





Training Needs for Communication Skills from the Perspective of Agricultural Extension Workers in Duhok Governorate, Kurdistan Region, Iraq

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Abstract

This study aimed to assess the training needs required for developing communication skills among the agricultural extension workers in Duhok Governorate. It also sought to evaluate the importance of such skills from their perspective, identify the correlation between needs and the importance of those skills, and to test the variation in these needs according to individual and functional variables. To meet these objectives, a 41-item questionnaire was developed covering four main skill dimensions: extension communication (organizing and presenting ideas), language communication (vocabulary and grammar), vocal communication (pronunciation and fluency), and the use of body language during communication. Data was collected from a random sample of 60 agricultural extension workers comprising about 43% of the 140 employees of the Directorate of Agriculture (DoA) and the Extension Center in the governorate. The results showed that all dimensions of communication skills had a higher weighted mean than the hypothetical mean of two, reflecting a major need for developing these tested skills. The skills most frequently identified as requiring substantial training included the ability to organize and present ideas in a clear and logical manner, the use of simple and accurate language, communicating smoothly and confidently, and effective use of body language during communication. The findings also indicated a robust positive correlation between the perceived importance of these skills and the level of training required. Factors such as age, academic background, and number of years of professional experience were found to affect the level of training needed. These results show the importance of strengthening communication skills among extension personnel to promote the efficiency of extension works and improve the quality of services delivered to the local farmers. Additionally, developing extension training programs that accommodate personal differences and enhance practical applications will assist in ensuring optimal outcomes and increase the overall effectiveness of agricultural extension activities within Duhok governorate.

Keywords: training needs, communication skills, body language, language skills, communication

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Introduction

Impactful communication is among the core elements in identifying the professional

competence of employees among different sectors, especially in agricultural extension, where work relies mainly on direct and

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ongoing interaction with the farmers. Through this combination, extension agents are expected to convey technical information and practical recommendations in a clear, accurate, and applicable manner in the field. The duties of an agricultural extension agent involve more than simply transferring knowledge; they also participate in persuading farmers, initiating mutual trust, and encouraging the adoption of modern agricultural practices. Thus, effective communication will support sustainable agricultural development and lead to improved productivity (13, 6).

Effective communication competencies are essential for agricultural extension workers as they facilitate knowledge, enhance farmers engagement, and improve adoption of innovations. (19).

Strengthen communication skills is critical to improve extension service quality and farmer advisory interaction (10)

Recent literature emphasizes that oral communication skills, especially communication and listening are the most effective in the performance of extension work. Such skills have a critical role in organizing ideas, simplifying technical information, and tailoring extension messages to accommodate the educational, social, and cultural backgrounds of farmers (1). Previous findings indicate that agricultural extension personnel spend about 70-82% of their working time involved in various communication activities, thus underscoring the importance of the main communication skills and using effective body language to enhance professional performance (9, 10).

Training needs assessment identifies competence gaps and guides professionals' development, particularly in Communication (7)

The two basic dimensions involved in extension settings are verbal and non-verbal communications, both being critical for the successful transfer of agricultural knowledge. Communications skills in practice involved both verbal and non-verbal strategies to engage stakeholders (9,2). communications technologies influence rural advisory work and social interaction (8,22). Cognitive needs

assessment can guide the design of extension training program tailored to works competencies (6,21). Extension workers should use clear and precise language, use an appropriate tone of voice, initiate effective eye contact, and apply enhanced body language. Such elements help in presenting ideas clearly, organizing information in a logical and reliable manner, and encouraging farmers to adopt modern technologies and improved agricultural operations (14,3). Extension communication skills include several key dimensions, such as the organization of ideas and their logical sequencing, language skills banded to vocabulary and grammar, vocal skills related to fluency and expression, and the effective use of body language to enhance interaction and participation among farmers (18). The Food and Agriculture Organization of the United Nations (FAO) has determined the need to promote communication skills among agricultural extension workers as a primary prerequisite for a successful sustainable agricultural development program and for improving the quality of extension services (11). Comparative studies in Egypt and Iraq confirm the critical role of extension workers communication skills in climate adaption practices (12).

Communication skills are one of the four important basic language skills, together with listening, reading, and writing. Developing them contributes much towards a command of other language skills and enables individuals to communicate in an effective manner in different practical life situations (5). Communication consists of asking and answering questions, engaging in discussions, and providing notes on responses. It also assists personnel in developing awareness and expressing their feelings accurately (6). As a language skill, communication is learned and practiced to ensure that ideas and emotions are communicated smoothly using language that is logical, clear, and unambiguous (1). It is a key element of interpersonal communication enabling the speaker to receive immediate reactions from others which strengthens interaction and mutual understanding (7). Alongside communication, listening

represents a core communication skill that begins to develop early in life. Though listening, individuals engage with their environment and learn to interpret verbal messages, providing a foundation for the growth of other communication abilities (4). Leadership and communication competence influence the overall effectiveness of extension directors and administrators (20).

Although extension communication skills are widely recognized as essential, several studies have identified noticeable gaps between the existing competencies of agricultural extension workers and the level of skill required to perform their duties effectively. This is often attributed to training programs that are often technical and production-oriented while giving limited attention to behavioral and communication competencies, especially communication and the effective use of body language as tools for effect and persuasion (17, 16).

Recent literature indicates that training needs in extension communication skills could be classified into 3 principal dimensions:

1. Cognitive needs: These involve understanding the main concepts of human communication, the fundamentals underlying persuasion, and the characteristics of the intended audience.

2. Skills related needs: These relate to the capability for clear communication, arranging ideas logically and effectively, maintaining verbal fluency, and using body language in a purposeful manner.

3. Behavioral and attitudinal needs: These build trust, value farmers' perspectives, and encourage active participation throughout the whole extension process (8).

Despite the increasing emphasis in recent literature on the basic importance of communication skills in strengthening the professional performance of agricultural extension workers, practical evidence suggests that insufficient attention has been given to assessing real training needs in this field (2, 15). There remain noticeable discrepancies among the existing competencies of extension personnel and the actual demands of their

work, underscoring the necessity for well-designed, specialized training programs (12, 15), particularly within the local context of Duhok Governorate in the Kurdistan Region of Iraq. Studies measuring the training needs of agricultural extension workers and their awareness of the importance of extension communication skills and body language in their work remain scanty and inadequate, creating a clear research gap that requires systematic scientific treatment.

Based on the above, the research problem is defined as the need to assess the training needs for extension communication skills among agricultural extension workers in Duhok Governorate, to determine their awareness of the importance of these skills, to reveal the nature of the relationship between training needs and the importance of communication skills, and to identify the discrepancies between training needs and certain academic variables. This will contribute to guiding professional development efforts and designing training programs.

Accordingly, the main research questions in this study are: What are the training needs and the importance of extension communication skills from the perspective of agricultural extension workers in the Duhok Governorate, Kurdistan Region of Iraq, what is the nature of the relationship between them, and what are the differences in training needs according to personal and job variables?

Research Objectives:

1. To estimate the training needs for communication skills from the perspective of agricultural extension workers in Duhok Governorate.

2. To estimate the importance of communication skills from the perspective of agricultural extension workers in Duhok Governorate.

3. To determine the correlation between training needs and the importance of communication skills from the perspective of agricultural extension workers in Duhok Governorate.

4. To identify the variation in communication skills' training needs from the perspective of agricultural extension workers based on age, gender, educational qualifications, years of experience in agricultural extension, academic specialization, prior training in communication, and desire to work in agricultural extension.

Research hypotheses:

1. There are no statistically significant differences between the mean scores for training needs in communication skills and the hypothetical mean of the scale.
2. There are no statistically significant differences between the mean scores for the importance of communication skills and the hypothetical mean of the scale.
3. There is no statistically significant correlation between training needs and the importance of communication skills among agricultural extension workers.
4. There are no statistically significant differences in training needs for communication skills attributable to the following variables: age, gender, educational qualification, years of experience in agricultural extension, academic specialization, prior training in communication, and desire to work in agricultural extension.

Materials and Methods

The research adopted a descriptive analytical design as it is appropriate for aiding training needs, identifying workers' awareness of the importance of extension communication skills, and examining relationships and variations from the perspectives of agricultural extension workers in Duhok Governorate, Kurdistan Region, Iraq.

Research Sample and Population

The targeted population was 140 employees comprising all agricultural extension individuals working in DoA and the Extension Center in Duhok Governorate. Of this population, a simple random sample of 60 employees representing 42.86% of the

population was selected. Twenty employees were excluded as they had previously participated in the pilot test to gauge the clarity and reliability of the research instrument.

Research Tools

The research instrument was arranged following a systematic scientific procedure. This process involved reviewing related literature and previous researches on agricultural extension, communication skills, and training needs. In addition, field interviews were conducted with several specialists to identify key skill dimensions and to ensure that the instrument was appropriate for practical application.

Cognitive needs assessment can guide the design of extension training program tailored to workers competencies (5). Training needs assessment methodologies provides a structured approach for designing professional development programs (7).

The tool composed two main sections:

The first section was designed to collect data on the personal and professional characteristics of agricultural extension workers. These variables included age (in years), gender (male=1, female=2), place of origin (rural=1, urban=2), educational level, years of experience in agricultural extension, field of specialization (specialized=1, non-specialized=2), participation in communication training courses (trained=1, non-trained=2), and level of interest in extension work (interest=1, no-interest=2).

The second section aimed to evaluate both the training needs and the perceived importance of communication skills in extension activities. It consisted of 41 items grouped into four main domains: communication skills in extension (organization and presentation of ideas, 18 items), language skills related to communication (vocabulary and grammar, 9 items), vocal skills (pronunciation and fluency, 8 items), and the use of body language during communication (6 items).

Training needs were measured using a three-point Likert scale (high need=3, moderate need=2, low need=1). The perceived

importance of communication skills was also assessed on a three-point Likert scale (high importance=3, moderate importance=2, low importance=1).

Validity and Reliability of the Research Instrument

To ensure content validity, the instrument was reviewed by a panel of eight specialists in agricultural extension. A minimum agreement level of 75% was set as the criterion for retaining items and domains.

A pilot study was then carried out with 20 employees to examine the clarity and consistency of the instrument; these individuals were not included in the main study sample. Based on the comments by the experts and the findings of the pilot test, the necessary revisions were made before administering the final version of the instrument.

Data Collection and Analysis

Data was collected from 26/10 to 15/12/2025 and statistically analyzed using SPSS software and methods appropriate to the research objectives. These included frequencies, percentile weight, weighted mean, (T-test) for one sample to compare means with the hypothetical mean, analysis of variance (ANOVA) for multicategory variables, and Pearson’s correlation coefficient to study the relationship between training

needs and the importance of communication skills.

Results and Discussion

First: Assessing the training needs for communication skills as perceived by the agricultural extension workers in Duhok Governate.

The data analysis indicated that the overall mean score for training needs in communication skills reached 2.27, with a standard deviation of 0.38 and a weighted value of 75.66%. These numbers suggest that the agricultural extension workers demonstrate a high-level of needs for further training in communication skills. When comparing the overall arithmetic mean of the data with the hypothetical mean of the scale of 2 degrees, and using a one-sample t-test, the calculated t-value was 14.45 degrees, which is greater than the critical t-value of 2.66 at a degree of freedom of 59 and a 0.01 significance level.

This indicates a statistically significant difference in favor of the arithmetic mean of the workers' responses, meaning that agricultural extension workers have a high level of need for communication skills. Accordingly, the null hypothesis is rejected and the alternative hypothesis is accepted, confirming that agricultural extension workers have a high need for such skills. The level of need of the respondents was divided into low, medium, and high (Table 1).

Table 1. Level of training needs of agricultural extension workers for communication skills in general

Level of need	Categories	Frequency	Percentage	Arithmetic mean	Percentage weight
Low	1 – 1.66	6	10	1.53	75.66
Medium	1.67 – 2.33	26	43	2.01	
High	2.34 – 3	28	47	2.59	
		60	100		

SD = 0.38, X = 2.27, t = 14.45** ** significant at the 0.01 level

The results shown in Table 2 also indicate that the weighted averages for the communication skills domains reached arithmetic averages with values higher than the

hypothetical average of 2 degrees, indicating a high actual need for training in communication skills for all domains.

Table 2: Level of training needs of agricultural extension workers in the communication skills domain

Dimensions	Items	Arithmetic mean	SD	Percentage weight	Level of need
Communication skills (organizing and presenting ideas)	18	2.35	0.40	78.33	High
Language skills for communication (vocabulary and grammar)	9	2.23	0.50	74.33	High
Voice skills for communication (pronunciation and fluency)	8	2.30	0.44	76.66	High
Skills in using body language while communicating	6	2.20	0.43	73.33	High

These results clearly indicate that all dimensions of the communication instruction skills require high training needs, underscoring the need to design specialized training programs for each dimension, with a focus on: organizing and presenting ideas in a clear and orderly manner, using vocabulary and grammar correctly, improving fluency and vocal articulation, and employing body language effectively while interacting with farmers to promote understanding and engagement. The observed gaps in communication skills among extension workers are consistent with local assessments of extension reality (11).

Second: Estimating the importance of communication skills from the perspective of agricultural extension workers in Duhok Governorate.

The data analysis showed that the overall arithmetic mean for the importance of communication skills was 2.47 degrees, with a general standard deviation of 0.35 degrees and

a weightage of 82.33%, reflecting a high level of importance among agricultural extension workers. When comparing the overall arithmetic mean of the data with the hypothetical mean of the scale, which is 2 degrees, and using a one-sample t-test, the calculated t-value was 12.18 degrees, which is greater than the critical value of 2.66 at a degree of freedom of 59 and a significance level of 0.01. This indicates a statistically significant difference in favor of the arithmetic mean of the workers' responses, meaning that agricultural extension workers have a high appreciation of the importance of communication skills. Accordingly, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming that the workers have a high appreciation of the importance of communication skills. The level of importance of communication skills was divided into low, medium, and high, as shown in Table 3.

Table 3. Level of importance of communication skills for agricultural extension workers in general

Level of need	Categories	Frequency	Percentage	Arithmetic mean	Percentage weight
Low	1 – 1.66	5	8.33	1.45	75.66
Medium	1.67 – 2.33	22	36.66	2.22	
High	2.34 – 3	33	55	2.38	
		60	100		

SD = 0.35 X = 2.47 t = 12.18** ** significant at the 0.01 level

The results in Table 4 indicate that the weighted averages for the communication skills domains reached values higher than the hypothetical average of 2 degrees, indicating

the importance of communication skills for agricultural extension workers in the governorate, which is high for all domains.

Table 4. Level of importance of communication skills for agricultural extension workers in general

Dimensions	Items	Arithmetic mean	SD	Percentage weight	Level of importance
Communication skills (organizing and presenting ideas)	18	2.45	0.39	81.66	High
Language skills for communication (vocabulary and grammar)	9	2.40	0.43	80	High
Voice skills for communication (pronunciation and fluency)	8	2.54	0.36	84.66	High
Skills in using body language while communicating	6	2.50	0.33	83.33	High

These results clearly indicate that all dimensions of extension communication skills are highly important from the perspective of agricultural extension workers, underscoring the need to design specialized training programs for each dimension that stresses clear and coherent organization and presentation of ideas, correct and accurate vocabulary and grammar usage, and improving fluency and vocal articulation. Furthermore, the effective use of body language is crucial to enhance interaction and understanding when communicating with farmers.

Third: Determining the correlation between training needs and the importance of communication skills from the perspective of

agricultural extension workers in Duhok Governorate.

Pearson's correlation coefficient was applied to explore training needs in communication skills related to their perceived importance among agricultural extension workers. The results showed a statistically significant positive correlation between training needs and the importance of communication skills, with a correlation coefficient of $r = 0.72$ at a significance level of 0.01. Based on these results, the null hypothesis is rejected, and the alternative hypothesis, which states that there is a statistically significant correlation between the two variables, is accepted.

Table 5. Correlation coefficient between training needs and the importance of communication skills among agricultural extension workers

First variable	Second variable	Correlation coefficient (r)	Significance	Attitude
Training needs for communication skills	Importance of communication skills	0.72**	0.01	Strong, positive, and statistically significant correlation

** significant at the 0.01 level

These results indicate the statistically significant correlation between training needs and the importance of communication skills, which confirms the need to design integrated training programs that take into consideration both the actual needs of workers and the high awareness of the importance of these skills in extension work.

Fourth: Identifying the variation in communication skills training needs from the perspective of agricultural extension workers according to age, gender, educational qualification, years of experience in agricultural extension, academic

specialization, prior training in communication, and desire to work in agricultural extension.

To achieve this objective, a t-test for two variables and a one-way ANOVA for multivariable variables were used to identify differences in the level of training needs for communication skills based on the personal and professional variables of agricultural extension workers.

The statistical analysis showed significant differences in training requirements for communication skills based on the tested variable, with age yielding an F-value of 4.212

(p=0.03). This shows that the demand for communication training shifts across different age brackets among agricultural extension workers. Similarly, educational qualification had a decisive role (f=3.951, p=0.028), showing the close relationship between training needs and workers' academic backgrounds. Thus, professional tenure proved to be a significant factor, with the data showing distinct variations in training needs according to years of experience in agricultural extension (F=3.452, p=0.02). This reflects the impact of practical experience in determining the level of training needs for communication skills.

In contrast, the results did not show statistically significant differences in the level of training needs for communication skills

attributable to the variables of gender, academic specialization, upbringing, prior training in communication, and desire to work in agricultural extension. The statistical significance levels for these variables were greater than 0.05, indicating a convergence of training needs among these groups.

Based on the above, the results of the analysis of variance and the t-test show that training needs for communication skills vary according to some personal and professional variables, particularly age, educational qualification, and years of experience in agricultural extension, while remaining unaffected by the other variables. Therefore, the null hypothesis is partially accepted and partially rejected.

Table 6. Variations in training needs for communication skills from the perspective of agricultural extension workers according to personal and job variables

Variables	Categories	Frequency	Type of test	t-value/ F-value	Sig
Age	33-42	16	ANOVA	4/212** /F	0.03
	43-52	29			
	53-62	15			
Gender	Male	38	t-test	0.494	0.63
	Female	22			
Educational qualifications	Agricultural School	5	ANOVA	3.951**/F	0.028
	Agricultural Institute	12			
	College of Agriculture	6			
	Advanced Agricultural Degree	33			
Years of experience in agricultural extension	1-11	20	ANOVA	3/452 /**F	0.02
	12-22	25			
	23-33	15			
Academic specialization	Specialized	12	t-test	0/313	0/75
	Non-specialized	48			
Residential background	Rural	12	t-test	1/980	0/053
	Urban	48			
Training in communication	Trainee	29	t-test	0/992	0/326
	Non-trainee	31			
Willingness to work in agricultural extension	Willing	47	t-test	0/393	0/696
	Not Willing	13			

** The findings reached statistical significance at the 1% level (p<0.01)

Conclusion

Based on the research findings, the following conclusions can be drawn:

1. Communication using effective communication means is the basis of extension work, serving as a vital tool for promoting the professional impact of agricultural workers across Duhok Governorate.

2. There is a clear requirement for professional development focusing on the logical organization and presentation of ideas, ensuring that technical information is translated into actionable knowledge for local farmers.

3. The adoption of reliable and precise terminology is critical for bridging the gap

between technical experience and farmer comprehension.

4. Factors such as vocal fluency and strong body language are not merely secondary skills; they are primary drivers of engagement and trust during field interactions.

5. The robust correlation between skills value and training demand underscores the urgency for tailored training programs. These initiatives should move beyond a “one size fits all” approach and, instead, consider the diverse demographic profiles including age, educational background, and tenure within the extension workforce.

Recommendations

Accordingly, the following recommendations are proposed:

1. Designing specialized training programs to promote advisory communication skills, with a focus on organizing ideas, using clear language, vocal fluency, and effective body language.

2. Considering individual variations among extension workers in terms of age, educational level, and years of experience to ensure optimum benefit from the training.

3. Integrating theoretical training with practical applications through workshops and interactive short sessions to reinforce skills acquisition.

4. Developing continuous monitoring and evaluation systems for skill levels to enhance extension performance and the quality of services provided to farmers.

Supplementary Materials

No supplementary materials.

Author Contributions

Authors 1 and 2: methodology, writing—original draft preparation; Author 3: conceptualization, supervision, writing—review and editing. All authors have read and agreed to the published version of the manuscript.

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Informed Consent Statement

No informed consent statement.

Data Availability Statement

No data availability statement.

Conflicts of Interest

The authors declare no conflict of interest in the conducting of this research.

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الاحتياجات التدريبية لمهارات الاتصال من وجهة نظر العاملين بالإرشاد الزراعي في محافظة دهوك -

إقليم كردستان/العراق

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الخلاصة

استهدف البحث تقدير الاحتياجات التدريبية لمهارات الاتصال لدى العاملين بالإرشاد الزراعي في محافظة دهوك، وتقدير أهمية هذه المهارات من وجهة نظرهم، بالإضافة إلى تحديد العلاقة الارتباطية بين الاحتياجات التدريبية وأهمية مهارات التحدث، ودراسة التباين في هذه الاحتياجات وفق المتغيرات الشخصية والوظيفية. ولتحقيق هذه الأهداف، تم إعداد استبانة مكونة من (٤١) فقرة موزعة على أربعة أبعاد رئيسية: مهارات الاتصال الإرشادي (تنظيم الأفكار وعرضها)، المهارات اللغوية للاتصال (المفردات والقواعد)، المهارات الصوتية للتحدث (النطق والطلاقة)، ومهارات استخدام لغة الجسد أثناء التحدث. جُمعت البيانات من عينة عشوائية تضم ٦٠ مبحوثاً من العاملين بالإرشاد الزراعي بنسبة ٤٢.٨٦٪ من موظفي مديرية الزراعة والمركز الإرشادي في المحافظة، من أصل ١٤٠ موظفاً. أظهرت النتائج أن جميع أبعاد مهارات الاتصال حصلت على وسط مرجح أعلى من الوسط الفرضي البالغ ٢ درجة، مما يعكس حاجة مرتفعة لتطوير هذه المهارات. وتبين أن أبرز المهارات التي تحتاج إلى تدريب مكثف تشمل تنظيم الأفكار وعرضها بوضوح، استخدام لغة بسيطة ودقيقة، الطلاقة الصوتية، وتوظيف لغة الجسد بشكل إيجابي. كما أظهرت الدراسة وجود ارتباط إيجابي قوي بين تقدير أهمية المهارات واحتياجات التدريب، مع تأثير بعض المتغيرات مثل العمر، المؤهل العلمي، وسنوات الخبرة على مستوى الاحتياجات التدريبية. وعليه يمكن استنتاج أن تعزيز مهارات التحدث الإرشادي يمثل عاملاً حاسماً في رفع كفاءة التواصل الإرشادي وتحسين جودة الخدمات المقدمة للمزارعين، وأن تصميم برامج تدريبية متكاملة تراعي الفروق الفردية والتطبيق العملي يُعد ضرورة لضمان الاستفادة القصوى ورفع فعالية الإرشاد الزراعي في المحافظة

كلمات مفتاحية: الاحتياجات التدريبية، مهارات الاتصال، لغة الجسد، المهارات اللغوية، دهوك

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