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RESEARCH ARTICLE

TRAINING UTILITY AND TRAINING EFFECTIVENESS OF THEME SPECIFIC TRAINING PROGRAMMES

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ABSTRACT

This study was conducted to find out the training utility and training effectiveness based on the theme specific training programmes conducted by ICAR-NAARM (National Academy of Agricultural Research Management) under Learning and Capacity Building programmes as sub-component of National Agricultural Innovation Project (NAIP). The main focus on training effectiveness and training utility as perceived by the participants. The trainee participants of different seven theme specific training programmes were selected by using purposive sampling method. It was observed majority of the participants from all the three training effectiveness dimensions such as 'Training Utility Index' (78.50%), Theme Specific Impact Index (64.29'%) and 'Perceived Training Preparation / Participation and Transfer Behaviour Index (73.33%)' were in medium level of index categories. Based on the training effectiveness dimensions calculated, overall training effectiveness indicated that majority (73.33%) of the participants were in the medium level of training effectiveness category.

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INTRODUCTION

Training is fast growing and emerging discipline in agriculture and allied sectors. It is an organized activity aimed at imparting information and or instructions to improve the participant's performance or to help him or her attain a required level of knowledge or skills to achieve the professional as well as institutional goals. Training and development is a function of human resource management concerned with organizational activity aimed at bettering the performance of individuals and groups in organizational settings. According to Meyer and Allen, 1991 training plays an important role directly or indirectly as training practices used by the organization on employees' motivation and organizational commitment. Training helps oneself or others in acquiring skills and knowledge that relate to achieve the specific goals.

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Training has specific goals of improving one's capability, capacity, productivity and performance and training management is the application of knowledge, skills, tools and techniques to training activities to realize the outcome of training. Training evaluation and transfer is very important as it helps the participants to do their job in better way and also helps the participants to improve their knowledge and skills (Lewis, 1996). The training in today's changing business environment is becoming more & more dynamic. The core function of any training department is to bridge the gap between the changing needs of the job and the abilities that individuals need to perform these tasks such as self-directed leadership, self-motivated terms & self-generated creativity to perform better and better in their work environment for achieving organizational goals. According to Tannenbaum, S (1991) that more expense in training has led to more productivity. The presence of organizations in a non-static environment forms a constant pressure to maintain superiority in the marketplace. This prompts the need to constantly upgrade employee skills and knowledge and to improve positive work-related attitudes.

Sitzmnn, T and Weinhardt, J.M. (2017) proposed multilevel framework to addressed by using the criteria for assessing training effectiveness as within-person, between-person and macro levels analysis. That to four evaluation steps i.e., training utilization, affect, performance, and financial impact which will focus on evaluation metrics by targeting specific criteria of importance. Piwowar, V., and Thiel, (2014) stated that the two dimensions or training cannot result the same. The measurement invariance identified more effective and also response shift in a group specific are opposed to the findings with test procedure which found less effective and very little effective with group specific with response shift. The Indian Council of Agricultural Research (ICAR) is an autonomous body responsible for coordinating agricultural education and research in India. It reports to the Department of Agricultural Research and Education, Ministry of Agriculture.

It is the largest network of agricultural research and education institutes in the world. Under ICAR, National Academy of Agricultural Research Management (ICAR-NAARM) is only the organization to support the entire National Agricultural Research and Education System (NARES) for the capacity building of the NARES scientists. As a mandate of the institute to organize various capacity building programmes, a present study was conducted with the following objectives. To study the characteristics of the participants during the capacity building at ICAR-NAARM, Hyderabad with specific training themes under NAIP sub component to identify the perceived training effectiveness

METHODOLOGY

This study was conducted by using an *ex-post facto* survey investigation with purposive sampling as it imparts the capacity building programmes for the NARES employees such as scientific, technical and administrative staff. The trainee participants were selected those who have taken part in different theme based (7) training programmes at ICAR-NAARM. The themes viz., 'Developing Winning Research Proposals in Agriculture', Policy and PME support to Consortium-Based Approach to Agriculture', Public Private Partnership', 'Leadership for Transition to NAIS (National Agricultural Innovation System)', 'IT based DSS for Geo-Spatial Knowledge Management for Sustainable Livelihoods Security', 'IT based DSS for Digital Content Development' and Management' and 'Technical and Administrative Support for Consortium-based Agriculture Research'. A total of 210 participants constituted the sample for this research study with representation of 30 participants from each theme.

The data was collected from the participants by using the well-structured survey questionnaire. The three specific domains viz., 'perceived training utility', 'theme-specific impact' and 'preparation, participation and training transfer behaviour' were identified to assess the training effectiveness. Thus the entire training effectiveness (including all three domains) consisting of 151 components in which 15 components measured with Ten-point scale where 10 represented the highest level of agreement and 1 is the lowest, 79 components were measured on Five-point scale where 5 is the highest level of agreement and 1 is the lowest and 57 components were measured on 5-point continuum where 5 is the strongly agree and 1 is the strongly disagree. Finally, the index was calculated for each dimension as 'Training Utility Index (TUI)', 'Theme Specific Impact Index (TSII)' and 'Perceived Training Preparation, Participation and Transfer Behavior Index (PTPPTBI)'. After calculations these indexes, the overall 'Training Effectiveness Index (TEI)' was calculated by using the following formula and the trainees were categorized based on the mean and standard deviations.

$$\text{Training Effectiveness Index (TEI)} = \frac{\text{TUI+ TSII+ PTPPTBI}}{3} \text{ X } 100$$

Where,

TUI = Training utility index,
TSII= Theme Specific Impact Index,
PTPPTBI = Perceived Training Preparation, Participation and Transfer Behavior Index

RESULTS AND DISCUSSION

The results on training effectiveness dimensions converted into three indexes namely 'training utility', 'theme specific impact and 'perceived training preparation / participation and transfer behaviour' and overall training effectiveness are presented in Table 1 and the results on theme specific impact of training are depicted in Table 2.

Training effectiveness as perceived by trainees: In this study, training effectiveness was empirically measured in terms of three specific dimensions viz., i) Perceived training utility, ii) Perceived theme-specific impact, and iii) Perceived training preparation, participation and transfer behaviour. As detailed in methodology, indices were worked out for these dimensions and the respondents' distributions were arrived at accordingly. Keeping this in view, results pertinent to individual dimension as well as overall training effectiveness are being depicted in Table 1.

Perceived training utility: Distribution of respondents based on their perceived training utility is depicted in Table 1. It is clear from this data that majority of the trainee-respondents (78.58%) were in the 'medium' category followed by 12.38 per cent and 9.04 percent in 'low' and 'high' categories of 'Training Utility', respectively. These findings imply that most of the trained participants of NAARM training programmes perceived training utility up to 'medium' level. Training utility, in this study, referred to trainees' perceived utility value of the training in terms of relevance and importance of the training theme, design and delivery of the programme and training logistics. It is worthwhile to recall here that the training programmes considered for the purpose in this study were designed based on a series of system-wide consultations on training needs assessment and a snap-shot survey conducted by Samanta *et al.* (2006). Hence, majority of the respondents might have perceived the utility at medium level, although a higher level of utility perception was desirable. The utility perception of training is highly contextual as it is influenced by a host of factors representing the trainee, trainee's organization and training organization, besides actual training content, design, delivery and logistics (Switzer et. al., 2004;and Venkattakumar *et al.*2014). Viewed from this perspective, there would always be gaps in desired and actual utility perception of training. The trends of results indicate a satisfactory scenario for NAARM training programmes, though there is still scope to improve it further.

Theme specific impact: This was the second dimension under training effectiveness and was empirically measured in terms of perception of trainees about the learning and performance covering both learning outputs like knowledge, skills, attitude and learning outcomes specific to the theme of training. Accordingly results under this section are presented and discussed both at aggregate level (across the themes) and individual theme level. Results on distribution of respondents on 'overall theme specific impact' presented in Table 1, clearly indicate that 64.29 percent of trainee respondents were observed under 'medium' category of theme-specific impact, while 18.09 per cent of them in 'high category of theme-specific impact and 17.62 per cent are in low category of theme-specific impact. These results, by and large, are consistent with the results of 'theme-specific' impact perception. Training impact is a multi-dimensional phenomenon and is influenced by a host of factors. While training needs assessment, training targeting, training design and delivery can influence training impact, post-training organizational support happens to be a deciding factor in realizing anticipated impact of training intervention. Literature is replete with studies highlighting this fact. Studies conducted at NAARM by Samanta *et al.* (1995, 2005 and 2008), Sontakki (2014) and Venkattakumar et al., (2012 and 2013) endorse this observation. Hence, appropriate interventions have to be designed by NARES in collaboration with NAARM to improve post-training follow-up and support to trainees to realize desired impacts from valuable resources spent on training. Adoption of National Training Policy (2012) of Department of Personnel and Training of Government of India by ICAR by developing ICAR Training Policy (2013) is a welcome initiative in this direction. This policy has provisions to provide post-training follow-up and enhancement of training impact.

Theme-specific impact analysis was further examined in terms of individual theme-wise distribution of respondents. These results are presented in Table 2.The present study focused on the training programmes conducted by NAARM on seven specific themes identified under L & CB project. These themes were identified keeping in view the goals and objectives of National Agricultural Innovation Project (NAIP) and training needs assessment study done by NAARM for the purpose. Accordingly, it was decided to study the impact as perceived by trainees, specific to these seven themes.

The data presented in Table 2, indicates that two-thirds (66.68 per cent) of the trainees are in 'medium' impact category under the theme 'Developing Winning Research Proposals', followed by equal percentage (16.66%) of the trainees in 'high' and 'low' impact categories. One of the objectives of NAIP as well as the L&CB sub-project was to encourage scientists of NARES to write research proposals for competitive grants. It is encouraging to note that majority of the trainees rated the impact of training on this theme as 'medium'. Medium to high levels of perceived impact on the trainees is due to the relevance of this theme to NARES scientists. Writing research proposals for competitive grants is the need of the hour in NARESs across the globe and more so in developing countries. NAARM, over past one decade has customized content and training methodology and developed useful learning resources on this theme. Further, involvement of experienced resource persons either associated as experts with funding agencies or with good track record of successfully implementing extra-mural funded research projects might have added to the perceived impact. These programmes had comprehensive coverage of relevant topics like components of research proposal, project evaluation and review technique in research planning and to develop the good project design and budget estimate and skills for writing research proposal. Trainees were given adequate time to imbibe the learning and use them instantly by writing concept note and research proposal under the facilitation and guidance of resource persons. It was observed by the researcher that most of the participants trained under this theme did succeeded in writing and submitting concept notes and full scale research proposals using the knowledge and skills learnt in the training programme, but all of them could not finally get funding. This might have been the reason for majority trainees to rate the impact as 'medium'. Four out of every five trainees trained on the theme 'Policy and PME Support to Consortium-Based Approach to Agriculture perceived impact to 'medium level', while 10.00 per cent each as perceived the impact as 'high' and 'low'. Hence, it could be deduced that 90.00 percent of the trainees perceived the impact of training under this theme in the range of medium to high. It must be mentioned here that the National Agricultural Technology Project carried out by ICAR with funding support from the World Bank ushered in a need to inculcate the culture of 'priority setting, monitoring and evaluation (PME)' in NARES institutions by way of structured sensitization workshops and training programmes. It is, then, obvious to note that many NARES scientists were already sensitized on the need for PME. NAIP attempted to capitalize on this initiative by embedding rigorous M&E protocols in the management of consortium research projects funded under this project. It, therefore, appears coherent to observe that majority of the trainees perceived the impact of training on this theme as medium to high. The impact of the training programmes on the theme "Public Private Partnership in Agriculture Research" perceived as 'medium' by two-thirds (66.68%) of respondents trained on this theme. Around a quarter of the respondents perceived the impact as 'low' and 10.00 percent as 'high'. These findings point out those three-fourths of NAERS professionals rated the impact of training on this theme as 'medium to high'. PPP in agricultural research was an entirely new concept and practice, introduced under NAIP. One of the areas identified for bring change in NARES through was encouraging strategic research partnerships among public and private research institutions. The training programmes organized under this theme emphasized on how PPPs in food and agriculture can be expanded and sustained to improve the reach, effectiveness and efficiency of research and innovation for agricultural growth and development. Modalities, procedures and case studies covered in the programme appropriately highlighted the need for strengthening research and innovation in agriculture and allied sector in the developing countries.

The partnerships between public funded research institution, farmer groups, private agribusiness R & D organizations and NGOs offer an opportunity to tap the strength and core competencies of diverse partners. Novelty of content, expert resource persons and relevant training methodologies might have helped in creating medium impact on the trainees. However, low levels of awareness, knowledge and skills of NARES professionals for taking up multi-institutional partnership oriented consortia projects and practical problems related either to institutional or personal factors limited the real-time applicability of the learning, thus leading to low impact perception by 25.00 percent of the trainees.

Table 1: Distribution of trainees based on training effectiveness dimensions

Sl.No.	Training effectiveness Dimensions	Categories		
		High	Medium	Low
1	Training Utility Index (Mean-79.28 SD-8.77)	19 (9.04)* [>88.05]**	165 (78.58) [70.06-80.05]	26 (12.38) [< 70.05]
2	Theme Specific Impact Index (Mean-77.06 SD-11.52)	37 (17.62) [>88.58]	135 (64.29) [65.55-88.58]	38 (18.09) [< 65.54]
3	Perceived Training Preparation / Participation and Transfer Behaviour Index (Mean-79.94 SD-9.40)	27 (12.86) [>89.34]	154 (73.33) [70.54-89.34]	29 (13.81) [< 70.54]
4	Overall Training Effectiveness (Mean=78.76 SD=9.84)	27 (12.86) [>88.60]	154 (73.33) [68.93-88.60]	29 (13.81) [68.92]

**indicates the percentages; **indicates the scores*

Table 2. Distribution of trainees based on theme specific impact categories

Sl.No.	Training themes	Mean	SD	Theme Specific Impact categories		
				High	Medium	Low
				F (%) [indexrange]	F (%) [index range]	F (%) [index range]
1	Developing Winning Research Proposals in Agriculture (n=30)	80.15	10.32	05 (16.66) * [> 90.47]**	20 (66.68) [69.84-90.47]	05 (16.66) [< 69.83]
2	Policy and PME support to Consortium-Based Approach to agriculture research (n=30)	78.10	11.21	03 (10.00) [>89.31]	24 (80.00) [66.82-89.31]	03 (10.00) [< 66.81]
3	Public Private Partnership in Agriculture Research (n=30)	75.94	9.02	03 (10.00) [>84.96]	19 (63.33) [66.93-84.96]	08 (26.67) [< 66.92]
4	Leadership for Transition to NAIS (National Agricultural Innovation System) (n=30)	71.09	13.17	03 (10.00) [>84.26]	22 (73.33) [57.93-84.26]	05 (16.67) [< 57.92]
5	IT based DDS for Geo Spatial Knowledge Management for Sustainable Livelihoods Security (n=30)	79.82	9.57	02 (6.67) [>89.39]	24 (80.00) [70.26-89.39]	04 (13.33) [< 70.25]
6	IT based DSS for Digital Content Development and Management (n=30)	69.45	11.10	07 (23.34) [>80.55]	19 (63.33) (58.36-80.55)	04 (13.33) (< 58.35)
7	Technical and Administrative support for Consortium-based Agriculture Research (n=30)	84.89	8.61	04 (13.33) [>93.50]	19 (63.33) [76.29-93.50]	07 (23.34) [< 76.28]
	Overall impact(n=210)	77.06	11.52	37 (17.62) [>88.58]	135 (64.29) [65.55-88.58]	38 (18.09) [< 65.54]

**indicates the number of respondents in each theme **indicates the scores*

Majority of the respondents (73.33%) who attended training on the theme "Leadership for Transition to National Agricultural Innovation System (NAIS)" perceived the impact as 'medium' followed by 16.67 per cent and 10.00 per cent with 'low' and 'high' perceptions of impact, respectively. The possible reasons for the reasonable impact of programmes under this theme are better targeting of training - senior-level professionals of NARES or Principal Investigators or Co-Principal Investigators of approved consortia projects under NAIP. Involvement of resource persons known for their leadership and institution building abilities and use of real-time case studies from the system besides experience sharing by participants, self-exploration exercises and group discussion might have helped the participants to create the impact, were the other aspects contributing to the observed levels of perceived impact. However, 'soft' nature of the concepts covered in terms of abstractness might have had some influence on limiting the impact of these programmes. Training programmes on the theme "Information Technology based Decision Support System for Geo-Spatial Knowledge Management for Sustainable Livelihoods Security" were perceived as having 'medium impact' by majority of the respondents (80.00%), while another 13.33 percent of them perceived as having 'low impact' followed by 6.67 per cent with 'high impact' perception. The sixth theme namely "IT based DSS for Digital Content Development and Management" created the impact among the 66.33 percentage of trainees as they had represented the medium level of impact on specific training followed by high impact (23.34%) and low impact (13.33%) categories.

It is interesting to note that the training programmes organized under the themes "Information Technology based Decision Support System for Geo-Spatial Knowledge Management for Sustainable Livelihoods Security" and "Information Technology based Decision Support System for Digital Content Development and Management" had almost similar trends in terms their perceived impact by the trained respondents. These programmes were aimed at building the knowledge and skill levels of participants to use IT-based DSS in geospatial applications and multimedia content development and management. High emphasis on intensive learning and hands-on practice for using the hardware, software and analytics on real-time application basis, involvement of expert resource persons might have led to reasonably good impact of these programmes on the trainees. Training programme on the theme 'Technical and Administrative Support for Consortium-Based Agriculture Research' created medium impact among 63.33 percentage of trainee's low (23.34%) and high (13.33%) impact levels. It was interesting to note that the mean effectiveness index of this theme was the highest among the seven themes studied for impact. The possible reason for higher mean impact rating of programmes under these training could be the targeting of these trainings. NARES professionals in technical and administrative cadres 'do not have' as many opportunities for capacity building as their counterparts in scientific cadre have.

Perceived training preparation, participation and transferbehavior: This dimension was operationalized to capture the perception of trainees on pre-training preparatory behavior, training participation behavior, and post-training

transfer behavior. Using the same procedure followed for other dimensions, an index was computed for this dimension and respondents' distribution is presented in Table 1. Similar study was also conducted by Ahire *et.al.* (2012). Examination of data presented in Table 1, reveals that around three-fourths (73.33 per cent) of respondents were observed in 'medium' category followed by 13.81 per cent and 12.86 per cent in 'low' and 'high' categories of 'Perceived Training Preparation / Participation and Transfer Behaviour'. Thus, it can be concluded that majority of the trainees rated their perception of training preparation, participation and transfer behaviour in medium category. This dimension assumes lot of importance as it captures the pre-training interest and intent, active participation during and post-training transfer of learning in terms of converting learning in to useful action to improve his / her job performance and thereby contributing to organizational effectiveness.

It is quite satisfactory to note that most of the trainees have reasonably good perception on this dimension. This might be attributed to initiatives of NAARM on proper targeting of training by selection of trainees relevant to the theme, sound training design and delivery and enabling post-training transfer by positive reinforcements and personal follow-up by the training coordinators. Based on the results it can be observed that the mean (79.94%) calculated for 'Perceived Training Preparation / Participation and Transfer Behaviour' training effectiveness dimension was higher followed by the mean (79.28) was calculated for 'Training Utility' dimension and the Mean (77.06) was calculated for the last dimension namely 'Theme Specific'. Therefore, it can be concluded that the 'Perceived Training Preparation / Participation and Transfer Behaviour' dimension was more effective among the three dimensions of training effectiveness followed by 'Training Utility' dimension also played an important role in training effectiveness.

Conclusion

The overall training effectiveness results indicated that around three fourth (73.33 per cent) of the trainees were spotted in 'medium' category of training effectiveness (Table 1). These results are in consistent with the results on dimension-wise distribution of respondents. Hence, it is inferred that NAARM training programmes are perceived as effective to reasonably good level by majority of the trained respondents. This could be attributed to standard procedures followed by NAARM on all the dimensions of training management from pre-training preparation and communication, design and delivery, active role of experienced trainers, post training follow-up and support besides formidable and comfortable training logistics support. The results also hint at possibilities of further improvement for NAARM so that the perception could improve to higher levels. Similar results were reported in studies conducted by Samanta *et al.* (2005). After going through the overall training effectiveness among the trainees as well through the three identified dimensions it was observed that majority were in the medium level of training effectiveness category and the trend was also observed in the dimension wise representation as low and high level training effectiveness. Therefore, it is necessary to have a theme specific training strategies for the NARES scientists so that their personal competencies will be enhanced in the specific areas of their interest. In order training to play a positive role in the organization the training policies should be, clear, objective must be simple and should be communicated to the trainees well in advance to achieve the training goals. Employee organizations and policy makers should endeavor to create enabling training environment and favorable training policies that will give every employee *an opportunity to attend training*. It is also a responsibility of NAARM to conduct the specialized trainings suitably to the needs of clients so that the trainee participants will be happy and it will also be helpful to NAARM to achieve the maximum level of training effectiveness. Further, NAIP's main agenda was to put NARES in general and ICAR in particular in 'learning organization mode' for effectively managing change. This required sensitization and capacity building of the scientific, technical and administrative cadres. Hence, a series of training programmes were organized targeted specifically on technical and administrative cadres to mainstream their role and enhance performance. Comprehensive content, behaviours modification exercises and diversity of participants might have positively influenced the impact perception of these training programmes.

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