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## **PATHOLOGY OF EXTENSION AND EDUCATION PROGRAMS IN THE FIELD OF WATER RESOURCES MANAGEMENT FROM THE PERSPECTIVE OF AGRICULTURAL EXPERTS**

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### **ABSTRACT**

The purpose of this research was pathology of extension and education programs in the field of water resources management from the perspective of agricultural experts in the city of Ahvaz of khuzestan province of Iran. The population of study consisted of 50 agricultural experts. By census method all of experts were studied. In order to gathering the information, the questionnaires' was prepared and validated by the judgment of the experts in agricultural extension. The reliability of the main scales of the questionnaires' was examined by Cronbach Alpha coefficients, which ranged from 0.790 to 0.851, indicating the tool of study is reliable. In order to classify the barriers of extension and education programs, factor analysis was used. In this term, 26 items were designed and evaluated the statements in the correlation matrix. Bartlett and Kaiser-Meyer-Olkin (KMO) tests were used to fit the data for factor analysis. The KMO coefficient was equal to 0.719 which indicates perfect correlation between the data for analysis. The results, shows the number of factors that are statistically significant for the analysis and mentioned 6 factors with eigen values greater than 1. Variables explained 98.012 percent of total variance and 1.988 percent of the remaining variance was related to factors that were not identified through factor analysis. These 6 factors were renamed after loading variables as: Organizational barriers, motivational and behavioral barriers, how to implement the training courses, content and how to design the training courses, characteristics of instructors and teaching methods, venue and educational facilities.

**Keywords:** *Pathology, Extension and Education Programs, Water Resources Management, Agricultural Expert*

### **INTRODUCTION**

Agricultural extension is the conscious provision of information and communication support to rural users of renewable natural resources (Nabhani *et al.*, 2015). It involves offering advice, helping farmer's analyses problems and identifies opportunities, sharing information, supporting group formation and facilitating collective action (Garforth and Lawrence, 1997). In recent years, Khuzestan province encountered shortage of water resources. Water resources management in agriculture and increasing the water use efficiency in Khuzestan province has a vital role for conservation of water resources (Nabhani *et al.*, 2015). Multiple studies in Iran showed that, although extension services has played a positive role in agricultural development of Iran, but there are difficulties, barriers, misunderstandings, and weaknesses in the transfer of new technology and information to farmers (Ommani and Chizari, 2002). Lacking the sufficient linkage between extension and research organizations has also influenced human resource development in extension systems in Iran and has been a barrier for transference of new technology to farmers. Also, this obstacle exists in water sector of agriculture. The major consumer of water in Iran is the agriculture sector (Hasheminia, 2004). Agricultural extension in Iran such as many developing countries is mainly focused on common extension approach. Studies indicated that Iran's sustainable agricultural extension contents are not favorable and the extension system does not pay enough attention to them. These conditions necessitate rethinking of extension contents to accomplish sustainable agriculture (Allahyari, 2009, Ommani and Chizari, 2010). Water resources development is controlled by human behaviour in adaptation, utilization, transformation, development and protection of the water environment (Jiaqi And Jun, 1999 quoted from Qian, 1992). But until now people are still in a process of learning about the objective world, including all aspects of natural water resources and their

### Research Article

laws of variability. One should be very careful when dealing with the sensitive and difficult problems of water resources development and utilization. The aim is to look for a way of sustainable development of human society and the sustainable utilization of water resources that plays an important role in supporting it. The Nation should spare no efforts in the implementation of the principle of sustainable development and should be prepared to undertake correcting actions against mistakes that have been made and have resulted in violation of the objective laws ruling the water resources (Jiaqi and Jun, 1999).

### MATERIAL AND METHODS

The purpose of this research was pathology of extension and education programs in the field of water resources management from the perspective of agricultural experts in the city of Ahvaz of Khuzestan province of Iran. The population of study consisted of 50 agricultural experts. By census method all of experts were studied. In order to gathering the information, the questionnaires' was prepared and validated by the judgment of the experts in agricultural extension. The reliability of the main scales of the questionnaires' was examined by Cronbach Alpha coefficients, which ranged from 0.790 to 0.851, indicating the tool of study is reliable. The method of research was a correlative-descriptive and research conducted in 2015.

The data were analyzed by SPSS version 20.0. Appropriate statistical procedures such as frequency, percentage, mean, standard deviation and correlation coefficient were applied to analyze the data. In order to measure the pathology of extension and education programs in the field of water resources management from the perspective of agricultural experts, different appropriate scales were developed and included in the final format of the questionnaire. The responses to each item of the scales were obtained on a five-point continuum viz., very disagree, disagree, no idea, agree and very agree with the scores of, one, two, three, four and five, respectively. Then a total score was calculated for different scales by summing up the item's assigned scores, which indicated overall score for harm of extension and education programs in the field of water resources management.

### RESULTS AND DISCUSSION

#### Personal Characteristics

Results show that the mean of the agricultural expert's age was about 38.6 years old with a standard deviation of 4.98 years old. Table 1 shows the education levels of the agricultural experts. The results indicate that 44 percent of the agricultural experts had MSc level education, while only 16 percent of them educated in PhD level.

**Table 1: Frequency distribution of the agricultural experts based on personal characteristics**

Personal Characteristics	Frequency	Percent	Cumulative Percent
<b>Age</b>			
26-35	12	24	24
36-45	32	64	88
46-55	6	12	100
<b>Education level</b>			
BSc	20	40	40
MSc	22	44	84
PhD	8	16	100

#### Ranking the Barriers of Extension and Education Programs in the Field of Water Resources Management

In order to assess the barriers of extension and education programs in the field of water resources management in the city of Ahvaz, 57 statements were designed and asked from agricultural experts to show their opinions. Based on the results, table (2) is provided. It presents the mean, standard deviation

**Research Article**

and then, items were ranked by using the coefficient of variation on respondents' views, and it also shows the frequency responses of entire population of study about each item. For example, the statement “Lack of adequate physical condition to participate in educational courses”, 32 person of respondents were very agree, 23 person were agree, 12 had no idea, 5 person were disagree and 3 person were very disagree.

**Table 2: Distribution of agricultural experts about barriers of extension and education programs**

Statements	1	2	3	4	5	Me	Sd	CV
1. Lack of adequate physical condition to participate in educational courses	3	5	12	23	32	4.01	1.101	0.300
2. Disbelief farmers to provided training courses	5	4	14	24	28	3.88	1.166	0.379
3. Lack of sufficient education to understand the material presented in the courses	7	12	11	14	31	3.67	1.389	0.280
4. Not having enough time to attend courses	4	5	8	27	31	4.01	1.125	0.431
5. Short duration training courses on management of water resources	12	11	17	15	20	3.27	1.408	0.379
6. Insufficient number of training courses in the field of water resources management	8	10	12	17	28	3.63	1.374	0.404
7. Lack of training at the appropriate time	9	15	12	22	17	3.31	1.336	0.395
8. Lack of proper notification of the training courses to farmers	9	12	16	20	18	3.35	1.322	0.414
9. Assign activities unrelated to educators	11	14	21	18	11	3.05	1.264	0.381
10.Lack of coordination between different departments of extension	12	5	3	32	23	3.65	1.390	0.405
11.Lack of attention to training and in-service training of extension educators	14	4	5	28	24	3.59	1.452	0.402
12.Failure to pay adequate salaries to extension educators	11	12	7	31	14	3.33	1.340	0.330
13.Lack of extension educators to hold educational courses related to water resources management	8	5	4	31	27	3.85	1.272	0.474
14.Lack of awareness of educators, with different methods of evaluation	17	11	12	20	15	3.07	1.454	0.410
15.Lack of attention to individual differences in the evaluation of educational courses for farmers	12	10	8	28	17	3.37	1.383	0.465
16.Lack of evaluation, during the training, in order to determine the level of farmers learning	17	11	13	23	11	3.00	1.395	0.450
17.Lack of sufficient budgetary allocation to education	16	10	14	24	11	3.05	1.375	0.406
18.Lack of cooperation between farmers in the implementation of educational courses	11	15	14	27	8	3.08	1.252	0.334
19.Lack of confidence among farmers to participate in educational courses	6	10	12	32	15	3.53	1.181	0.313
20.Traditional approach among farmers	6	3	15	19	32	3.91	1.224	0.405
21.Lack of coordination of educational programs with activity of farmers	12	6	9	14	34	3.69	1.496	0.484
22.Irregular training programs related to water resources management	17	11	12	15	20	3.13	1.517	0.397
23.Lack of appropriate evaluation methods during and end of the courses	9	13	15	21	17	3.32	1.318	0.414
24.Lack of sufficient funding to development water	11	14	21	18	11	3.05	1.264	0.379

**Research Article**

resource management								
25. Not enough motivation for farmers to participate in educational courses	7	12	11	14	31	3.67	1.389	0.426
26. Lack of continuing training courses related to water resources management	12	13	15	21	14	3.16	1.347	0.300
27. Lack of training in accordance with the real needs of farmers	30	24	11	5	5	3.92	1.186	0.303
28. Mismatch course with the conditions and characteristics of the area	30	22	14	4	5	3.91	1.180	0.302
29. Farmers do not participate in the design of training programs	31	15	11	11	7	3.69	1.376	0.372
30. The lack of audience experience to better organize advocacy in the future	31	22	8	5	9	3.81	1.353	0.355
31. Lack of attention to practical training courses in design	20	15	17	11	12	3.27	1.408	0.431
32. Lack of experienced promoters and local experts in the design of courses	27	18	12	10	8	3.61	1.365	0.378
33. Mismatch between the duration and content	17	25	12	12	9	3.39	1.315	0.388
34. Lack of surveys of farmers, the period required	17	21	16	12	9	3.33	1.310	0.393
35. Less attention to practical training	14	14	22	14	11	3.08	1.304	0.423
36. Failure to use a variety of learning content	26	26	6	5	12	3.65	1.419	0.388
37. Course content is not useful	23	28	5	4	15	3.53	1.473	0.417
38. Do not use new and updated educational content	14	28	7	12	14	3.21	1.408	0.438
39. The lack of consistent training programs and promotional content with indigenous knowledge	29	31	4	5	6	3.96	1.194	0.301
40. Mismatch as content and training	18	20	12	13	12	3.25	1.406	0.432
41. Lack of educational content related to prior periods	20	27	8	10	10	3.49	1.360	0.389
42. Do not use supplemental content such as brochures, pamphlets, educational CD, Tutorial and.....	14	22	13	11	15	3.12	1.404	0.450
43. The lack of teachers with knowledge and expertise in the field of water resources management	11	24	14	10	16	3.05	1.375	0.450
44. The lack of teachers with appropriate skills and teaching pedagogy	10	27	14	15	9	3.19	1.240	0.389
45. Failure to use a variety of teaching methods	16	25	16	10	8	3.41	1.255	0.368
46. The educators unfamiliar with the language of local people	30	19	15	3	8	3.80	1.296	0.341
47. The educators unfamiliar with the culture of local people	34	14	11	7	9	3.76	1.413	0.376
48. Failure to Communicate the correct relationship between educator with farmers	22	15	14	12	12	3.31	1.442	0.436
49. Lack of motivation in teachers to organize educational courses	17	21	13	13	11	3.27	1.370	0.419
50. The lack of communication between educators with research centers and universities	11	18	20	14	12	3.03	1.286	0.425
51. The lack of educational aids training courses	31	14	15	12	3	3.77	1.250	0.331
52. The lack of facilities and equipment at the venue courses	17	21	13	13	11	3.27	1.370	0.419
53. The lack of adequate learning environment for	30	24	11	5	5	3.92	1.186	0.303

**Research Article**

courses								
54. Training courses in areas unsuitable for easy access	30	22	14	4	5	3.91	1.180	0.302
55. Failure to use appropriate means of transportation, for easy access to the venue of the period of	31	15	11	11	7	3.69	1.376	0.372
56. The lack of practical training at the venue courses	31	22	8	5	9	3.81	1.353	0.355
57. The poor conditions of hygiene at the venue classes	20	15	17	11	12	3.27	1.408	0.431

*1=very agree, 2=agree, 3= no idea, 4= disagree and 5= very disagree*

**Factors Analysis**

In order to classify the barriers of extension and education programs, factor analysis was used. In this term, 26 items were designed and evaluated the statements in the correlation matrix. Bartlett and Kaiser-Meyer-Olkin (KMO) tests were used to fit the data for factor analysis (Table 3). The KMO coefficient was equal to 0.719 which indicates perfect correlation between the data for analysis. Table (4), shows the number of factors that are statistically significant for the analysis and mentioned 6 factors with eigen values greater than 1.

**Table 3: KMO and Bartlett's Test**

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>	<b>0.719</b>
Bartlett's Test	121.96
Sig	.0000

**Table 4: Initial Eigen values for determine the number of factors**

Rank	Component	Initial Eigenvalues Eigen values	% of Variance	Cumulative %
1	Organizational barriers	32.958	54.030	54.03
2	Motivational and behavioral barriers	14.767	24.209	78.239
3	How to implement the training courses	9.027	14.798	93.037
4	Content and how to design the training courses	1.378	2.259	95.296
5	Characteristics of instructors and teaching methods	1.026	1.682	96.978
6	Venue and educational facilities	1.012	1.034	98.012

Variables explained 98.012 percent of total variance and 1.988 percent of the remaining variance was related to factors that were not identified through factor analysis. These 6 factors were renamed after loading variables as:

- Organizational barriers
- Motivational and behavioral barriers
- How to implement the training courses
- Content and how to design the training courses
- Characteristics of instructors and teaching methods
- Venue and educational facilities (Table 4).

**Conclusions**

The purpose of this research was of pathology of extension and education programs in the field of water resources management from the perspective of agricultural experts in the city of Ahvaz of khuzestan

### Research Article

province of Iran. In order to assess the barriers of extension and education programs in the field of water resources management in the city of Ahvaz, 57 statements were designed and asked from agricultural experts to show their opinions. Based on the results, presents the mean, standard deviation and then, items were ranked by using the coefficient of variation on respondents' views, and it also shows the frequency responses of entire population of study about each item. For example, the statement "Lack of adequate physical condition to participate in educational courses ", 32 person of respondents were very agree, 23 person were agree, 12 had no idea, 5 person were disagree and 3 person were very disagree.

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