

Cognitive Needs Training For Staff of Agricultural In the Following Up dissemination of Agricultural Technologies in the Provinces of the Central Region and Its Relationship with Some Factors

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Abstract: *The Study aimed to determine the cognitive training needs level of the Agricultural officers in following up with disseminating the agricultural technologies in each of its aspects and the relation with some independent factors. Questionnaire tool was used in collecting the data, and it consisted of 1- Independent factors, such as age, education level, experience and training courses attended, 2- a scale for the cognitive training needs level of the focus individuals. The scale consisted of 32 paragraphs distributed on eight item (Concept, targets, plan, and the report of following up with disseminating the technologies, technology to be disseminated, data and information, problems and deviations and indicators). Four grades (High, medium, low and no needs) allocated and digitally weighted as 3,2,1 and 0 respectively. Scores varied at 96 (Max.) - 0(Min.). Research group consisted of 106 officers involved in following up disseminating technology from randomly chosen governorates (Baghdad and Wasit) representing 25% of central Iraq governorates. Results showed that 50.94% of the officers' needs were at the medium grade and that could be related to the lack of adequate training courses held by the Ministry of Agriculture. Results also showed a positive correlation and significant relation between the cognitive need and all the factors studied. Researchers highly recommend paying more attention to the training programs for their significant impact on agricultural development.*

Key words: *cognitive needs, Monitoring, dissemination of agricultural technologies.*

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I. Introduction

Although Iraq has large areas of arable land as well as natural and human resources that make it an agricultural country, the reality of the agricultural sector is still low compared to the size of the resources employed. This may be due to the failure of agricultural development programs (2). Of agricultural development is vital for a society. The importance of each of these causes varies depending on the circumstances of the society and its needs and the extent to which these needs have met, which contributed in one way or another to determining the degree of community interest in modern technologies in agriculture(1). The development of food security by contributing to increased productivity is the foundation of the agricultural sector(3).The achievements of the countries of the world from the effective productivity or the so-called green revolution is the result of the deployment of modern technologies on a large scale (12) is one of the important aspects of social and economic development through the increase in production up to 50% of current levels of production in If the available amount of agricultural technologies is applied, (24) the process of disseminating agricultural technologies is a targeted, planned and organized process consisting of three main integrated and interrelated activities (research, extension and processing) for an effective and high-quality dissemination process. (23) Agricultural is described as failed or ineffective , Due to many reasons, including the limited number of activities and activities of the agricultural extension system in the field of dissemination of agricultural technologies and limited geographical scope and the number of targets and the absence of effective Extensionprograms, especially the weakness of management(9). The low level of management of agricultural technology dissemination programs shows several images, the most important of which is the incomplete follow-up and evaluation of these activities and the activities of the dissemination of agricultural technologies. (4) The AL-Taaee (5)study recommended the establishment of an effective monitoring system for the dissemination of agricultural technologies as an administrative tool to improve the quality of work Due to the weakness or lack of follow-up process.The study of Najeb (19), AL-Obeidi

(8), and AL-Jubouri (18) also showed a lack of interest in the follow-up process, since the application of this process is far from its practical concept(14). Flexibility in implementing plans(21). And thus failed. The absence of a follow-up process means that the planned plans do not provide a clear link between what has been achieved and what is intended to be achieved, and the lack of follow-up concludes that the activities implemented do not necessarily contribute to achieving the main objective of implementing the programs(13). The AL-Kassi - (7) indicates that the process of following up the dissemination of agricultural technologies is not a monitoring process, but a tool for developing and improving work. The study of Hassoun (16) recommended the necessity of following up the process of spreading agricultural technologies in all its stages. It improves the application of technology to farmers, improves their results and the effects of their publication, and reveals problems or deviations in their implementation, As well as verifying the application of scientific recommendations by farmers(20)Despite the importance of the follow-up process, it is characterized by the absence or weakness in the level of performance compared to other administrative processes, and this is one of the most important reasons for the failure of many of the programs of diffusion(22). The failure of agricultural technology projects and programs is mainly due to the lack of follow-up or lack of attention to follow-up and lack of knowledge of its location within the four administrative processes (organization, planning, implementation, evaluation)Where follow-up is an important element (17). Workers and training them on the follow-up mechanism. The training process occupies an important position among the administrative activities aimed at increasing the efficiency of productivity and service and improving the working methods (6). The process of preparing the employee is regarded as an ongoing process that does not stop his graduation from the institute or college. Staff experience and effectiveness (11).The process of identifying a training need is the basis of the training process. Therefore, the pre-selection of the training needs required by the effective performance of the concerned organization is the cornerstone and achieving its horizons and uses(15).Studies indicate that the identification of training needs in Arab institutions faces many obstacles, such as the lack of an integrated needs identification system. And the inability of the Department concerned to identify training needs and lack of adequate support, making it easier to follow the modalities for identifying needs(10).The responsibility for identifying training needs is one of the top management tasks of the organization and may be the task of training experts from outside the organization(6).The importance of following up the programs of the dissemination of agricultural technologies to achieve the goals of agricultural development and the absence of previous guidance studies to identify the training needs of knowledge of workers in the field of follow-up of the dissemination of agricultural technologies in the country, so this research to answer the following research questions:

The level of knowledge training needs of agricultural staff in the field of follow-up of the dissemination of agricultural technologies in the provinces of Baghdad and Wasit. The level of knowledge training needs of employees in the governorates of Baghdad and Wasit in each item of the field of follow-up dissemination of agricultural technologies. What is the relationship between the level of knowledge training needs of agricultural staff in the field of follow-up of the dissemination of agricultural technologies and some independent factors (age, educational attainment, years of service in the agricultural sector). The aim of the research is to determine the level of knowledge training needs for agricultural staff in the field of monitoring the dissemination of agricultural technologies in Baghdad and Wasit governorates. Identify the level of knowledge training needs of employees in each of the Items of the field of follow-up of the dissemination of agricultural technologies. Determine the relationship between the level of knowledge training needs of agricultural staff in the field of follow-up of the dissemination of agricultural technologies and some independent factors (age, educational attainment, years of service in the agricultural sector, Relationship to follow-up).

II. Procedural definitions

2-1-Knowledge training needs of agricultural staff in the field of follow-up of the dissemination of agricultural technologies: The lack of knowledge and skills of agricultural staff associated with the concept of follow-up dissemination of agricultural techniques in the provinces of Baghdad and Wasit.

2-2-Agricultural Staff Working In The Field Of Agricultural Technologies: They are the agricultural employees who worked in the field of propagation of agricultural technologies, whether they are planners or follow the process of diffusion at any level who have agricultural certificates

III. Research materials and methods

3-1-Search community and Sample:

The research community included the governorates of the central region of eight governorates. A random sample of this region was selected by 25%. The sample of the research was the agricultural

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employees in Baghdad and Wasit governorates, which were 123 respondents, and then a random sample was taken by 90%. The number of respondents was 110 respondents. The actual number of respondents was 106 respondents as shown in the table below:

Table 1. Distribution of the research sample by work location

Agricultural Department	Work site	The Number	Respondents concerned
Directorate of Agriculture Wasit	Agricultural Extension Section	1	6
	Planning and Follow Up Section	1	7
	Agricultural Division	17	26
Directorate of Agriculture Baghdad	Agricultural Extension Section	1	8
	Planning and Follow Up Section	1	5
	Agricultural Division	8	22
Department of Extension and Agricultural Training	Department of management centers and	1	5
	Agricultural Division	1	8
	Department of Manpower Development	1	7
	Extension Centers	2	4
	Extension farms	6	8

3-2-Prepare The Questionnaire Tool:For the purpose of collecting the data needed to achieve the objectives of the research used questionnaire tool in the collection of research data because it is appropriate to the methodology of this research and its ability to obtain more objective data compared to other data collection tools. The second part of the research included a measure to measure the level of cognitive training needs of the respondents. The need for knowledge training was determined in the light of the literature on the follow-up processes and the dissemination of technologies. The questionnaire consisted of two parts: the first included information about the subjects such as age, academic achievement, years of service and participation in courses related to follow- This index includes eight Items , namely, the item of the concept of follow-up of the dissemination of agricultural technologies. It includes 3 paragraphs. The item of the follow-up objectives. It includes 3 paragraphs. The item of the follow-up plan includes 4 paragraphs. (4 needs), and four alternatives (big need, medium need, little need, no need) and the following digital weights. , 1,2,3 on the relay, and therefore determined the highest degree of need 96 and the degree of minimum need 0.3-3-**Stability Of The Questionnaire:** The re-test method was used to measure the stability of the questionnaire from a random sample of the sections and the agricultural divisions of the Directorate of Agriculture of Baghdad (outside the sample of the research). The questionnaire was distributed to the respondents at the beginning of February 2016. After receiving it, (Pearson) between the two tests, and the stability value of the scale was 0.88. To calculate the coefficient of validity, the coefficient of stability coefficient was 0.93 degree.

3-4-Application Of The Questionnaire: After the researcher conducted the questionnaire, the questionnaire was distributed to the respondents on 16/3/2016 until 9/4/2016.

3-5-Statistical Processes:The statistical program used SPSS in the statistical treatments (Person, Spearman and standard deviation) and used Microsoft Excel in statistical treatments (mean percentages and calculated T).

4-Results And Discussion:The first objective / To determine the level of knowledge training needs for agricultural staff in the field of follow-up of the dissemination of agricultural technologies in the provinces of Baghdad and Wasit.The results showed that the highest numerical value of the degree of need for training for agricultural staff in the field of follow-up of the dissemination of agricultural technologies is 73 degrees and the lowest numerical value is 49 on a scale of four to the level of cognitive

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training need reached 0 to 96 degrees, with an average of 61.04 degrees and a standard deviation of The level of respondents' answers was divided into three categories according to their level of training needs (weak, medium, large), as in Table 2

Table 2. Distribution of categories of respondents according to levels of knowledge training needs in the field of follow-up of the dissemination of agricultural technologies

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	49-56	24	22,64	53,33	S,D=5,57
Medium	57-64	54	50,94	60,94	
Large	65-73	28	26,42	67,82	
Total		106	100	$\bar{X} = 61,04$	

Of table 2. It was found that the highest percentage of agricultural employees was in the middle category of 50.94%, with an average of 60.94, which is lower than the general average of the need level of 61.04. Therefore, the level of respondents' needs can be described as medium. Objectives in the dissemination process as a whole, as well as the lack of training courses established by the Ministry of Agriculture in the field of follow-up dissemination of agricultural technologies.1 - the item of the concept of follow-up dissemination of agricultural technologies: The results of the research showed that the degrees of need training knowledge of agricultural staff at the item of the concept of follow-up dissemination of agricultural technologies were from 1-9 on the scale of knowledge needs training four grades between 0-9 with an average of 6.99 and In table 3.

Table 3. Distribution of respondents according to their knowledge training needs of the item The concept of following up the dissemination of agricultural technologies

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-3	5	4,72	2	S,D=0,66
Medium	4-6	36	33,96	5,55	
Large	7-9	65	61,32	7,09	
Total		106	100	$\bar{X} = 6,99$	

Of the above table shows that more than two-thirds of the employees 61.32% had a cognitive training need within the large category and an average requirement of 7.09 which is greater than the general average of 6.99. This indicates a clear lack of knowledge of agricultural employees in the follow-up concept. To the similarity of some other concepts such as censorship, supervision and evaluation in some literature, which led to confusion or failure to address the issue of follow-up in terms of practical and scientific as well as wrong and excessive use of the concept of incorrect follow-up during the work and for years, making it difficult for staff to imagine that there is a new concept of follow-up or Different On the concept used.**The second objective / To determine the level of knowledge training needs of staff in each of the Items of the field of follow-up dissemination of agricultural technologies:**1-Item of the objectives of the follow-up of the dissemination of agricultural technologies: The results of the research showed that the degrees of knowledge training needs of the agricultural staff in the center of the concept of the goals of the dissemination of agricultural technologies were 1-9 on the scale of the need for knowledge training four grades between 0-9 with an average of 7.22 In table 4.

Table 4. Distribution of respondents according to their knowledge training needs of the item Objectives to continue the dissemination of agricultural technologies

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-3	4	3,77	2,25	S,D=0,54
Medium	4-6	26	24,53	5,65	
Large	7-9	76	71,70	7,26	
al		106	100	$\bar{X} = 7,22$	

Of the above table shows that 71.70% of their needs were cognitive training within the large category and with an average requirement of 7.26 which is greater than the general average of 7.22. This may be due to the fact that the most objectives are placed centrally without the participation of workers in the dissemination of agricultural technologies, Has led to the inability of the workers to set goals in general for any process, including the follow-up process, which led to raise the need for training. 2. The item of the follow-up plan: The results of the research showed that the degrees of cognitive training needs of the agricultural staff in the center of the follow-up plan for the dissemination

of agricultural technologies were from 1-12 on the scale of the need for knowledge of training four grades between 0-12 with an average of 5.83 as in Table 5 .

Table 5. Distribution of respondents according to their knowledge training needs of the item Plan to follow up the dissemination of agricultural technologies

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-4	4	3,77	3,5	S,D=0,76
Medium	5-8	81	76,42	5,85	
Large	9-12	21	19,81	5,14	
Total		106	100	$\bar{X} = 5,83$	

Of the above table shows that 21% of their knowledge training needs within the middle class and an average need of 5.85 which is greater than the general average of 5.83. This may be due to the importance of drawing the plan from identifying the means and methods for the follow-up process of dissemination of technologies.

4-The item indicators of the dissemination of agricultural technologies: The results of the research showed that the degrees of cognitive training needs of agricultural staff in the indicators of monitoring the dissemination of agricultural technologies were from 6 to 15 on the scale of the need for knowledge of training four grades between 0-15 with an average of 9.33 as in the table 6.

Table 6. Distribution of respondents according to their knowledge training needs For the dissemination of agricultural technologies indicators

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-5	0	0	0	S,D=0,43
Medium	6-10	16	15,09	9,93	
Large	11-15	90	84,91	12,06	
		106	100	$\bar{X} = 9,33$	

Of the above table shows that 84.91% of their knowledge training needs were within the large category with an average requirement of 12.06 which is greater than the general average of 9.33. This means that there is a great need for training. This may be due to the lack of knowledge of the indicators by the employees Despite the widespread use of them in the literature that deal with the concept of indicators and the confusion between them and statistics, variables and standards.

5-The item of data collection and information dissemination of agricultural technologies: The results of the research showed that the degrees of knowledge training needs of agricultural staff at the center of the concept of follow-up dissemination of agricultural technologies were from 1-12 on the scale of the need for knowledge of training four grades between 0-12 with an average of 6.75 and In table 7.

Table 7. Distribution of respondents according to their cognitive training needs for the item of how Data collection and information dissemination of agricultural technologies

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-4	39	36,79	3,43	S,D=0,84
Medium	5-8	63	59,43	7,03	
Large	9-12	4	3,77	9,5	
Total		106	100	$\bar{X} = 6,75$	

Of the above table shows that 59.43% of their knowledge training needs were within the intermediate category and an average requirement of 7.03 which is greater than the average of 6.75 which means that there is a medium need for how to collect data. This may be due to the difficulty of obtaining accurate data from sources The lack of knowledge of the necessary statistical means, the tools used in data collection and processing, the lack of prior knowledge of indicators, their relationship to data collection and how to benefit from them, ie, data and information management in general.

6-The results of the research showed that the degrees of cognitive training needs of the agricultural staff at the center of the concept of follow-up of the dissemination of agricultural technologies were from 1-15

on the scale of the need for knowledge of the training of four grades between 0-15 with an average of 9, 34 as in Table 8.

Table 8. Distribution of respondents according to their cognitive training needs for the item of deviations and problems Which may occur during the dissemination of agricultural technologies

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-5	11	10,38	4,72	S,D=0,80
Medium	6-10	46	43,40	9	
Large	11-15	49	46,22	13,20	
Total		106	100		$\bar{X} = 9,34$

Of the above table shows that 46.22% of their knowledge training needs within the large category and an average requirement of 13.20 is greater than the general average of 9,34. This means that there is a great need to know the deviations and problems in the follow-up process and may be due For the difficulty of detecting deviations and problems at the specified time and informing the higher authorities to address them before it is too late, as this step requires a lot of knowledge that is difficult to know without training.

7. The item of the follow-up report on the dissemination of agricultural technologies: The results of the research showed that the degrees of knowledge training needs of the agricultural staff in the item of the follow-up report on agricultural technologies were from 1-12 on the scale of the need for knowledge of training four grades between 0-12 with an average of 7.20as in table 9.

Table 9. Distribution of respondents according to their cognitive training needs for the report item Follow up the dissemination of agricultural technologies

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-4	19	17,92	3,42	S,D=0,83
Medium	5-8	59	55,66	6,37	
Large	9-12	28	26,41	9,35	
Total		106	100		$\bar{X} = 7,20$

Of the above table shows that 55.66% were their cognitive training needs within the middle class and an average requirement of 6.37 which is smaller than the general average of 7.22. This may be due to the lack of knowledge of the benefits of the follow-up report, as well as their lack of knowledge of the details and vocabulary Provided in the follow-up report in such a way as to clearly indicate the implementation mechanism.

8 - The item of the technology to be diffusion: The results showed that the degrees of knowledge training needs of the agricultural staff in the item of the technology to be Diffusion were from 1 to 12 on the scale of the need for knowledge of training quadrant between 0-12 with an average of 8.35 and as in Table 10.

Table 10. Distribution of the respondents according to their cognitive training needs for the technology item to be diffusion.

Training need categories	Category	Repetition	Percentages	Average need	Statistical treatments
little	1-4	17	16,04	3,88	S,D=0,78
Medium	5-8	67	63,21	5,86	
Large	9-12	22	20,75	9,27	
Total		106	100		$\bar{X} = 8,35$

From the table above, it was found that 63.21% of the students needed cognitive training in the middle class with an average requirement of 5.86, which is smaller than the average of 8.35. It may be due to the difficulty of convincing farmers of the technology to be diffusionand promising a difficult task that requires real and deep training, as well as their actual need to know what to follow when preparing the farmers with technology

The third objective: is to determine the relationship between the level of cognitive training needs of the agricultural staff in the follow-up of the dissemination of agricultural technologies in the governorates of Baghdad and Wasit and some independent factors (age, educational achievement, years of service in the agricultural sector):

1 - Age: The results showed that the age of the respondents ranged between 24-62 and an average age of 40.39 years as in Table 11.

Table 11. Distribution of respondents according to the relationship of age to the level of cognitive knowledge needs

Age categories	Repetition	Percentages	Average need	standard deviation	Statistical treatments
24-33	23	21,69	58,33	2,80	T=4,424 Coefficient of correlation=0,398*
34-43	50	47,16	60,27	0,18	
44-53	22	20,75	63,64	0,13	
54-62	11	10,37	65,18	0,11	
Total	106	100	Average age=40,39		The table T value is (0.198) and (2,626) at a significant level of 0.05 and 0.01, respectively

Of the above table shows the highest average requirement was 65.18 in the age group 54-62 while the lowest average requirement was 58.33 in the age group 24-33, and this indicates that the younger age group is the lowest level of need for training in knowledge follow-up diffusion, This may be due to what the respondents received in the academic stages in this regard, unlike the older age group, as attention to the concept of follow-up has increased recently. To find out if there is a correlation between age and cognitive need, use the Pearson correlation coefficient of 0.398 indicating a positive correlation between the two variables. To find out the significance of the relationship, the calculated T equation was used in the value of 4,424, indicating the significance of the relationship between the variables at the level (0.05 and 0.01).

2-Years of Service In The Agricultural Sector: The results showed that the years of service ranged between 1-32 with an average service of 14.79 years as shown in table 12.

Table 12. Distribution of respondents according to the relationship of years of service to the level of cognitive knowledge

Years of service	Repetition	Percentages	Average need	standard deviation	Statistical treatments
1-10	34	32,07	58,26	6,46	T=3,067 =0,288Coefficient of correlation**
11-20	47	44,33	62,04	6,20	
21-32	25	23,58	62,92	4,23	
Total	106	100	Average service = 14.79		The table T value is (0.198) and (2,626) at a significant level of 0.05 and 0.01, respectively

Of the above table shows the highest average requirement was 62.92 in category 21-32 while the lowest average requirement was 58,26 in category 1-10, indicating that respondents with more years of service are those who need knowledge in the follow-up This may be due to the modernity of the concept of practical follow-up, which began the education in the period following the commencement of the field work and the lack of knowledge of this concept in the academic stages, and this confirms what came in the theory of human capital, which states that the new knowledge become old over time, The knowledge of workers decreases by half after 10 years of graduation and this imposes continued education Lim and training throughout the entire working life.

To find out if there was a correlation between the years of service and the cognitive training need, use the Pearson correlation coefficient of 0.288 indicating a positive positive correlation between the two variables. To find out the significance of the relationship, the calculated T equation was used for 3,067, indicating the significance of the relationship between the two variables At a significant level of 0.05 and 0.01.

3 - Academic achievement: The results showed that the highest average achievement rate (high diploma) was 64,40 and the lowest average need for academic achievement (preparatory) was 57,27 and as in Table 13.

Table 13. Distribution of respondents according to the relationship of educational attainment with cognitive training needs

Categories of academic achievement	Repetition	Percentages	Average need	standard deviation	Statistical treatments
Middle School	11	10,38	57,27	5,33	Calculated T = 3,266 Coefficient of correlation=0,305*
Diploma	7	6,60	59	4,47	
BA	54	50,94	60,59	5,73	
Higher Diploma	20	18,87	64,40	5,18	
M.A.	41	13,20	62,07	3,68	

Total	106	100	The table T value is (0.198) and (2,626) at a significant level of 0.05 and 0.01, respectively
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From the above table, the highest average requirement was 64,40 when achieving the college (high diploma), while the lowest average requirement was 57.27 at the completion of the college (preparatory), and may be due to respondents in achieving a less (preparatory) The process of follow-up compared to academic achievement (higher diploma) as they are the first station of the higher academic stages that enjoy the love of scientific knowledge and the search for new and useful, most of them do not hold the background guidance in the bachelor's degree and alumni of previous years, He studied them at the time, at While the respondents in this group (M.Sc.) are less likely than (high) diploma To find out if there is a correlation between educational achievement and cognitive need, use a correlation coefficient Spearman, 0.305, indicating a positive relationship between the two variables, for the important knowledge the relationship was used, the calculated T equation was 3,266, indicating the significance of the relationship between the variables at a significant level of 0.05 and 0.01.

4 - Participation in courses related to follow - up: The results showed that the collection of data in the absence of special courses to follow up the dissemination of technology as none of the respondents did not receive any session related to the follow - up of the dissemination of technology, and may be due to several reasons, including a few specialists (trainers) So concept. From the above, we conclude that there is a need for intermediate knowledge training for the researchers in the field of follow-up of the dissemination of agricultural technologies and the low interest of the Ministry of Agriculture in the concept of following up the dissemination of technologies and we recommend the following:

1- Intensifying the methodological lessons related to the concept of follow-up diffusion from the agricultural preparatory to the PhD in a way that ensures understanding of this concept theoretically and field.

2 - Work on the preparation of training courses in the field of follow-up of the dissemination of agricultural technologies and at all levels, especially staff working in the field.

3 - the importance of attention to the concept of follow-up dissemination of agricultural technologies through the design of training bags and the increase of seminars and publications extensionfor this concept.

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