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Training needs of agricultural extension workers in some areas of agricultural extension work in Salah Al-Din Governorate - Iraq

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Abstract

This study aimed to identify the training needs of agricultural extension workers in Salah al-Din Governorate, Iraq, in specific areas of agricultural extension work. This was achieved by assessing the level of these needs in the areas of agricultural extension knowledge, information, and experience; communication skills and extension methods; attitudes towards extension work; and the management of agricultural extension programs. The study adopted a descriptive methodology, deemed most suitable for the nature and objectives of the research. The research population comprised all agricultural extension workers in the Salah al-Din Governorate Agriculture Directorate and its affiliated agricultural divisions, totaling 854 employees. A stratified random sample of 265 respondents was selected, using the Krejcie & Morgan scale. Data were collected using a questionnaire consisting of 150 items distributed across four main domains. Statistical analysis of the data was conducted using Excel and SPSS software, relying on frequencies, percentages, arithmetic means, standard deviations, and correlation coefficients. The study results showed that the majority of respondents fall within the category of having moderate training needs across all areas of study, particularly in agricultural extension knowledge and information, communication skills, and extension program management. This indicates a clear training gap among agricultural extension workers. The results also revealed weak positive attitudes toward extension work among a significant percentage of respondents. The study concluded that improving the efficiency of agricultural extension workers requires focusing on identifying actual training needs as the basis for planning training programs. It recommended the development and implementation of specialized and continuous training programs that focus on developing communication skills, extension program management, and the use of modern extension methods. This would contribute to raising the efficiency of extension performance and improving the quality of services provided to farmers.

Keywords: Guidance work fields, Salah Al-Din governorate

Introduction

Training is one of the most important tools for developing human capabilities within organizations. Abu Assi ^[1] pointed out that human resource development is the foundation upon which organizations rely to achieve their goals in the context of information and communication technologies. Mahmoud ^[2] emphasized that the success of organizations depends largely on their ability to optimally utilize available human resources with high efficiency ^[3] argues that knowledge production and generation have become an enduring organizational value that transcends the mere production of goods and services. Administrative and organizational literature confirms that human resource development is a fundamental pillar of creativity and institutional excellence, and that the success of any country's economic and social plans depends largely on the level of preparation and development of its human resources to meet the demands of the times, as Huang ^[4] explained. Training is one of the most important tools for human development, as it contributes to updating workers' knowledge, developing their skills and professional abilities, and improving their efficiency in using available resources. This, in turn, positively impacts institutional performance

and productivity, as noted by Al-Ghalibi and Saleh ^[5]. In this context, agricultural extension is a fundamental component of the educational and developmental process in rural communities. It is based on scientific principles aimed at advancing the agricultural sector and improving rural life, as confirmed ^[6] also indicated that agricultural extension seeks to bring about desirable behavioral changes in cognitive, skill-based, and emotional aspects, thereby contributing to raising the economic and social level of rural residents. Extension management is the decisive factor in increasing the effectiveness of the extension system through its functions of planning, organizing, coordinating, monitoring, and evaluating, as well as promoting collaborative work among staff to achieve extension goals. This was explained by ^[7] indicated that the essence of these functions lies in enabling the extension apparatus to perform its mission to the fullest extent. Numerous studies have indicated that the success of agricultural extension work depends largely on the competence of the agricultural extension agent, particularly their communication skills and ability to build relationships based on trust and understanding with farmers. ^[8] observes this. Identifying training needs is the cornerstone upon which training

programs and curricula are built. It represents the primary entry point for measuring training outcomes and evaluating its effectiveness.^[9] Furthermore, it serves as a crucial indicator for formulating training policies, developing the training process, and guiding it in the right direction. Without a precise identification of training needs, or if these needs are unclear, the efforts, financial and human resources,^[10] and time allocated to training are at risk of being wasted, thus hindering the achievement of desired objectives. Therefore, striving to meet these needs is a primary goal that organizations seek to achieve in order to enhance performance efficiency and improve work outputs. The research problem lies in the lack of clarity or definition of training needs among agricultural extension workers. Agricultural extension is a fundamental tool in developing the agricultural sector, and its success depends largely on the competence of its personnel and their level of professional qualification. However,^[11] the practical reality of agricultural extension work in Salah al-Din Governorate reveals weaknesses and inconsistencies in the performance of some workers, particularly regarding the use of modern extension methods and the efficient scientific handling of farmers' problems. This is something the researcher observed through his academic experience and direct field observations. This weakness is partly attributed to the lack of a precise assessment of the actual training needs of agricultural extension workers in various extension fields, as well as the implementation of training programs that are often not based on clear scientific principles. Hence, the research problem arises: the need to identify the training needs of agricultural extension workers in Salah al-Din Governorate, which will contribute to guiding future training programs toward meeting those needs and improving the efficiency of extension performance.

Research questions

1. What are the training needs of agricultural extension workers in Salah al-Din Governorate, Iraq, in the areas of knowledge and information relevant to agricultural extension work?
2. What are the training needs of agricultural extension workers in Salah al-Din Governorate, Iraq, in the areas of communication and extension methods?

Research objectives

1. To identify the training needs of agricultural extension workers in Salah al-Din Governorate, Iraq, in the areas of communication and extension methods.
2. To identify the training needs of agricultural extension workers in Salah al-Din Governorate, Iraq, in the areas of knowledge and information related to agricultural extension work.
3. To identify the training needs of agricultural extension workers in Salah al-Din Governorate, Iraq, in the areas of extension programs and the transfer of agricultural technologies.

The importance of research

The importance of this research lies in the fact that identifying training needs is a crucial process for the effectiveness of training programs, as follows

1. Identifying the training needs of agricultural extension

workers in each area of agricultural extension work in Salah al-Din Governorate, Iraq, and also identifying weaknesses and shortcomings in each area of extension work.

2. Providing a research-supported database for decision-makers in planning and implementing training courses based on the actual needs of agricultural extension workers in order to improve their job performance in their assigned extension tasks.
3. Identifying training needs is the foundation for all elements of the training process, most importantly the process of identifying training needs, designing the content and activities of the training program, and evaluating the training program. Identifying training needs serves as an indicator that guides training correctly in these sub-processes.

Operational definitions

1. **Training needs:** This refers to the knowledge, skills, and attitudes that agricultural extension workers require in each area of their extension work.
2. **Agricultural extension workers:** This refers to all workers holding an agricultural degree, from a secondary agricultural school graduate to a PhD holder, who perform extension duties.
3. **Extension work:** This refers to the period during which the researcher worked as an agricultural extension agent, performing extension tasks with farmers within their assigned area.
4. **Areas of extension work:** In this research, this refers to the agricultural extension tasks carried out by the extension organization through its staff.

Search Methodology

The researcher employed the descriptive method to achieve the objectives of his research, which focused on providing a suitable systematic description of the phenomenon, exploring its factors, variables, causes, and trends, and studying its characteristics or features as they exist in reality, as well as the nature of the relationship between its variables, causes, and trends, in order to arrive at a comprehensive scientific description^[12]. The descriptive method is concerned with the precise observation and tracking of the phenomenon or feature, both quantitatively and qualitatively, at a specific subsequent time point, and recording and identifying the surrounding variables and factors that led to its emergence, in order to arrive at logical research results that can be generalized to the original population of the phenomenon^[13].

Research community and sample size

The research community included all employees in agricultural extension in the Salah al-Din Governorate Agriculture Directorate and its affiliated agricultural divisions and the extension center, totaling^[854] employees. The sample size was calculated according to a table of Krejcie & Morgan^[1970] to determine the sample size, as shown in Appendix^[1]. Societies that exceed 850 in size are proportional to a sample size of^[265]. After determining the total sample size, the sample size in the Agriculture Directorate and its affiliated agricultural divisions was extracted according to the proportional stratified sampling

law, where its size reached (265) respondents.

Measuring the dependent factor

The training needs of the respondents were measured by the respondent answering the questionnaire questions, which consisted of 150 items divided into four areas of training needs for workers in agricultural extension work. The number of items in the first area was ^[20] items with a theoretical range of (20-100) degrees, the second area was ^[34] items with a theoretical range of (34-170) degrees, the third area was ^[10] items with a theoretical range of (10-50) degrees, and the fourth area was ^[86] items with a theoretical range of (86-430) degrees, while the theoretical range of the scale as a whole ranged (150-750) degrees.

Statistical methods

In order to achieve the objectives of the current research, the data were tabulated and statistically analyzed using the statistical analysis programs Excel and SPSS, and the results were obtained. The following statistical methods were used: (percentage, frequency, standard deviation, range, Pearson and Spearman correlation coefficient, t-test).

Results and Discussion

Objective 1: To identify the level of training needs in the field of agricultural extension knowledge, information, and experience. 1. Extension needs in the field of knowledge and information.

Table 1: Shows the distribution of respondents according to categories of training needs in the field of agricultural extension knowledge, information, and experience.

	Categories	Repetition	%	Average need
1	Low (29-35)	45	17.0	32.79
2	Medium (36-42)	162	61.1	38.65
3	High (43-50)	58	21.9	43.31
	Total	265	100%	Sd = 3.71

The results showed that the lowest score was ^[29] and the highest score was ^[50], with an average of (37.69) and a standard deviation of (3.71). The respondents were divided into three categories using the range law, and it appeared that the highest score was within the middle category, as shown in Table (1). Therefore, it is clear from Table (2.4) that the highest percentage (61.1%) of the respondents falls within the middle category with an average need of (38.65) degrees, followed by the high category with a percentage of (21.9%) degrees and an average need of (43.31) degrees. The result indicates that more than half of the respondents are in the category of average need for agricultural extension knowledge, information, and experience, and that the categories of average and low training needs represented a percentage of (78.1%) of the total respondents. The reason for the respondents not being exposed to some information and experiences related to extension work through academic study or extension activities may be due to the scarcity of extension activities directed to agricultural extension workers in Salah al-Din Governorate.

Training needs in the field of communication skills in agricultural extension work

Table 2: Shows the distribution of respondents according to categories of training needs in the field of agricultural extension work.

	Categories	Repetition	%	Average need
1	Low (75- 83)	50	18.9	80.22
2	Medium (84- 92))	161	60.7	88.24
3	High (93- 102)	54	20.4	95.74
	Total	265	100%	Sd = 5.53

The results showed that the lowest score was (75) and the highest score was (102), with a mean of (79.15) and a standard deviation of (5.53). The respondents were divided into three categories using the range law. The highest score was found within the middle category, as shown in Table (2). Table (3.4) indicates that most respondents fell within the middle category, with an average need score of (88.24). This was followed by the high category, representing (20.4%) of respondents, with an average need score of (95.74). The results indicate that more than half of the respondents fall within the middle category in terms of training needs in the field of agricultural extension management. The middle and low training needs categories represented (79.6%) of the total respondents. This may be due to the respondents lacking sufficient extension experience to manage extension work, which involves many procedures and processes that may be difficult for agricultural extension workers to implement effectively, especially those working in agricultural extension from other agricultural disciplines. This suggests that a large percentage of the respondents need training. Agricultural extension activities on how to manage extension work in the research area.

Training needs in the field of attitudes towards training in agricultural extension work

Table 3: Distribution of respondents according to categories of training needs in the field of attitudes towards agricultural extension work

	Categories	Repetition	%	Average need
1	Low (29- 38)	41	15.5	36.10
2	Medium (39- 48)	180	67.9	43.91
3	Positive (49- and less)	44	16.6	51.57
	Total	265	100%	Sd = 5.09

The results showed that the lowest score was (29) and the highest score was (58), with an average of (43.96) and a standard deviation of (5.09). The respondents were divided into three categories using the range law, and it appeared that the highest score was within the middle category, as shown in Table (3). Therefore, it is clear from Table (4.4) that the highest percentage (67.9%) of the respondents came within the neutral category with an average need of (43.91) degrees, followed by the positive attitude category with a percentage of (16.6%) and an average need of (43.31)

degrees. The result indicates that more than half of the respondents are in the middle need category in the field of attitudes towards guidance work, and that the neutral and negative attitude categories represented a percentage of (83.4%) of the total respondents. This may be due to the weakness of attitude levels among most of the respondents, which indicates the importance of changing the attitudes of the respondents' behavior through the implementation of guidance activities such as training courses in the research area.

Training needs in the field of agricultural extension management

Table 4: Shows the distribution of respondents according to categories of training needs in the field of agricultural extension management

	Categories	Repetition	%	Average need
1	Low (176- 195)	35	13.2	189.40
2	Medium (196- 215)	151	57.0	206.13
3	High 216- or more	79	29.8	222.82
	Total	265	100%	Sd = 11.97

The results showed that the lowest score was ^[176] and the highest score was ^[237], with a mean of (208.89) and a standard deviation of (11.97). The respondents were divided into three categories using the range law. The highest percentage was found within the middle category, as shown in Table ^[4]. Therefore, Table (5.4) shows that the highest percentage (57%) of respondents fell within the middle category, with an average need of (206.15) points, followed by the high category with (29.8%) points and an average need of (222.82) points. The result indicates that more than half of the respondents fall within the middle category in terms of need in the field of agricultural extension work management. The percentage of respondents in the middle and low training need categories represented (70.2%) of the total respondents. This may be because extension work includes steps and stages that may be difficult for many workers to understand, especially those from non-extension specializations. Alternatively, it may be due to a lack of extension activities directed at workers or a lack of interest. The researchers were informed of the guidance activities directed to them by the Agricultural Extension Training Center in Salah al-Din Governorate.

The second objective is to identify the level of training needs in each of the following areas of study

Training needs in the areas of communication skills in agricultural extension work. 1.1. Area of skills in using extension communication tools, aids, and methods.

Table 5: Shows the distribution of respondents according to the categories of training needs in the area of skills in using extension communication tools, aids, and methods

	Categories	Repetition	%	Average need
1	Low (38- 44)	40	15.1	42.47
2	Medium (45- 51)	160	60.4	48.51
3	High (52- 59)	65	24.5	53.83
	Total	265	100%	Sd = 3.95

The results showed that the lowest score was (38) and the highest score was (59), with a mean of (48.90) and a standard deviation of (3.95). The respondents were divided into three categories using the range law. The highest score was found within the middle category, as shown in Table ^[5]. Table (6.4) indicates that the highest percentage (60.4%) of respondents fell within the middle category, with an average need of (48.51) points. This was followed by the high category, with (24.5%) and an average need of (53.83) points. The results indicate that more than half of the respondents fall within the middle need category in the area of skills for using extension tools, aids, and communication methods. The percentage of respondents in the middle and low training need categories represented (75.4%) of the total respondents. This may be due to the fact that using extension tools and aids requires skills and experience that many agricultural extension workers may lack, or it may be due to the weakness of extension activities and training courses related to developing the skills and experience of agricultural extension workers. Regarding the use of guidance tools and aids, this is a statistical indicator of the respondents' need for experiences to develop them in the field of using guidance tools.

Communication skills focus (Speaking and Listening Skills)

Table 6: Distribution of respondents according to needs in the area of communication skills with farmers

	Categories	Repetition	%	Average need
1	Low (31-36)	56	21.1	34.46
2	Medium (37- 42)	137	51.7	39.01
3	High (43-48)	72	27.2	45.39
	Total	265	100%	Sd = 4.11

The results showed that the lowest score was (31) and the highest score was (49), with a mean of (39.17) and a standard deviation of (4.11). The respondents were divided into three categories using the range formula. The highest score was found within the middle category. Table ^[6] shows that the highest percentage (51.7%) of respondents fell within the middle category with an average need of (39.01) points, followed by the high category with (27.2%) points and an average need of (45.39) points. The results indicate that more than half of the respondents fall within the middle category in terms of skills in using extension communication tools, aids, and methods. The percentage of respondents in the middle and low training need categories represented (72.8%) of the total respondents. This may be because effective communication with farmers requires extension expertise in managing communication with farmers of varying educational levels. A balance must be struck between spoken language and body language for communication to be understandable and effective. Alternatively, the reason may be the weakness of extension activities and training courses related to development. Communication skills among agricultural extension workers, and this is a statistical indicator of the respondents' need for expertise to develop them in the field of using extension methods.

Third objective**To identify the level of training needs in each area of agricultural extension management****1. Training needs in the area of extension facility management in general****Table 7:** Distribution of respondents according to needs in the area of extension facility management

	Categories	Repetition	%	Average need
1	Low (23-27)	39	14.7	26.08
2	Medium (28- 32)	152	57.4	30.14
3	High (33- 38)	74	27.9	34.46
	Total	265	100%	Sd = 3.00

The results showed that the lowest score was (23) and the highest score was (38), with a mean of (30.76) and a standard deviation of (3.0). The respondents were divided into three categories using the range formula. The highest score was found within the middle category. Table (7) shows that the highest percentage (57.4%) of respondents fell within the middle category, with an average need score of (30.14). This was followed by the high category, with a percentage of (27.9%) and an average need score of (34.46). The results indicate that more than half of the respondents fall within the middle category in terms of training needs in the area of agricultural extension facility management in general. The percentage of respondents in the middle and low training need categories represented (72.1%) of the total respondents. This may be due to the respondents' limited experience in managing extension facility work in general. This indicates a significant training need among the respondents for expertise to develop their skills in the area of extension facility management.

2. Training needs in the area of agricultural extension program management**Table 8:** Distribution of respondents according to training needs in the guidance program management axis

	Categories	Repetition	%	Average need
1	Low (144- 162)	36	13.6	156.76
2	Medium (163- 181)	154	58.1	173.51
3	High (182- 201)	75	28.3	189.36
	Total	265	100%	Sd = 10.86

The results showed that the lowest score was (144) and the highest score was (201), with an average of (176.12) and a standard deviation of (10.86). The respondents were divided into three categories using the range law, and it appeared that the highest score was within the middle category. Table ^[8] shows that the highest percentage (58.1%) of the respondents came within the middle category with an average need of (173.51) points, followed by the high category with a percentage of (28.3%) and an average need of (189.36) points. The result indicates that more than half of the respondents are in the middle need category in the axis of skills in using extension tools, aids, and communication methods, and the percentage of respondents in the middle and low training needs categories represented (71.7%) of the total respondents. The reason may be that managing the extension program has many stages and steps

that the workers must understand the procedures included in those stages in order to properly manage the extension program. This expresses the need for agricultural extension workers to have training courses on managing agricultural extension programs.

Training needs during the formulation and setting of objectives for agricultural extension programs**Table 9:** Distribution of respondents according to training needs during the formulation and setting of objectives for the agricultural extension program

	Categories	Repetition	%	Average need
1	Low ((34- 41)	47	17.7	39.32
2	Medium (42- 49)	160	60.4	45.18
3	High 50- or less	58	21.9	52.10
	Total	265	100%	Sd = 4.55

The results showed that the lowest score was (23) and the highest score was (57), with a mean of (45.65) and a standard deviation of (4.55). The respondents were divided into three categories using the range formula. The highest score was found to be within the middle category. Therefore, Table (10.4) shows that the highest percentage (60.4%) of respondents fell within the middle category, with an average need score of (45.18). This was followed by the high category, with a percentage of (21.9%) and an average need score of (52.10). The results indicate that more than half of the respondents fall within the middle need category in the stage of formulating and setting guidance objectives. The percentage of respondents in the middle and low training need categories represented (78.1%) of the total respondents, which is a large percentage. This may be because formulating and setting guidance objectives requires information and experience, as the objectives represent the outcomes of the guidance program and include the target group. Their formulation must be clear and concise, which requires expertise in formulating and setting them. This reflects the needs of those working in guidance. The agricultural sector is offering training courses on formulating objectives for agricultural extension programs.

The agricultural extension program planning phase**Table 10:** Shows the training needs in the agricultural extension program planning phase

	Categories	Repetition	%	Average need
1	Low (40- 51)	28	10.6	47.86
2	Medium (52- 63)	138	52.1	58.44
3	High 64 - or less	99	37.3	68.62
	Total	265	100%	Sd = 7.32

The results showed that the lowest score was (40) and the highest score was (75), with an average of (61.12) degrees and a standard deviation of (7.32). The respondents were divided into three categories using the range law, and it appeared that the highest score was within the middle category. Accordingly, it is clear from Table ^[10] that the highest percentage (52.1%) of the respondents came within the middle category with an average need of (58.44) degrees, followed by the high category with a percentage of

(37.3%) and an average need of (68.62) degrees. The result indicates that more than half of the respondents are in the middle need category in the extension program planning stage, and that the percentage of respondents in the middle and low training need categories represented (62.7%) of the total respondents. The result indicates the weakness of the respondents' knowledge in the extension program planning stage, which is an indicator of the need for agricultural extension workers to have training courses on agricultural extension program planning.

Extension needs during the implementation phase of the extension program

Table 11: Training needs during the implementation phase of the agricultural extension program

	Categories	Repetition	%	Average need
1	Low (20- 25)	42	15.8	23.68
2	Medium (26- 31)	155	58.5	28.53
3	High (32 and above)	68	25.7	33.51
	Total	265	100%	Sd = 3.51

The results showed that the lowest score was (20) and the highest score was (39), with a mean of (29.06) and a standard deviation of (3.61). The respondents were divided into three categories using the range formula. The highest score was found within the middle category. Therefore, Table (11) shows that the highest percentage (58.5%) of respondents fell within the middle category with an average need score of (28.53), followed by the high category at (25.7%) with an average need score of (33.51). The results indicate that more than half of the respondents fall within the middle need category in the guidance program implementation phase. The percentage of respondents in the middle and low training need categories represented (74.3%) of the total respondents, which is a large percentage. This may be due to the respondents' limited knowledge and experience regarding the implementation phase of guidance activities. This phase involves a set of guidance activities within specific timeframes, using appropriate guidance methods and tools, and ensuring that the guidance material content is suitable for the educational level of the target group. This reflects the needs of the staff. In agricultural extension, training courses are offered on formulating the objectives of agricultural extension programs.

Training needs during the evaluation phase of the extension program

Table 12: Training needs during the evaluation phase of the agricultural extension program

	Categories	Repetition	%	Average need
1	Low (33-38)	52	19.6	36.35
2	Medium (39- 44)	134	50.6	42.01
3	High (45 and above)	79	29.8	46.73
	Total	265	100%	Sd = 3.97

The results showed that the lowest score was (33) and the highest score was (52), with a mean of (42.29) and a standard deviation of (3.97). The respondents were divided into three categories using the range law. The highest score

was found within the middle category, as shown in Table (12). Accordingly, Table (13.4) shows that the highest percentage (50.6%) of respondents fell within the middle category, with an average need score of (42.01), followed by the high category at (29.8%), with an average need score of (46.73). The results indicate that more than half of the respondents fall within the middle need category during the extension program evaluation phase. The percentage of respondents in the middle and low training need categories represented (70.2%) of the total respondents, a significant percentage. This may be because the extension program evaluation process requires deriving criteria and collecting evidence from respondents to determine the extent to which the program achieved its objectives. This necessitates information and experience, reflecting the needs of agricultural extension workers. To training courses on formulating the objectives of agricultural extension programs.

Conclusion

1. The lack of information and extension experience among staff reflects the need to increase training activities to enhance knowledge.
2. Limited extension communication skills indicate the necessity of implementing programs to develop communication abilities and fieldwork management skills.
3. Weak positive attitudes towards extension work require enhanced training to improve attitudes and professional conduct.
4. The difficulty in managing extension work and programs indicates the need for specialized courses in planning, implementation, and evaluation.
5. Limited experience in using extension communication tools requires practical training to develop skills in using extension tools.

Recommendations

1. **Develop communication skills:** Organize workshops and training courses to improve communication, persuasion, and interaction skills with farmers.
2. **Improve attitudes towards extension work:** Implement incentive programs and awareness activities to promote positive attitudes among staff.
3. **Develop extension work management:** Provide specialized courses in planning, implementing, and evaluating extension programs to enhance management efficiency.
4. **Use modern extension tools:** Train staff on the use of modern extension tools and equipment to enhance the effectiveness of fieldwork.
5. **Enhance practical experience:** Encourage field exchanges and visits between extension facilities to increase practical experience.

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