Skill Gap Analysis of Extensionists working in Krishi Vigyan Kendras in 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
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 competency 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 (α) 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).

Ability 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 respondents 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...
| 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   | 4.146   | 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   | 4.490   | 0.556   | 3.088 |

Contd.
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

| 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 | 2.56   | 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 |

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

| Barrier | Mean | Very low | Low | Average | High | Very high |
|---------|------|----------|-----|---------|------|-----------|
|         | 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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