	Medium (23.5-30.6)	181	63.50
4	High (30.7-37.8)	42	14.73
5	Very High (37.9-45.0)	36	12.63
D.	Program implementation		
1	Very Low (7.0-12.6)	0.00	0.00
2	Low (12.7-18.2)	24	8.42
3	Medium (18.3-23.8)	154	54.03
4	High (23.9-29.4)	62	21.75
5	Very High (29.5-35)	45	15.78
E.	Program evaluation		
1	Very Low (8.0-14.4)	0.00	0.00
2	Low (14.5-20.8)	35	12.28
3	Medium (20.9-27.2)	145	50.88
4	High (27.3-33.6)	67	23.50
5	Very High (33.7-40)	38	8.77
F.	Organizing		
1	Very Low (8.0-14.4)	11	3.85
2	Low (14.5-20.8)	16	5.61
3	Medium (20.9-27.2)	72	25.26
4	High (27.3-33.6)	163	57.19
5	Very High (33.7-40)	23	8.07
G.	Human relation		
1	Very Low (7.0-12.6)	5	1.75
2	Low (12.7-18.2)	29	10.17
3	Medium (18.3-23.8)	43	15.08
4	High (23.9-29.4)	182	63.85
5	Very High (29.5-35)	26	9.13
H.	Communication		
1	Very Low (8.0-14.4)	0.00	0.00
2	Low (14.5-20.8)	38	13.33
3	Medium (20.9-27.2)	21	7.36
4	High (27.3-33.6)	191	67.01
5	Very High (33.7-40)	35	12.28
I.	Teamwork and leadership		
1	Very Low (8.0-14.4)	34	11.92
2	Low (14.5-20.8)	49	17.19
3	Medium (20.9-27.2)	171	60.00
4	High (27.3-33.6)	20	7.01
5	Very High (33.7-40)	11	3.85

cent of them with a high level of program planning skill. Whereas (12.63, 9.12) per cent of the extension personnel were observed with very high and low program planning skills. None of them was found in the category of very low program planning skills. The insufficiency of resources particularly manpower might have made them cautious and improved their planning skills of that targets can even be achieved with limited resources (Rigyal & Wangsamun, 2011). Slightly higher than half (54.03%) of the extension personnel had a medium level of program implementation skill, while 21.75 and 15.78 per cent of extension personnel had a high and very high level of program implementation skill. Only 8.42 per cent of the extension personnel had low program implementation skills, while none was found in the category of very low level of program implementation skills. This might be due to, the majority of them had developed a calendar of work showing which activity will be implemented when, where, and with which partners. Also, they have established a strong relationship with agriculture research organizations.

The majority (86.66%) of the extension personnel had a high to a very high level of program evaluation skills. Extension personnel were able to conceptualize and design an appropriate evaluation plan, use qualitative and quantitative tools in data collection and analysis, and write a simple evaluation report attributed to high program evaluation skill. Two third (57.19%) of the extension personnel were found with high organizing skills, while 25.26 percent with medium levels of organizing skills. Further, it was also observed that 8.07, 5.61, and 3.85 per cent of the extension personnel belonged to the very high, low, and very low categories of organizing skills. It can be concluded from the above result that the majority (82.45%) of the extension personnel had a high to a very high level of organizing skills. The extension personnel at all levels might have understood the fact that in absence of proper organization of work, the tasks pile up, resources are wasted and goals are not met effectively and this, in turn, might result in aggravating job stress. Slightly less than two-thirds (63.85%) of the extension personnel had a high level of human relation skill followed by 15.08 with a medium level of human relation skill further it was also observed that 10.17 and 9.13 per cent of the extension personnel were found with low and very high human relation skill respectively. Very less (1.75) per cent of the extension personnel belonged to the very low category of human relation skill. It is quite natural that differences of opinion might be there on different issues in the work place, but such differences of opinion should not take the form of obstacles to achieving organizational objectives. The extension personnel might have understood the significance of this and might have developed the knack to have better interpersonal and intergroup adjustment.

The majority (67.01%) of the extension personnel had a high level of communication skills, followed by 13.33 and 12.28 per cent with a low and very high level of communication skills respectively. Interestingly none of the extension personnel were observed with a very low level of communication skills. It means a majority of them had fairly enough ability to express their ideas to others as well as listen to the ideas of others, understand them properly, and avoid misunderstandings in communication. A high level of education and medium to the young age of extension personnel might have helped them to develop good communication ability in them. This result is partially in line with findings of Scheer (2011).

The majority (60.00%) of the extension personnel had a medium level of teamwork and leadership skills followed by 17.19 and 11.92 per cent of extension personnel were observed with a low and very low level of teamwork and leadership skills, further, it was also observed that a very less percent (7.01 and 3.85) of the extension personnel belonged to a high and very high category of team work and leadership skill respectively. In the department and KVKs, various types of extension activities/programs are carried out which provide opportunities to extension personnel at different levels to influence or direct their subordinates or farmers to the accomplishment of targeted goals. Apart from this, their attributes like higher education, higher self-confidence, higher achievement motivation, and good experience might also have helped to some extent in the development of team work and leadership quality among extension personnel.

Overall professional competence of extension personnel

Based on data on different components, the overall professional competence index was calculated for each respondent and based on their average composite index score; they have grouped arbitrarily into five categories. Table 2 indicates that the majority (52.28%) of the extension personnel had a high level of overall professional competence with an average composite index value of 75.86 followed by 20.70 per cent of them with a medium level of overall professional competence. The result is line with the findings of Ramjee (2016). A considerable percentage (15.08) of the respondents belonged to the low competence category. A very less percentage of the extension personnel belonged to very high (7.02) and very low category (3.85) categories of professional competence. As discussed earlier, the majority of the extension personnel were observed at high or medium to high levels on different components of professional competence. The aggregate effect of all these components is reflected in a high to a very high level of overall professional competence. The result of the study is in line with Debnath et al., (2014).

Stepwise multiple regression analysis presented in Table 3 indicates that all the independent variables considered in the study together exerted significant influence on the professional competence of the respondents. It implied that the variation in professional competence was due to the combined influence of all the 12 variables studied for this purpose. An analysis of the coefficient of determination revealed that independent variables contributed to the extent of 74.5 per cent variation in the

Table 2. Distribution of extension personnel according to their overall professional competence

S.No.	Category	*f*	%
1	Very Low (0-20)	11	3.85
2	Low (21-40)	43	15.08
3	Medium (41-60)	59	20.70
4	High (61-80)	149	52.28
5	Very High (81-100)	20	7.02

Average composite index = 75.86 (High)

Table 3. Multiple regression analysis of independent variable and professional competence of extension personnel

S.No.	Variables	Coefficient	Standard error	't' value
1	Age	0.001556	0.019649	0.079179
2	Education	0.697691	0.328059	2.126725*
3	Experience	0.168891	0.029637	5.698591**
4	Social participation	0.286665	0.168593	1.700341
5	Training received	0.13542	0.050826	2.66445**
6	Mass media exposure	0.13408	0.09718	1.37971
7	Achievement motivation	0.225478	0.100637	2.240517*
8	Organizational climate	0.537746	0.091282	5.891024**
9	Workload	-0.98862	0.329273	-3.00244**
10	Facilities available	0.13542	0.050826	2.66445**
11	Job satisfaction	0.729027	0.108075	6.7455818**
12	Job involvement	0.30976	0.048621	6.370966**

R square value = 0.745; F value = 6.440; *significant at 0.05 per cent level

professional competence of extension personnel. The results presented in the table, also pointed out that independent variables like education, experience, training, achievement motivation, organizational climate, facilities available, workload, job satisfaction, and job involvement contributed significantly towards the variation in the professional competence of the extension personnel.

With increase in the level of education, the professional competence of extension personnel also increased as the higher level of education might have increased their power of understanding and learning new things. It is quite obvious that experience makes man learn many new things, increases his technical know-how and skill and thus gradually leads him towards perfection. Achievement motivation of an individual is the basic character upon which other motives and drives are built. When one develops high level of achievement motivation, he would try hard to find out the ways and means to achieve the desired thing. This will foster in him higher level of professional competence. It is natural that a person would derive high job satisfaction only if he can accomplish his task/job with efficiency and effectiveness and this is possible only if he has high level of professional competence.

Further, in light of the significant contributions made by the above-mentioned variables toward the professional competence of the respondents, these variables can be considered good predictors of the professional competence of extension personnel (Neda 2010). These results reinforce the findings of factors influencing the professional competence of extension personnel with the various characteristics of extension personnel. This result is in line with the result found by Borah & Devarani (2022).

Results of the Kruskal-Wall is rank sum test as presented in Table 4 reveal that the Kruskal-Wall is chi-squared value and p-value were 0.11579 and 0.9438 respectively. Since the p-value was greaterthan0.05, the test was found to be not significant, that is there was no a significant difference in the level of professional competence of extension personnel of KVK, SDA, and SDH. This result is partially in line with findings of Prabhavati and Badiger (2013).

Table 4. Kruskal-Wall is test statistics for the comparison of professional competence among the three groups (KVK, SDH, SDA)

S.No.	Category	Value
1	Chi-square	0.11579
2	df	2
3	p-Value	0.9438

Table 5 shows category wise average composite index of extension personnel it is clear from the table that, there is no significant difference between the level of professional competence of extension personnel of KVK, SDA, and SDH. Both KVKs and Departments (SDA & SDH) are primarily focus on the extension activities like conducting training, advisory works, field visits, demonstrations etc. This maybe the major reason for their same level of professional competence. This result confirms the result obtained through the Kruskal-Wallis rank sum test.

Table 5. Average composite index for professional competence

S.No.	Composite index	%
1.	KVK	88.38
2	SDA	87.89
3	SDH	87.45

CONCLUSION

The study observed that most of the extension personnel had a high overall professional competence. Extension personnel possessed a high level of program evaluation, organizing, human relation, & communication skills. In contrast, knowledge competence, administration skill, program planning skill, program implementation skill, and teamwork and leadership skills were found to be medium. These skills and competence could be used for multiple programming functions. The findings indicated that training is one of the prominent variables influencing professional competence. Therefore, policymakers, planners, and executives should concentrate on providing more training to increase the competence level of employees. The extension personnel working in KVKs also need training on capacity building and stress management issues. The pre-service extension education curricula must be reviewed and updated, incorporating the core competencies.

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