Informal Technical and Vocational Training Programs (ITVTP) and Farming in the Province of Isfahan, Iran[1]

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Abstract

Since 1954, various informal training programs for farmers have been implemented to support them in several aspects of their life and careers in Iran. This study aimed at assessing the results of informal technical and vocational training programs (ITVTP) in the field of agriculture on the employment status of farmers in the province of Isfahan in Iran. A number of 330 farmers (equally divided over an experimental and a control group) were selected from 19 townships of the province mentioned to be interviewed. Structured questionnaires were completed during the interviews. The results show the education level of the majority of farmers in both groups is low; most of them are married, smallholder and more than 40 years of age. Statistical analysis showed there is a positive relationship between ITVTP (as an independent variable) and different aspects of the lives and careers of farmers (as dependent variables), such as job stability, job satisfaction and motivation, income generation, investments in the agriculture sector, information and competence, the employment of families, and production capacity of farmers. The findings underline the importance and supporting role of ITVTP for many factors relating farming.

Keywords: Training Programs, Technical and Vocational Education, Farming Activities, Informal Learning, Extension Courses, Employment Statue, Agriculture

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Introduction

Training and development, or human resource development, have long been recognized as an essential element and crucial factor for development and socioeconomic expansion (Walton, 1999). Recently, scientific achievements and modern production methods have changed the economy of communities and their interrelation such that, continuing training and life long learning play an important role in the process of development of enterprises, groups and individuals. Hence, the importance of a trained workforce and human resources has been the focus of attention of the majority of development programmers (Mulder, 2004; Karbasioun & Mulder, 2004; Chizari, Linder & Mohsanie, 2001; Chizari, & Karbasioun, 1998).

There is little dispute about the importance of training in the workforce. Especially in knowledge intensive domains, training is essential for competence development and performance improvement. Since long, there has been disagreement on the level of transfer and cost-effectiveness of training, which led to an increased attention to ways of supporting non-formal and informal learning. Informal training however can be implemented in different ways with different levels of perceived effectiveness (Lans, Wesselink, Biemans & Mulder, 2004, pp. 73-84). Informal training of farmers can support quality improvement of farming. It can also help them to be more efficient and successful in their activities. And since farming is a complex and multidimensional job, farmers need different kinds of competencies, which can directly or indirectly be used in their career (Van den Ban, 1998).

Various informal training programs for farmers have been implemented to support them in several aspects of their life and work in Iran and different organizations and institutions (mainly governmental) have had the responsibility to conduct these training programs for farmers. In this study, the focus has been on informal technical and vocational training programs (ITVTP) in the province of Esfahan that are agriculture-oriented and aimed at helping farmers to overcome their limitations and difficulties they face.

A Brief History of ITVTP and its Effects

As already mentioned, the mainly agriculture-related ITVTPs were provided by the Ministry of Agricultural-Jihad, in co-operation with some other organisations in the field of technical and vocational education and the Red Cross. Connected to the implementation of the courses, an integrated evaluation system was operated, but it has not convincing enough for the authorities to make recommended changes regarding ITVTP (Karbasioun & Mulder, 2004). Nevertheless, it is visible that a great number of studies conducted showed that the courses implemented were positive and had added value (Dashti 1994; Zamani & Talebianpour, 2001; Zavvar, 1993; Zarnegar & Farjadnia, 1999; Keshavarz, 1994; Arabzadeh, 1997).

Additionally, international studies are mostly in favor of national projects; for instance, for Integrated Pest Management (IPM) programs for rice were carried out in twelve Asian countries and the results were reported by Henk (2004) from Wageningen University. He concludes that IPM farmer field school programs have influenced farmers' technical and general competencies positively.

Also a remarkable number of implemented case studies in a variety of countries support this idea that training programs have positive effects on farmers with various conditions and characteristics. They have been classified to different groups based on their strategies and concepts predominantly used, target groups

and when and where they are best applicable.

These training programs could be named as: community-based training (e.g. Laos); alternate (center-farm) none-formal training (e.g. Nicaragua); center-based none-formal training (e.g. BAFIS Laos); integrated approaches or linking formal and informal training (e.g. South Africa); and Formal center-based or apprenticeship schemes (e.g. Morocco and Argentina). This categorization does not mean rigidity and should be entirely flexible. Therefore, it might be said that every thing is considered possible as long as it leads to desired impact on farmers (services for rural development, 2004).

In contrast with above researches, Kazemzadeh (2001) found opposite results in his study about the effects of ITVTP in meaty chicken keeping in Isfahan province and did not find any positive effects of the courses held by the Ministry of agricultural-Jihad to support meaty chicken keepers. He concluded that these programs failed to reach their pre-planned objectives because of insufficient time allocated to the courses and of paying too little attention to the continuity of the programs. Similarly, Rezvanfar & Vaisy (2003) showed that ITVTP should be more learner-oriented and comprehensive to be able to equip farmers with the information and skills they need.

More recently, Karbasioun & Mulder (2004), in a study about competencies of farmers in Isfahan, discovered that there is a lack of technical and general competencies among the studied farmers. They therefore recommended that ITPTV should preferably concentrate on these lacking competencies. It is also important to state that these competencies should be conducted from the organizational (farm or agri-business) and individual (farmer, entrepreneur or employee) performance perspective, since competence development only makes sense if this performance improvement perspective is chosen (Mulder, 2004). We can conclude that the research findings are limited to certain field of work and not conclusive, and that further efforts are needed to study the relationships between ITPTV and different factors that are related to farming. In the study presented below therefore, relationships between ITVTP and various characteristics of farmers who are working in various disciplines (such as agronomy, horticulture, and animal husbandry) in the province of Isfahan are examined.

Purpose and Objectives

The purpose of this study was to examine the relationships between ITVTP in the field of agriculture and the employment status of the farmers in the province of Isfahan.

Specific Objectives

1. Recognizing personal, social, economical characteristics of target group.
2. Assessing the results of ITVTP (independent variable) on the 15 following factors regarding farmers:

   Job motivation; Access to the production facilities due to better communication with suppliers and extension centre employees; Competencies for effective job performance; Agricultural and animal production capacity; The extent of applying new methods and strategies in agricultural and animal production; Employment stability; The economic situation and income; The rate of investment in agricultural and animal production; The extent of applying new technological instruments and tools in agricultural and animal production; Knowledge and information about scientific methods and stability

principles of agriculture in the job; The job diversity; The rate of employment of family members in agriculture and animal production; The quality and efficiency of the job; General information and awareness about their job; and Job satisfaction.

Methods

This study was carried out as a survey and a quasi-experimental design in the province of Isfahan. First, a complete list of all potential respondents that participated in various ITVTP held in different villages of 19 townships of Isfahan province was composed. The total number of this list was 2,220 farmers. Since the training programs encompass different agricultural contexts and deal with diverse fields, a stratified sampling was used to cover various disciplines and groups of both trained and untrained farmers. To do so, 165 trained farmers as experimental group out of the 2,220 farmers who participated in training programs were selected. Also 165 untrained farmers were chosen as control group from the whole population of farmers who had not taken part in any training programs. Since the time of participation in ITVTP is important for investigating the results of training, the period of participation from October 2002 till October 2004 was taken. Eventually 330 farmers were chosen to interview.

Efforts were made to select both groups in such a way that they had the same general characteristics as to possibly intervening variables, such as the size and ownership of land under cultivation, the number of domestic animals in the land and being villagers (staying in villages). The only difference was participation in vocational and technical courses during last two years. Therefore the independent variable in this study is ITVTP in field of agriculture and animal husbandry. The training courses the experimental groups followed were held in different disciplines such as dairy farming, calf keeping, sheep keeping, apiculture, sericulture, floriculture, poultry farming, principles of building animal stable, industrial cow keeping, safeguarding of environment and natural resources, utilizing rangelands and pastures, agricultural mechanization, carpet knitting, rural handicrafts and artifacts. The dependent variables comprise all fifteen items mentioned above.

A survey questionnaire, including open and closed questions, was prepared and used for data collection. In designing the closed questions, a five-point Likert-type scale was applied.

Structure and Content of the Questionnaire:

1. To what extent are you motivated for your job? (8 questions)
2. To what extent do you have problems in access to the following facilities? (6 question)
3. To what extent do you agree with the following questions about your skills in your job (7 questions)
4. To what extent has your job and farming been changing during the last two years? (11 questions)
5. To what extent have you been using new methods in your farming during the last two years? (15 questions)
6. Do you agree with the following statements about the stability in your job? (11 yes/no questions)
7. What changes have happened in your income level since the last few years until now? (14 questions)
8. Do you agree with the following statements about your investment in the field of agriculture during the last few years? (10 yes/no questions)
9. What kind of tools, instruments and facilities are necessary for having a

good production in agriculture? (6 questions)
10. To what extent are you using agriculture principles in your farming in each of following items? (10 questions)
11. In which kind of sub-occupations in the field of agriculture you are working (agronomy, animal husbandry, land using etc)? (12 yes or no questions)
12. To what extent do your family members help you in the farming activities? (4 questions)
13. To what extent are you committed to do the following things in your job (for instance plant protection, on time irrigation, searching for new information)? (7 questions)
14. To what extent do you agree with the items below (questions about job satisfaction, for example I enjoy my job; I have good income in my job; my job is boring etc) (10 questions)
15. 17 specific questions about the general information farmers have about their job, for instance what is the common disease in chickens, and what are the main reasons for declining the pastures?

To test the validity of questionnaire, ten copies were distributed among four academic staff of Isfahan University and six experts from the Ministry of agriculture-Jihad in Isfahan. Also for assuring the reliability of the questionnaire, it was pilot-tested amongst a group of 37 farmers who were in similar conditions as the target population. Based on the expert appraisal and pilot-test with farmers, the questionnaire was amended where necessary. Since the education level of the majority of the farmers was low, experts were selected to interview the farmers. The preliminary analysis of data was accomplished by descriptive statistics. Furthermore, because the distribution of data was not normal, and many variables had ordinal answering categories, none-parametric tests such as the Mann-Whitney U test, and Kolmogorov-Smironov-test were used. Where allowed, T- and Z -test were performed.

Results

In this section we will present the descriptive data concerning the research group first. Then we will present the results of the comparison between the trained (experimental) and none-trained (control) groups.

The Research Group

The educational level of the vast majority of farmers in both (control and experimental) groups was low (Table 1). A large percent of them were married. In addition, 52.7% of the population of the control group and 69.7% of the experimental group were more than 40 years of age (Table 1).

Table 1

Distribution of Farmers Based on Education Level, Marital Status, and Age

	Experiment		Control		
Variables	*N*	Percent	*N*	Percent	Total
Education Level					
Uneducated	19	13.8	32	21.1	51
Primary school	79	57.2	92	62.2	171
Junior secondary school	36	26.1	12	8.1	48
Senior secondary school	4	2.9	12	8.1	16
Marital Status					
Married	160	97.0	138	83.6	298
Single	5	3.0	27	16.4	32
Age					
Less than 30	25	15.2	49	33.6	74
30-40	25	15.2	20	13.7	45
More than 40	115	69.7	77	52.7	192

Note. Percentages may not total 100 due to missing data.

Based on the latest national census in Iran (Lotfi, 2004, June 23), it can be said that being low educated and older are nearly common characteristics of farmers all over Iran. Taking this into consideration, it will be obvious how difficult it would be to support the farmers with ITVTP. This phenomenon has been reiterated in a governmental consultative committee, which is composed of 17 Iranian and 15 international consultants, and has been established by the Ministry of agricultural-Jihad recently to make essential modifications in agricultural policy. Mr. Emadi, the deputy of Agricultural-Jihad Ministry who is one of the members of this committee, contended the majority of active Iranian farmers is even more than 50 years old having very little education indeed. This is why the traditional way of farming is still applied by these farmers (Lotfi, 2004).

Comparison between the trained (experimental) and non-trained (control) group

All variables in Table 2 are comprised of various items. The number of items differs by variable. For each variable Cronbach's alpha scores were computed to test the inter-item-reliability of the variables. For instance, the first variable 'Job motivation' consists of 8 items, therefore the absolute minimum mean is 8, and the absolute maximum mean is 40 (8×5). Cronbach's alpha for these 8 items was 0.75. Given the range of Cronbach's alpha scores for the variables between 0.74 and 0.87, it can be concluded the variables were sufficiently reliable (Table 2).

Table 2

Variable Number, Variable Name, Number of Items and Cronbach's Alpha Scores for the Items within the Variable

Number	Name	*n*	Alpha
1	Job Motivation	8	.75
2	Access to production facilities	6	.83
3	Job competencies	8	.87
4	Agricultural and animal production capacity	11	.85
5	The extent of applying new methods and strategies in agricultural and animal production	15	.87
6	Employment stability	11	.74
7	Economic situation and income	14	.79
8	The rate of investment in agricultural and animal production	10	.78
9	The extent of applying new technological instruments and tools in agricultural and animal production	6	.81
10	Knowledge and information about scientific methods and principles	10	.81
11	Job diversity	12	.82
12	The rate of employment of family members in agriculture and animal production	4	.83
13	The quality and efficiency of the job	7	.87
14	General information and awareness about the job	17	.74
15	Job satisfaction	10	.78

The comparison between the control and experimental group shows a significant difference ($\chi^2 = 19.97$, df = 3) between the rate of education of two groups. The experimental group is more educated and married ($\chi^2 = 16.74$, df =1), with more land under cultivation, more domestic animals in the farm, higher motivation, satisfaction and interest towards their job than the control group. They also have more access to production facilities, more application of new methods and techniques in agriculture, and eventually higher economical situation and income level. Table 3 shows the effects of training programs on various aspects of the job of farmers. It is easily visible that ITVTP had influence on all enlisted factors related to the job of the farmers.

Table 3

Relationship between Informal Vocational and Technical Training Programs and Different Aspects of Jobs of Farmers

VN	Groups	*M*	*SE*	*MW*	*Z*
1	E	32.01	0.3564	4473.5	-10.61*
	C	24.33	0.4853		
2	E	18.51	0.3577	50032.0	-9.94 *
	C	11.42	0.3780		
3	E	27.67	0.3906	8255.5	-6.27*
	C	23.78	4.935		
4	E	21.56	0.1977	1079.0	-3.33*
	C	19.91	0.2642		
5	E	36.73	1.2375	6535.0	-8.205*
	C	22.25	8287		
6	E	6.27	0.128	6535.0	-8.205*
	C	5.31	0.184		
7	E	30.61	0.420	4885.0	-10.113*
	C	23.53	0.299		
8	E	5.38	0.366	6794.0	-8.170*
	C	4.31	0.188		
9	E	5.1	284.09	105450	-3.77*
	C	3.58	146.91		
10	E	35.72	0.79886	4726.0	-10.295*
	C	19.84	0.8495		
11	E	5.38	0.211	5227.0	-4.788*
	C	4.13	0.121		
12	E	13.27	0.2035	5227.0	-9.747*
	C	7.38	0.3900		
13	E	29.12	0.4163	11457	-2.512*
	C	27.09	0.2778		
14	E	13.12	0.1977	22446	-5.68*
	C	11.53	0.2642		
15	E	34.04	0.3515	11418.0	-2.562*
	C	32.44	0.3451		

Note. VN: Variable Number; E: Experimental; C: Control; MW: Mann-Whitney.
* $p < 0.01$

As Table 3 illustrates, all calculated Z-scores for the different characteristics of the jobs of the farmers are significant ($P < 0.01$). Hence, it could be said that ITVTP has had significant positive relationships with all 15 dependent variables mentioned in the table.

Conclusion

Based on the results of this study, we conclude that in general, the majority of the population of farmers in the province of Isfahan is more than 40 years of age, married, small-holder, and low-educated. This should be taken into account when designing training programs for this target group. The informal training programs should take this into account, and should be

better based on the characteristics of the target group (such as learning ability, readiness to learn, motivation to change, instructional strategy, performance improvement oriented training content).

Informal technical and vocational training as a whole has had a positive relationship with farming style and success of trained farmers in generating more qualified products and consequently achieving more satisfaction, motivation and income.

Causal relationships between the independent and dependent variables cannot be inferred based on the design of the study, since there was no baseline data, nor a pre-test for the dependent variables. Farmers with a higher level of education, and who are in a better economic and social position may have had a higher tendency toward participation in vocational and technical courses already upfront.

Recommendations

As always, training design should be aligned to the target group characteristics. The target group characteristics of farmers in the province of Isfahan are listed above. For the majority of farmers, who are thus over forty years of age, who have no or only elementary education, training will not be an easy solution to improving their performance, let alone whether they are motivated to do so. It might be the case that this target group is stuck in ways of traditional farming, based on their own values and norms, that they do not want to give up easily, since they may perceive their situation as one that is the result of generations of community practice, all which is understandable. It is also not easy to change farming practices that have grown over generations, and in which the farmers believe. And since they survived, they also have the right to believe that. For farmers with low education it is also quite hard to understand new methods and technical innovations. New knowledge may be different from the many possible misconceptions in the minds of the farmers.

So in training design, the indigenous knowledge, values and norms, local practices, farmers' beliefs, and possibly limited levels of learning ability should be taken into account. At least, the training should be as practical as possible, directly related to performance indicators that are understandable and convincing for the farmers.

Since the research on the effectiveness on informal training in inconclusive, and there has been doubt on this even between authorities in the Ministry of Agricultural-Jihad, it is strongly recommended to use the research presented in this paper in reassessing the strategies of ITVTP in Iran. Furthermore, more explicit attention to and sufficient funds for ITVTP are to be recommended. The results of the study can be used in efforts to reach farmers who have not yet taken part in ITVTP to encourage them to benefit from upcoming programs in the future.

As to the effectiveness and noticeable positive role of ITVTP for farmers, more consideration should be given to pave the way of presenting these programs appropriately, strengthening the positive points and reducing the shortcomings of these informal courses.

Also, It is suggested to conduct further studies in other provinces, preferably countrywide so that the results can be generalized and widened to other parts of the country and possibly be integrated in the yearly development cycle of the agricultural plan, which is designed by the Ministry of Agricultural-Jihad.

Finally, as stated before the findings of this research also support many other international and worldwide studies; nevertheless, the author couldn't find any recent study with a comprehensive attention to the influence of ITVTP on various facets of the employment statues of the farmers. Thus, it is proposed that similar researches are implemented in different countries and

more specifically in developing countries where have always serious difficulties in convincing authorities to allocate sufficient fund for ITVTP.

References

Arabzadeh, M. (1997). Assessing the effectiveness of informal vocational and technical courses for carpet knitters (level two) in Mazandaran province, Full report with commentary, Agricultural-Jihad organization of the province of Mazandaran, Iran.

Dashti, H. (1994). Evaluation of animal husbandry extension courses, Full report with commentary, The Ministry of Aricultural-Jihad of Iran.

Chizari, M., Karbasioun, M., & Mand Linder, J. R. (1998). Obstacles Facing Extension Agents in the Development and Delivery of Extension Educational program for adult farmers in the Province of Esfahan, Iran. *Journal of Agricultural Education,* 39, 1, 48-54.

Chizari, M., Lindner, J.R. & Mohsanie, A. (2001). Managing Human Resources in Iran, *Association for International Agricultural Extension Education (AIAEE). Proceeding of 17th Annual Conference*, Baton Rouge, Louisiana, USA.

Henke, V. d. B. (2004). IPM Farmer Field Schools: A synthesis of 25 impact evaluations, prepared for Global IPM facility. Published research report prepared for the Global IPM facility, Wageningen University, The Netherlands.

Karbasioun, M & Mulder, M. (2004). HRM and HRD in agricultural extension organisations in Iran, A Literature Review, *Association for International Agricultural Extension Education (AIAEE), Proceeding of 20th Annual Conference*, Dublin, Irland, May 2004, 13-24.

Karbasioun, M & Mulder, M. (2004). Increasing the Competency of Farmers and land users a Critical Future Force for Agricultural development and Natural Resources, *Proceedings of the Fourth International Iran & Russia Conference*, Shahrekord, Iran, September 2004, 854-860.

Kazemzadeh, M. (2001). *The effects of human factors on production of chicken keepers in Isfahan province*, Unpublished Master's thesis, University of Tehan, Iran.

Keshavarz, Sh. F. (1994) Assessing the effectiveness of informal vocational and technical courses for carper knitters in Mazandaran province*,* Full research report with commentary; Agricultural-Jihad organization of Mazandaran, Iran.

Lans, T., R. Wesselink, H.J.A. Biemans & M. Mulder (2004). Work-related lifelong learning for entrepreneurs in the agri-food sector. *International Journal of Training and Development, 8,* 1, 73 - 89.

Lotfi, L. (2004, June 23). The preparation of agricultural development strategy (report). *Sharg Persian Newspaper*, 1, 222. Retrieved June 25, 2004, from http:/www.sharghnewspaper.com/830403/econom.htm

Mulder, M. (2004). *Education, competence and performance. On training and development in the agrifood complex,* Inaugural address. Wageningen: Wageningen University. www.socialsciences.nl/ecs

Pezeshki-Raad, G., Aghai, H. & Ukaga, O. (2001). Rural Extension Problems in Iran: Opinions of Extension Authorities. *Journal of Extension Systems*, 17, 6.

Rezvanfar, A. (2003). Diffusion of innovation, unpublished working paper, Tehran university, Iran.

Rezvanfar, A, & Vaisy, H. (2003). Communication behaviour among farmers in East Azerbaijan province. *Journal of Science and Technology of Agriculture and Natural* resources, 6, 4, 41- 52.

Services for Rural Development. (2004). *Rural training for employment, Background*. Retrieved February 25, 2005, from http://www2.gtz.de/agriservice/english/topics/training/topics4a.htm

Van den Ban, A. W. (1998). *Competencies needs in extension organizations*, published article in the innovation and communication group of Wageningen University, The Netherlands.

Zamani, M. & Talebianpour. (2001). *Study of the effects of informal technical and vocational training programs on the economic situation of villagers in Kohkilouye and Boirahmad county*, Unpublished Master's thesis, Shiraz University, Shiraz.

Zarnegar, B. (1999). The assessment of the effects of agricultural extension and education courses in Gorgan province, Unpublished Research report, Aricultural-Jihad organization of the province of Gorgan, Iran.

Zavvar, F. & Khalafkhani. (1993). Evaluation of informal technical and vocational training programs with the animal husbandry orientation in western Azerbaijan, Unpublished research report, Agricultural-Jihad organization of the province of Azarbayejan, Iran.