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Attributes Contributing Core Competencies: A Study of KVK Personnel in Bihar and Jharkhand States

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ABSTRACT

The KVKs provide multidisciplinary and broad based technological interventions to enable farmers manage their farm in a sustainable and integrated manner. This demands enhanced manpower not only in terms of number but also covering the most important subject matter areas relevant to the district. Personal, communication, motivational and leadership skills are considered important for problem solving and attaining the objective of any organization. This study considered 123 personnel working under the jurisdiction of ATARI, Patna. Semi structured questionnaire (using Google form) seeking qualitative and quantitative data was used as measurement tool. It was found that the respondents were working under the Administrative control of ICAR, SAU of the zone, NGOs and State Government. Majority of the respondents perceived themselves having good to very good personal skills, communication skills and the skills to identify and solve field level problem. The administrative control of KVK, area of specialization and academic qualification were positively significantly correlated with level of knowledge, whereas designation, age, gender and marital status were positively non-significantly correlated, but distance was negatively non-significantly correlated with the level of knowledge. The leadership qualities were significantly positively correlated with distance, administrative control of KVKs, academic qualification, area of specialization, whereas designation, age, gender and marital status were negatively non-significantly correlated. The multiple regression analysis showed that four variables namely administrative control, academic qualification, area of specialization and experience contributed significantly to level of knowledge. The leadership qualities contributed significantly by administrative control, academic qualification and area of specialization.

INTRODUCTION

It is an extension organization which influences the behaviour of farm families whom it tries to help them to reach better goals on their own. It would be appropriate that top level officials should take few decisions for which the staff of the organization is competent. Studies have also indicated that the multi-post disciplinary organization like KVK should make their staff competent enough to support farmers on decisions considered important by farmers. Owing due to growth of organizations, their changes in activities of work in their hierarchical structure too is resulting into gap between field level agents and their controlling offices. It appears that the management of organization has become a preoccupation rather than the development efforts. Lack of

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technically qualified and multidisciplinary team of personnel is important constraints to cope up with the divergent needs of a farmer. It would be appropriate to state that Indian Agricultural Extension has achieved success mainly in homogenous environment. Krishi Vigyan Kendras (KVKs) or Farm Science Centres as institutes of inducing behavioural change, are managed both by government and non-government organizations, KVKs frontline extension organizations play tremendous role to meet out information needs of farmers related to their daily activities including home science and home economic practices. With the emphasis on all aspects of rural life, KVKs are the harbingers of overall development on a scientific basis with social justice because of their location near to a district headquarters, with financial support from ICAR and backup from their host institutes to become the information centers on all aspects of agriculture. These information centers are the learning centers through the demonstration units and hands-on experience provided during Training and Visits to KVK farm. Training is the key to bring about the necessary changes in individual attitudes. Hands-on experience and learning by doing with theory and practice at 1:3 ratios are emphasized in KVK activities to promote participants for the acquisition of skills. The instructional units and the demonstration plots of the KVK farms are effectively used to build skills among farming community and facilitate the transfer of skills to second generation users through supportive visuals. Skill development programmes like Farmers' Field Schools (FFSs) organized by KVK, Raichur of Karnataka on the integrated pest management in cotton is a living example considered as an outstanding achievement.

In a KVK, the Programme Coordinator (PC) and Subject Matter Specialists (SMSs) are responsible for successful execution of the mandate of KVK and to perform mandated duties. Now-a-days a number of women scientists/SMSs are working with devotion for the welfare of farming community. Women SMS sometimes outperform their male counterpart in KVK activities. SMSs are in technical cadre at present in KVKs under ICAR institutes. A study on the motivational climate as perceived by SMSs of KVKs in North East India showed that an overall Dependency-Control motivational climate existed in the KVKs, enhancing job satisfaction and job involvement levels, creating a team management leadership style and developing a team work environment in the KVKs were some of the suggestions to reduce this dominant motivational climate strength (Sharma et al., 2018). The study by National Institute of Labour Economics Research and Development (NILERD, formerly IAMR) on KVKs' impact also brought out that KVKs are the carriers of frontline technologies and impart knowledge and critical input support for the farmers but the productivity of Indian agriculture still remains low compared to many developing and developed countries. According to Claire et al., (2010), extension services in India should provide a diverse set of services, outreach to marginal and small farmers and should respond to emerging issues in agriculture. Impact study of KVKs on 3,000 beneficiaries of Tamil Nadu and Puducherry on six KVKs revealed that while services provided by KVKs were useful to the beneficiaries, there was a need for frequent field visits by the KVK staff. About 16.8 per cent beneficiaries stated that KVK staff needs up-gradation of their technical knowledge for providing guidance on various problems faced by the farmers (Subburaj, 2013). The personal core competencies revolve around medium level (Rohit et al., 2109). The preference is given mostly to knowledge, skill and personality only (Krishnaveni and Arunachalam, 2019). In this backdrop a study to analyze the attributes of KVK personnel which contributed to the core competencies required for day to day functioning was conducted in the jurisdiction of ATARI, Patna is described in this paper.

METHODOLOGY

The study conducted in Bihar and Jharkhand states under ATARI, Patna, and the respondents working for KVK were selected purposively. A survey was conducted to collect both quantitative and qualitative data through a semi-structured schedule which was specifically developed for the study and converted in Google form for ease of data collection. It was mailed to all the scientific/ technical personnel available in database of the ICAR and KVK

Table 1. Profile characteristics of the respondents

Category	Frequency	Percentage
Administrative control		
ICAR	12	9.75
SAU	58	47.15
NGOs	25	20.32
State Govt.	7	5.69
Others	21	17.07
Designation		
PC	34	27.65
SMS	89	72.35
Other	0	0.00
Total	123	100.0
Age Mean- 44.66, Standard Deviation- 8.93, Range-18-62		
Young (< 35 years)	20	16.30
Middle aged Between 36 & 50 years	75	61.00
Old (>51 years)	28	22.77
Gender		
Male	100	81.30
Female	23	18.69
Marital status		
Single	13	89.44
Married	110	10.57
Academic qualification		
PG.	49	39.84
Ph.D.	74	60.17
Post Doctorate	0	0.00
Total	123	100.0
Subject/specialization		
Agricultural Engineering	14	11.39
Agricultural Extension	14	11.38
Agronomy	25	20.32
Animal Science	12	9.75
Home Science	10	8.14
Horticulture	22	17.89
Soil Science	9	7.31
Fisheries Science	4	3.25
Plant Protection	13	10.57
Experience in KVK		
<5 years	27	21.95
5-10 years	13	10.56
10-15 years	36	29.26
15-20 years	35	28.45
>20 years	12	9.75

directory. This pilot study was conducted to test availability, time taking and reliability of the tool. For analysis of profile characteristics stratification method; mean ±2S.D was used for categorization into very low, low, medium, high, and very high and for the attribute categorization CCRF (cumulative cube root frequency) as low, medium and high were used. The logistic regression model was used for regression analysis with its correlates. In total 123 KVK personnel responded correctly and completely whose data were analyzed with the help of SPSS 20.0 and Excel Stat software to draw valid conclusion.

RESULTS AND DISCUSSION

Profile characteristics and perceived core competencies

The frequency distribution represented about 47.15 per cent of KVKs was under administrative control of SAUs, 20.32 per cent belonged to NGOs, 9.75 per cent from ICAR, 5.69 per cent from state government and others constituted 17.07 per cent. Majority (72.35%) of personnel in KVKs were with SMS designation (Table 1). The mean age of respondents was 44.66 years with a standard deviation of 8.93; indicating the consistency of respondents on their age. The frequency distribution appears to be skewed towards the middle age of respondents. About 61 per cent of respondents were middle aged. The mean was also representing middle aged respondents. Very few were young (16.3%). A number of workers have reported different findings regarding age of personnel at KVKs (Prasad and Mahipal, 1997; Prakash et al., 2003; Jagdale, 2004; Sharma, 2004; Godara et al., 2006; Tayade et al., 2011). Only 18.69 per cent of the respondents were women members, similar results were reported by Padmaja and Prabhakar (2011). 89.44 per cent of the respondents were married, while nearly 10.57 per cent were single and no one was separated or divorced. Further, majority (60.17%) of the KVK personnel possessed highest qualification doctorate (Ph.D.) and the others were post-graduate and no one was post doctorate. Maximum percentage (20.32%) of respondents were from agronomy, followed by horticulture (17.89). The personnel from agricultural engineering and agricultural extension were in equal percentage of 11.39 per cent. Others were from animal science (9.75%), home science (8.14%), soil science (7.31%) and the least were from fisheries science (3.25%). It can be seen from the table that 29.26 per cent of respondents were having experience of 10-15 years and near about 28.45 per cent were having experience of 15-20 years. Above 20 years of experience respondents were very less (9.75%) and newly appointed personnel of having less than 5 years' experience were 21.95 per cent.

It is evident that out of 123 respondents, 62 were having high core competencies to understand the KVK functional role, 49.59 per cent considered possessing knowledge to understand the important functional role of KVK (Table 2). Personal skills about KVK practices were considered high by 48.78 per cent respondents.

Table 2. Perceived level of core competencies

Category	Frequency	Percentage
Level of knowledge possess about KVK		
Low	18	14.63
Medium	43	34.95
High	62	50.40
Total	123	100.0
Level of knowledge considered important about KVK		
Low	23	18.69
Medium	39	31.70
High	61	49.59
Personal skills		
Low	28	22.76
Medium	35	28.45
High	60	48.78
Personal skill about KVK practices considered important		
Low	11	8.94
Medium	49	39.83
High	63	51.21
Communication skills to deliver various practices of KVK		
Low	41	33.33
Medium	21	17.07
High	61	49.59
Communication skill considered important for various practices of KVK		
Low	19	15.44
Medium	62	50.40
High	43	34.95
Problem identification in KVK practices		
Low	35	28.45
Medium	9	7.31
High	79	64.23
Finding suitable solution for identified problem		
Low	17	13.82
Medium	23	18.69
High	83	67.47
Leadership qualities		
Low	7	5.69
Medium	23	18.69
High	93	75.61

Table 3. Correlation coefficients of perceived core competencies with personal profile

Independent variable	Knowledge Level	Knowledge important for KVK	Personal skills	Personal skill important for KVK	Communi-cation skills	Communi-cation skills important for KVK	Problem identi-fication	Finding suitable solution of problems	Leadership qualities
Distance	-0.0346	-0.006	-0.118	-0.037	0.076	0.070	0.012	-0.025	0.065
Designation	0.225	-0.358	0.124	0.170*	0.219	0.186	0.253	0.258	-0.176
Administrative control of KVK	0.569**	0.474**	0.573**	-0.325	0.331	0.450	0.477	0.320	0.144
Age	0.233	-0.113	0.064	0.044	0.092	-0.00	0.091	0.046	-0.058
Gender	0.089	-0.157	-0.209	-0.180	-0.187	-0.127	-0.105	-0.061	-0.132
Marital status	0.243	0.020	0.015	-0.123	-0.122	-0.158	0.004	-0.004	-0.125
Academic qualification	0.449*	0.757**	0.159*	0.383*	0.635	0.677	0.201	0.521	0.462
Area/ subject of specialization	0.772**	0.506**	0.194*	0.458**	0.309	0.427	0.597	0.395	0.248

***Significant at 0.01 level of probability*

Regarding personal skill about KVK practices considered important, 51.21 per cent of respondents considered at high level. 49.59 per cent of respondents were high on the possession of communication skills to deliver various practices of KVK and 33.33 per cent were low, whereas communication skill considered important for KVK functioning were considered in the medium range of 50.40 per cent and in the high range by 34.95 per cent respondents. Majority (64.23%) of the KVK personnel were able to identify the problems, whereas majority of respondents (67.47%) perceived that they can find suitable solution for the identified problem. Majority of the KVK personnel (75.61%) considered themselves possessing high level of leadership qualities.

Multiple correlations and multiple regression analysis of profile characteristics with Perceived attributes

The administrative control of KVK, area of specialization and academic qualification were positively significantly correlated with respect to level of knowledge, other socio-economic variable designation, age, gender and marital were also having positive relation but distance was negatively correlated with the level of knowledge whereas administrative control of KVK, academic qualification and area of specialization were positively significantly correlated with level of knowledge considered important for KVK personnel (Table 3). Other profile variables *viz.* distance, designation, age, and gender were negatively non-significantly correlated with level of knowledge considered important for KVK personnel. As far as personal skills considered important for KVK personnel and profile correlation is concerned, administrative control of KVK was positively significantly correlated and other variable like designation, age, academic qualification, area of specialization were positively non-significantly correlated with possession of personal skills considered important by KVK personnel. The variable marital status, gender and distance were negatively non-significantly correlated with possession of perceived personal skills considered important for KVK personnel. Gender and marital status were negatively non-significantly correlated with possession of communication skills to deliver various KVK practices and distance, designation, administrative control of KVK, age, academic qualification and area of specialization were positively non-significantly correlated with possession of communication skills to deliver various KVK practices, whereas distance, designation, administrative control of KVK, academic qualification, area of specialization were positively significantly correlated with communication skill considered important for various practices of KVK and gender and marital status were negatively correlated. Gender was found negatively non-significantly correlated with problem identification and other variable like, administrative control of KVK, academic qualification and area of specialization were positively significantly correlated to problem identification during KVK practices. Administrative control of KVK, academic qualification and area of specialization were positively significantly correlated with finding suitable solution for identified problem during KVK practices, whereas distance, gender and marital status were negatively non-significantly correlated with finding suitable solution for identified problem during KVK practices**.** The leadership qualities were found positively significantly correlated with administrative control of KVK,

Table 4. Multiple regression analysis of core competencies about level of knowledge

S. No.	Profile characteristics	Knowledge level			Knowledge considered important about KVK			Personal skills			Personal skill important for KVK			Communication skills		
		UCP	t-value	Sig.	UCP	t-value	Sig.	UCP	t-value	Sig.	UCP	t-value	Sig.	UCP	t-value	Sig.
1.	(Constant)				79.475	2.506	.014	89.946	8.567	.001	84.93	11.73	.008	145.4	19.3	.005
2.	Distance	-.062	-1.391	.167	.093	.646	.520	.073	.454	.237	.049	.237	.283	.054	.847	.003
3.	Designation	-.285	-1.539	.127	-.285	-1.539	.127	-.352	-1.363	.512	-.484	-.453	.045	-.132	-.422	.023
4.	Administrative control of KVK	.659	.644	.013	4.504	2.126*	.036	3.473	2.036*	.035	2.473	3.036*	.002	3.002	4.943*	.006
5.	Age	-.050	-1.017	.311	.041	.310	.757	.025	.252	.143	.028	.366	.347	.087	.847	.245
6.	Gender	-.024	-.440	.661	-2.775	-.969	.335	-1.637	-.883	.253	-2.637	-.250	.034	-1.445	-.594	.035
7.	Marital status	-1.953E-5	-2.570	.012	.093	.762	.448	.037	.849	.236	.038	.660	.236	.024	.947	.484
8.	Academic qualification	1.184	4.400**	.000	2.124	2.693**	.008	1.948	2.746**	.002	2.234	3.137**	.004	4.455	2.995**	.003
9.	Area of specialization	.463	3.026*	.003	1.211	2.811**	.006	2.112	3.118**	.007	3.860	2.258**	.005	4.454	3.854**	.005
10.	Experience	.035	.818	.415	-.112	-.964	.337	-.243	-.273	.207	-.326	-.368	.209	-.658	-.587	.121
		$R^2$0.237, F Ratio at 8 and 123 degrees of freedom = 4.40**			R^2 = 0.128, F Ratio at 8 and 123 degrees of freedom = 2.08**			R^2 = 0.159, F Ratio at 8 and 123 degrees of freedom = 2.68**			R^2 = 0.345, F Ratio at 8 and 123 degrees of freedom = 3.487**			R^2 = 0.780, F Ratio at 8 and 123 degrees of freedom = 4.83**		

Table 4a. Multiple regression analysis of core competencies about level of knowledge

S. No.	Characteristics	Communication skills important for KVK practices			Problem identification			Finding suitable solution for identified problem			Leadership qualities		
		UCP	t-value	Sig.	UCP	t-value	Sig.	UCP	t-value	Sig.	UCP	t-value	Sig.
1.	(Constant)	122.4	15.7	.005	65.79	7.98	0.03	112.03	12.19	0.05	145.09	23.27	0.02
2.	Distance	.023	.466	.004	.074	.232	.006	.085	.393	.009	.063	.563	.002
3.	Designation	-.876	-.757	.042	-.525	-.635	.036	-.525	-.734	.094	-.535	-.325	.084
4.	Administrative control of KVK	2.003	2.456*	.002	3.434	2.332*	.007	1.331	3.383*	.049	2.425	4.425*	.063
5.	Age	.063	.475	.532	.037	.489	.390	.038	.954	.001	.040	.536	.003
6.	Gender	-2.005	-.654	.015	-1.334	-.393	.094	-2.389	-.832	.078	-3.488	-.324	.078
7.	Marital status	.076	.468	.940	.0289	.389	.087	.0033	.282	.028	.0023	.456	.028
8.	Academic qualification	3.954	3.905**	.005	4.002	2.534**	.049	3.232	3.223**	.038	4.373	2.703**	.038
9.	Area of specialization	2.454	3.970**	.005	2.349	4.130**	.003	3.832	2.223**	.004	5.123	3.923**	.009
10.	Experience	-.435	-.906	.356	-.283	-.267	.099	-.234	-.488	.059	-.234	-.488	.059
		R^2 = 0.560, F Ratio at 8 and 123 degrees of freedom = 3.97**			R^2 = 0.450, F Ratio at 8 and 123 degrees of freedom = 2.46**			R^2 = 0.550, F Ratio at 8 and 123 degrees of freedom = 3.56**			R^2 = 0.839, F Ratio at 8 and 123 degrees of freedom = 5.67**		

*Unstandardized Coefficients Partial 'b' is UCP , *Significant at 0.05 level of probability;**Significant at 0.05 level of probability*

academic qualification, area of specialization whereas designation, age gender and marital status were negatively non-significantly correlated.

It was revealed through the multiple regression analysis that four variables; administrative control of KVK, academic qualification, area of specialization and experience contributed significantly (R^2 = 0.237) to level of knowledge, whereas three variables *viz*. Administrative control of KVK, academic qualification, area of specialization, contributed significantly to level of knowledge considered important for KVK personnel (Table 4). Three variables namely, administrative control of KVK, academic qualification, area of specialization, contributed significantly (R^2 = 0.159) to personal skills. Further, three variables contributed significantly to communication skills considered important for various practices of KVK (R^2 = 0.78) and to the core competency namely, problem identification (R^2 = 0.45) and to find suitable solution for identified problem for KVK practices (R^2 = 0.55) to finally leadership qualities (R^2 = 0.839).

CONCLUSION

The role of scientific staff in KVK is very crucial, vital and multifarious to address and support farmers in their decision process enabling them to achieve their goals of higher farm income. It may be summarized that the administrative control, academic qualifications, area of specialization remain the most important variables for contributing towards personal skills, practices, identification of problems and their solution, finally these variable influence leadership. As such, it may be recommended that the workshops, intergroup trainings, peer learning groups and other methodologies for the required skills may be organized for KVK personnel, especially for those whose administrative control hardly encourage such skill upgradation.

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