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Research Articles

Skill Gap Analysis of Extensionists working in Krishi Vigyan Kendras in India

JAGRITI ROHIT[1], PREMLATA SINGH[2], V P CHAHAL[3] and SATYAPRIYA[4]

ICAR-Central Research Institute for Dryland Agriculture, Hyderabad, Telangana 500 059, India

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ABSTRACT

Effective and efficient Extensionists are essential for delivering the required services to the farmers. Skill Gap Analysis is important to make the Extensionists updated and competent in their field. A Skill Gap Analysis using Borich Need Assessment Model was carried out in the four zones of Krishi Vigyan Kendras (KVKs) during 2016. The zones of ICAR-KVK were selected using simple random sampling. Twenty KVK from each zone were selected randomly and 3 Extensionists from each KVK were selected by using simple random sampling technique. The total sample size was 240. Mean weighted discrepancy score (MWDS) was used to study the skill gap. The result of the study indicated that the highest level of skill gap were expressed in designing and conducting farmers training, assessing training needs of the farmers, their ability to use computer (internet) and power point presentation, knowledge and awareness to approaches towards adult education and their ability to prepare visual aids to help deliver information. Lowest mean weighted discrepancy score was given to their ability in presenting the seminar and coordinating work with their peer. Inadequate funding emerged as the major barrier in acquiring the required competencies. Attention should be given to skill gap analysis owing to the importance given to skill development at the national level. Extensionists with the required skill in their job will lead to the better performance and ultimately better services to farmers.

Key word: Barriers, Borich Need Hierarchy, Extensionists, Skill Gap Analysis, Training

Skill development has occupied a center stage in national mandate with the launch of National Skill Development Mission in India by Honorable Prime Minister Narendra Modi in 2015. Skill development is important to utilize the demographic dividend of the country. Along with development of the clientele, extension professionals need to be upgraded and updated with the existing and new skills. It is said that success of an organization is directly related to the skill of its human resource. Same is the case with agricultural extension organization. Competent human resources are the valuable assets to the extension organization. Farm extension services have reaffirmed their essential role in agrarian development, poverty reduction and rural prosperity (Birner and Anderson 2007). Possession of adequate technical knowledge and required skills by the Extensionists has become a sine quo for providing effective and efficient service to its clientele. Providing systematic training, planning and management and its execution by best using the available resource helps in bringing the much needed changes in knowledge and upgradation of skills needed by extension professionals related to the process of agricultural development. Cyr (2008) showed that the extension functionaries enhanced their facilitation competency by participating in the training. Likewise Harder *et al.* (2010) stated that hands on experience were considered as the most important for professional and personal development. In today's world, information is indeed a unique prerequisite for making wise decisions. The science of agriculture is enriching itself with new knowledge and technology. To be competent and effective in its field, Extensionists need to be a comprehensive information seeker and learner to keep them updated and upgraded with these new happenings. Therefore, assessing the training needs of the Extensionists at regular intervals and conducting capacity enhancement programmes to address their knowledge and skill gaps is the need of the hour. In this scenario, the present study is an attempt to identify and prioritize the training needs of Extensionists, so that necessary measures would be suggested to develop suitable capacity building modules and conduct capacity enhancement programmes for them.

MATERIALS AND METHODS

Krishi Vigyan Kendra's (KVK) were selected purposively as an organization for the present study due to the immense importance given to them in providing extension services to the farmers. The number of KVK's

[1]Scientist (jags.rohit@gmail.com), ICAR-Central Research Institute for Dryland Agriculture, Hyderabad; [2]Head (premlataashok@gmail.com), [3]Assistant Director General (vpchahal.icar@nic.in), [4]Principal Scientist (satya118ext@gmail.com), Division of Agricultural Extension, ICAR- Indian Agricultural Research Institute, New Delhi.

has been increasing since its inception in 1974, standing at 706 as on today (ICAR 2019). Four zones of ICAR -Krishi Vigyan Kendra (KVK), viz. Zone I, II, IV and VII were selected using simple random technique. From each Zone, 20 ICAR-KVK's and 3 Extensionists from each KVK were selected following simple random sampling technique. Hence, the total sample size comprises 240 respondents. Present study fully relies on the primary data and hence data was collected through proper structured schedule during 2015–16. An Extensionist, for the present study, was operationalized as an Extension professional having a specialised degree in agricultural sciences or allied sciences, working in Krishi Vigyan Kendras and directly in contact with the clientele/farmers.

Training need is operationalized in this study as the difference in the skills expected or required by extensionists in their job and the actual skills possessed by them. The present study adopted the Borich Need Assessment Model (Borich 1980) which relies on the extension agents' judgments about their own performances. A dichotomous importance *vs* possessed competency five point continuums, from least important to most important and very low to very high was developed. Respondents were asked to give their self-perceived responses on the identified 52 competencies statements for both importance and possessed competency. Reliability as a measure of internal consistency was established using Cronbach's alpha and the values were 0.854 for the importance level and 0.824 for the competence level.

Discrepancy Score = I-C

Weight Discrepancy Score = I (I-C)

Mean Weight Discrepancies Scores = Σ I (I-C)/n

where I, Importance level; C, Competency level; n, number of respondents.

A barrier for the present study was operationalized as the factor that impedes the acquisition of required competencies by the Extensionists. For assessing the barriers in acquiring the required competencies for the Extensionists, a standardized Likert-type value scale ranging from 1 being very low to 5 being very high was developed. The final barrier scale for the Extensionists consisted of 15 item statements. The Cronbach's Coefficient alpha (a) was 0.78, for the scale of the barriers.

RESULTS AND DISCUSSION

Skill Gap Analysis: Skill Gap Analysis based on mean weighted discrepancy is shown in the Table 1. Designing and conducting farmers training (MWDS 5.189) was their most important felt need and had highest skill gap. Since majority of the respondents were not from the Extension specialization, they were generally not exposed to the training and extension concepts. So, they needed proper training in conduction of training for farmers and other stakeholders. This result is in line with the Kumaran *et al.* (2011) who reported that the extension personnel had skill gap in conducting farm demonstration due to lack of awareness about the extension methodologies. Further, assessing training need of the farmers was the second highest (MWDS 5.073) in the need assessment. Needs assessment was also found as skill gap in U.S. Food Safety Extension Educators by Koundinya and Martin (2015). The results are also supported by the findings of Comptroller and auditor general (2008), which states that 117 KVKs (65%) did not assess location specific training needs based on interaction with farmers and 53% of the KVKs did not conduct training impact assessment.

Okeowo (2015) laid emphasis on training of extension agents for ICT in peer staff (MWDS 1.998). In the era of computers and information technology, ICT aided extension aids in the form of video films; powerpoint presentations and multi-media aided information dissemination are found to be effective. The respondents also perceived a skill gap in the ability to use computers and PowerPoint presentation (MWDS). Knowledge and awareness to approaches towards adult education (MWDS 5.044) and Ability to prepare visual aids to help deliver information (MWDS 5.041) were the next skill gap expressed in the assessment. Teaching and training to farmers requires an understanding about the process of how adult learns which plays a vital role in making teaching and training effective. As success of extension services largely depends on extension agent's skills and lack of extension skills lead to unsatisfactory extension services to farmers (Ahmed 2002). Therefore, training on extension methodologies, production of extension materials and audio-visual aids need to be planned to build the skills of the Extensionists. The result of the training need also showed that the respondents expressed a gap in evaluating an extension programme (MWDS 5.036).

Abiltiy to present the seminars and coordinate work schedules with other peer staff were low in the training need. This may be due to the reason that the repondents had confidence in their topics for seminar, i.e thorough understanding of their respective subject. As the Extensionists enjoy good interpersonal relations with their peer, they were able to coordinate with them better. Rigyal and Wangsamun (2011) also reported the above findings. This result indicated that Extensionists needed training in all competencies shown in the three main categories of extension knowledge, skills and qualities. This supports the findings of Hussain *et al.* (2004) that in developing countries, there is the need to strengthen competencies in all areas. Seven of the 52 competencies, as perceived by Extensionists received a mean weighted discrepancy score of less or equal to than 2.0 indicating less need for training: Applying persuasive style to inform clientele (MWDS 2.979), recognize learning differences in age groups (MWDS 2.944), analyse traditional culture and its effect on change (MWDS 2.936), sure of what is being done every day (MWDS 2.891), see both sides of arguments in question (MWDS 2.793), ability to present seminar (MWDS 2.659), and coordinate work schedules with other (MWDS 1.998).

Barriers in acquiring the required competencies: Highest mean value (4.14) on this scale was reported for inadequate funding followed by Lack of facilities for

Table 1 Skill Gap Analysis of Extensionists n=240

Competencies statement	Level of possession		Level of importance		MWDS
	Mean	Std dev	Mean	Std dev	
Design and conducting farmers Training	3.058	0.740	4.754	0.431	5.189
Assessing training needs of the farmers	2.758	0.754	4.287	0.575	5.073
Ability to use computer (internet) and power point presentation	2.539	0.909	4.416	0.579	5.044
Knowledge and awareness to approaches towards adult education	2.8	0.942	4.175	0.602	5.041
Ability to prepare visual aids to help deliver information	2.728	0.705	4.320	0.485	5.039
Evaluating extension program	2.845	0.752	4.216	0.512	5.036
Ability to convey extension messages effectively	3.1	0.707	4.725	0.456	5.012
Curriculum development	2.237	0.816	3.891	0.650	4.805
Ability to persuade farmers to adopt technologies	3.004	0.705	4.570	0.504	4.7
Find ways to encourage farmers to adopt innovations	3.154	0.644	4.604	0.506	4.553
Implement extension activities without supervised	2.979	0.874	4.45	0.554	4.383
Planning and conducting survey in operational area	2.991	0.672	4.45	0.531	4.360
Set objectives for an extension program	2.841	0.726	4.358	0.489	4.307
Good understanding of district, people and culture	2.966	0.862	4.675	0.469	4.205
Managing time effectively	3.116	0.722	4.458	0.523	4.186
Laying out OFT	3.520	0.633	4.70	0.468	4.150
Leading farmers	3.170	0.678	4.479	0.508	4.147
Using local leaders to influence farmers to change	2.912	0.723	4.329	0.610	4.136
Conducting situational analysis of extension program	2.725	0.737	4.229	0.557	4.091
Using of PRA tools	2.958	0.758	4.316	0.492	4.020
Identify appropriate educational delivery technology	2.916	0.709	4.291	0.638	4.015
Maintaining relationship with farmers	3.533	0.570	4.662	0.473	3.985
Laying out FLD	3.425	0.648	4.654	0.485	3.982
Introducing new methods in extension work	2.841	0.877	4.225	0.548	3.928
Designing a work plan for extension activity	2.962	0.716	4.283	0.504	3.909
Possessing self-motivation, determination & dedication	3.633	0.524	4.708	0.455	3.902
Adequate technical knowledge in the subject area	3.545	0.806	4.645	0.487	3.894
Provide feedback of researchable problems to Researchers	3.087	0.729	4.341	0.500	3.875
Involve farmers in program planning	3.104	0.703	4.345	0.510	3.849
Delivering TV talks	2.929	0.690	4.212	0.680	3.760
Establishing rapport with the farmers	3.195	0.707	4.358	0.530	3.708
write effectively for target audience	2.616	0.745	4.033	0.516	3.693
Confidence to work without guidance and support	2.858	0.757	4.1417	0.624	3.670
Delivering radio talks	2.966	0.683	4.179	0.514	3.601
Confidence in own abilities to meet set objectives	3.295	0.620	4.379	0.511	3.564
Deal effectively with field /extension problems	3.054	0.679	4.212	0.868	3.532
Identify problems of farmers and why they arise	3.029	0.728	4.170	0.571	3.459
Understand KVK mandates and objectives	3.441	0.617	4.441	0.565	3.354
Provide leadership in program planning and Execution	3.187	0.744	4.237	0.507	3.349
Visualize future extension prospects and problems	2.804	0.842	3.987	0.636	3.313
Reliability in implementing extension work	3.416	0.654	4.35	0.5586	3.192
Commitment to extension work	3.533	0.605	4.433	0.529	3.177
Awareness of the current government policies	3.195	0.690	4.183	0.466	3.150
Sensitive to the feelings and wishes of farmers	3.533	0.591	4.408	0.556	3.088

Contd.

Table 1 (*Concluded*)

Competencies statement	Level of possession		Level of importance		MWDS
	Mean	Std dev	Mean	Std dev	
Analyse how change in social status affect farmers	2.8	0.654	3.887	0.620	3.045
Apply persuasive style to inform clientele	2.6	0.817	3.745	0.689	2.979
Recognize learning differences in age groups	2.566	0.845	3.712	0.663	2.944
Analyse traditional culture and its effect on change	2.616	0.733	3.737	0.628	2.936
Sure of what is being done everyday	3.466	0.742	4.3	0.5427	2.891
See both sides of arguments in question	2.954	0.733	3.904	0.595	2.793
Ability to present seminar	3.237	0.657	4.058	0.553	2.659
Coordinate work schedules with other peer staff	3.454	0.866	4.033	0.748	1.998

professional growth in the organization (mean 4.12), Lack of time (mean 3.78), and Increase in the workload (mean 3.75). Hostile environment at the work place (mean 1.74) and lack of credible information were the least affecting barriers (mean 1.84) (Table 2). Adult learners constantly acknowledged lack of time and money as the main barriers to participating in adult education (Merriam *et al*. 2007). Increased workload and lack of time and funding are inter-connected barriers. This situation has led to an increase in the Extension agent's workload along with limiting the available time need for acquiring the competencies. Inadequate funding was reported as barrier in acquiring the desired competencies by about 57% as somewhat extent followed by 29% respondent expressing it as great extent. About 32% of the respondents viewed lack of facilities for professional growth in the organization as great extent in attaining the desired competencies while 50.8% of the respondents expressed it as barriers to great extent. No promotion channel for the KVK staff was identified by Chauhan and Chauhan (2012). Proactive actions required to cross barriers which prevent the extension professionals from acquiring desired competencies. An effective in service training programme with adequate funding and qualified personnel should be there for helping agents to acquire desired Extension competencies.

Competence-based program needs to focus on building the knowledge and skills needed in a particular job. It is also used to increase employee's current job performance, prepare them for changing job requirements or introduce new tools or technology in the work place. Skill based analysis should be done for both the newly recruited Extensionists and also periodically for the seniors. A strong policy is needed to make need assessment of the Extensionists as mandatory because it is directly linked

Table 2 Respondents identified barriers to acquire desired competencies n=240

Barrier	Mean	Very low		Low		Average		High		Very high	
		n	%	n	%	n	%	n	%	n	%
Increase in the workload	3.75	3	1.25	6	2.5	88	36.7	107	44.6	36	15.0
Lack of time	3.78	6	2.25	11	4.58	75	31.3	104	43.3	44	18.3.6
Absence of incentives	2.48	12	5.0	29	12.08	92	38.3	80	33.3	27	11.25
Lack of organizational motivation	2.02	30	12.5	71	29.6	109	43.4	43	17.9	17	7.1
Hostile environment at the work place	1.74	54	22.5	104	43.3	103	42.5	26	10.8	8	3.3
High personal costs in acquiring competencies	1.96	40	16.7	79	32.9	95	32.6	62	25.8	4	1.7
Inadequate personal motivation	1.99	40	16.7	88	36.7	73	30.4	73	30.4	6	2.5
Lack of training need assessment	2.72	10	4.2	17	7.1	97	40.4	100	45.4	17	9.1
Inadequate training program based on the assessed need	2.52	15	6.25	21	8.8	88	36.7	115	47.9	16	6.7
Lack of credible information	1.84	25	12.5	76	32.1	102	44.6	44	19.6	8	3.8
Educational resources out of reach	1.95	30	12.5	71	29.6	93	38.7	38	15.8	8	3.3
Lack of training opportunities	2.12	40	16.7	28	11.6	88	36.7	72	30.0	12	5.0
Ineffective training delivery methods	2.14	27	11.2	46	19.6	92	38.3	65	27.1	10	4.2
Inadequate funding	4.14	0	0	1	0.4	32	13.3	138	57.5	69	28.8
Lack of facilities for professional growth in the organization	4.12	0	0	6	2.5	35	14.6	122	50.8	77	32.1

to their effective performance at their work. Targeting the barriers in acquiring the required competencies will help the Extensionists in developing the desired competencies. It will be very useful if various ICT tools aided tools like expert systems, web based training portal is developed and employed for competency enhancement.

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