



Research Article

PATH ANALYSIS- AN ESSENTIAL TOOL FOR MEASURING CAPACITY BUILDING THROUGH TRAINING OF ORGANIC FARMING PRACTICES

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Abstract- We are not only informing the farm people about innovations but also we are educating them so that they can effectively and efficiently use that innovations in their own farm situation. This type of educational effort is training and it is an important component in our Technology Transfer System. Training brings required changes in individual's behavior for improving their job performance to develop human abilities and capabilities for accepting new opportunities in various situations. In broad sense, capacity building is a continuous process where people conscious of their situation, gain knowledge and skills, solve problem and self-development. So far as concerned capacity building through training and especially its direct and indirect effect was measure by Path Analysis. The result of path analysis reflects that marketing orientation about organic farming products was the most important variable affecting directly and positively the knowledge of organic farming practices. It had also provided the way for education and extension participation in exerting their indirect substantial effect on knowledge of organic farming practices. Path's result inferred that education about organic farming practices was the most important variable affecting directly and positively the adoption of organic farming practices. It had also provided a way for the variables viz.; risk orientation and age in exerting their indirect substantial effect on adoption of organic farming practices.

Keywords- Organic Farming Practices, Total Indirect Effect, Substantial Indirect Effect.

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Introduction

Organic farming is a production system, which avoids or largely excluded the use of synthetically compounded fertilizers, pesticides, growth regulators, and live stock feed additives. To the maximum extent feasible, organic farming systems rely upon crop rotation, crop residues, animal manures, legumes, green manures, off-farm organic will betes, mechanical cultivation, mineral-bearing rocks and aspects of biological pest control of maintain soil productivity and tilth to supply plant nutrients and to control insects, weeds, and other pests (Lampkin, 1990).

India is one of the world's most agriculturally significant countries. The highest organic cultivation area is in Australia around 12.2 mil ha followed by Europe 6.5 mil ha (www.sole.de). The total area under organic cultivation in Asian countries 4.1 mil ha and India have 1,14,037 ha which is ranking 31st under the organic cultivation (www.fibl.org). It ranks among the world's largest producers of rice, tea, fruits and vegetables, various spices, pulses, medicinal plants and cashew nuts. Its first internationally certified organic products began emerging in the mid 70's, supported by UK's Soil Association.

Training brings required changes in individual's behaviour for improving their job performance, to develop human abilities and capabilities for accepting new opportunities in various situations.

In broad sense, capacity building is a continuous process where people conscious of their situation, gain knowledge and skills, solve problems and self-development. So far as concerned capacity building through training and especially its direct and indirect effect was measure by Path Analysis.

Materials and Methods

This study was conducted by using an *ex post facto* research design. A multistage random sampling techniques was used for the study. Among 10 Talukas of Surendranagar District, two talukas viz; Sayala and Chotila were selected randomly from Surendranagar district. After selection of talukas three villages from each taluka were selected randomly. Thus, total six villages from the two selected talukas were considered for the study, fifteen trained and fifteen untrained respondents were selected randomly for each selected villages by random sampling method.

Result and Discussion

The correlation co-efficient of fourteen variables, the data thus indicated that the observed relationship of independent variables with dependent variable.

Therefore, to study the influence of the independent variables on dependent variable both directly as well as through other variables present in the study, the Path Analysis was applied. Hence, all the 14 independent variables were subjected to Path Analysis.

Effect of Independent Variables on Knowledge of Organic Farming Practices

It is clear from the [Table-1] that all the independent variable except three namely age, annual income and marketing orientation had exerted positive direct effect on knowledge of organic farming practices.

The highest direct positive effect on knowledge of organic farming practices was

Table-1 Path coefficients of different characters with dependent variable (Knowledge)
n=90

Variables		X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	Correlation coefficient
		Age	Education	Annual Income	Size of Land Holding	Extension Participation	Social Participation	Organic farming Experience	Localite-Cosmo Polite value orientation	Innovative-ness	Irrigation Potentiality	Cropping Intensity	Risk Orientation	Mass media Exposure	Marketing Orientation	
X1	Age	-0.1215	-0.0829	-0.0051	0.1943	-0.0324	-0.0336	-0.0032	-0.0503	-0.0416	-0.0116	-0.0035	-0.0401	-0.0243	0.0218	-0.234
X2	Education	0.0628	0.1603	0.0075	-0.1828	0.0605	0.0413	0.0054	0.035	0.0448	0.0134	0.0024	0.0964	0.0226	-0.0294	0.3402
X3	Annual Income	-0.0091	-0.0174	-0.0688	0.0294	-0.0248	-0.0092	-0.0016	-0.0044	-0.0211	-0.0193	0.0008	-0.0196	0.0239	0.0075	-0.1337
X4	Size of Land holding	-0.0533	-0.0661	-0.0046	0.4432	-0.022	-0.0255	-0.0013	-0.0243	-0.0628	-0.0053	-0.01	-0.066	-0.0336	0.0138	0.0822
X5	Ext. Participation	0.0222	0.0546	0.0096	-0.0549	0.1776	0.0136	-0.0003	0.0282	0.0218	0.0077	0.0015	0.0302	0.0538	-0.0089	0.3567
X6	Social Participation	0.0531	0.0861	0.0082	-0.1467	0.0315	0.0769	0.0031	0.0172	0.0409	0.0076	0.0004	0.0721	-0.0207	-0.0198	0.2099
X7	Organic farming Experience	0.0247	0.0546	0.007	-0.0371	-0.003	0.0151	0.0158	0.0163	0.0319	0.0297	-0.0044	0.0633	0.0214	-0.0226	0.2127
X8	Localite-Cosmopolite value orientation	0.0438	0.0402	0.0022	-0.0772	0.0359	0.0095	0.0018	0.1396	0.0403	0.0078	-0.0035	0.0531	0.0353	-0.0186	0.3102
X9	Innovativeness	0.026	0.0369	0.0075	-0.143	0.0199	0.0161	0.0026	0.0289	0.1948	0.0091	0.0052	0.055	-0.0111	-0.0148	0.2331
X10	Irrigatio Potentiality	0.0106	0.0162	0.01	-0.0176	0.0103	0.0044	0.0035	0.0082	0.0133	0.1325	0.0044	0.0395	0.0115	-0.0129	0.2339
X11	Cropping Intensity	0.0114	0.0103	-0.0015	-0.12	0.007	0.0008	-0.0019	-0.0133	0.0277	0.0157	0.0369	0.025	0.0108	0.0038	0.0127
X12	Risk Orientation	0.0214	0.068	0.0059	-0.1286	0.0236	0.0244	0.0044	0.0326	0.0471	0.023	0.0041	0.2274	-0.0131	-0.0205	0.3197
X13	Mass media Exposure	0.0139	0.0171	-0.0077	-0.0702	0.045	-0.0075	0.0016	0.0232	-0.0101	0.0072	0.0019	-0.014	0.2123	-0.0003	0.2124
X14	Marketing Orientation	0.0482	0.0858	0.0094	-0.1113	0.0287	0.0278	0.0065	0.0472	0.0525	0.0311	-0.0026	0.0847	0.0011	-0.0549	0.2542

Table-2 Path coefficients of different characters with dependent variable (Adoption)
n=90

Variables		X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	Correlation coefficient
		Age	Education	Annual Income	Size of Land Holding	Extn. Participation	Social Participation	Organic farming Experience	Localite Cosmo Polite Value Orientation	Innovativeness	Irrigation Potentiality	Cropping Intensity	Risk Orientation	Mass Media Exposure	Marketing Orientation	
X1	Age	-0.03	-0.097	0.0123	0.0068	-0.04	-0.0151	-0.007	-0.0235	-0.02	-0.0179	-0.0003	-0.0204	-0.0121	0.04	-0.2242
X2	Education	0.0159	0.1832	-0.0149	-0.0077	0.0553	0.0198	0.0192	0.0208	0.0181	0.0196	0.0002	0.0335	0.0141	-0.0324	0.3447
X3	Annual Income	-0.0047	-0.0349	0.0781	0.0016	-0.029	-0.0059	0.0015	-0.005	-0.0095	-0.0226	0	-0.0106	0.0037	0.0196	-0.0177
X4	Size of Land Holding	-0.0119	-0.0825	0.0071	0.0171	-0.031	-0.0129	-0.0051	-0.0205	-0.0374	0.0047	-0.0012	-0.0402	-0.0131	0.0244	-0.2025
X5	Extention Participation	0.0086	0.0727	-0.0162	-0.0038	0.1393	0.0127	0.0017	0.024	0.0149	0.0188	0.0001	0.0277	0.0165	0.0072	0.3242
X6	Social Participation	0.0114	0.0919	-0.0117	-0.0056	0.0449	0.0396	0.0076	0.0166	0.017	0.0089	0.0007	0.0128	0.0056	-0.0231	0.2166
X7	Organic Farming Experience	0.0046	0.0769	0.0026	-0.0019	0.0053	0.0066	0.0458	0.0134	0.0095	0.0179	-0.0004	0.0244	0.0174	-0.0064	0.2157
X8	Localite-Cosmopolite value orientation	0.0101	0.0544	-0.0056	-0.005	0.0478	0.0094	0.0088	0.07	0.0219	0.0313	0.0001	0.0407	0.019	0.0002	0.3031
X9	Innovativeness	0.0069	0.0382	-0.0085	-0.0074	0.0239	0.0077	0.005	0.0177	0.0867	0.0106	0.001	0.035	0.0047	-0.0052	0.2163
X10	Irrigation Potentiality	0.0037	0.0249	-0.0122	0.0006	0.0181	0.0024	0.0057	0.0151	0.0064	0.1449	0.0008	0.0111	0.0056	-0.0109	0.2162
X11	Cropping Intensity	0.0021	0.0065	0.0008	-0.0046	0.0024	0.0059	-0.0038	0.002	0.0186	0.0263	0.0046	0.0152	0.0063	0.0152	0.0975
X12	Risk Orientation	0.0062	0.062	-0.0083	-0.0069	0.039	0.0051	0.0113	0.0288	0.0307	0.0162	0.0007	0.099	0.0105	0.0094	0.3037
X13	Mass Media Exposure	0.0056	0.0397	0.0045	-0.0035	0.0354	0.0034	0.0122	0.0204	0.0063	0.0124	0.0004	0.016	0.065	0.003	0.2208
X14	Marketing Orientation.	0.0078	0.0384	-0.0099	-0.0027	-0.0065	0.0059	0.0019	-0.0001	0.0029	0.0102	-0.0005	-0.006	-0.0016	-0.1544	-0.1146

exerted by size of land holding (0.4432), followed by risk orientation (0.2274), mass media exposure (0.2123), Innovativeness (0.1948) and extension participation (0.1776) towards knowledge of organic farming practices. Other variables namely education, localite cosmopolite value orientation, irrigation potentiality, social participation, cropping intensity and organic farming experience exerted positive direct effect on knowledge of organic farming practices in order of their magnitude where as age (-0.1215), annual income (-0.0649) and marketing orientation (-0.0549) in decreasing order of magnitude had exerted negative effect of knowledge of organic farming practices.

Total Indirect Effect

It is revealed from the [Table-1] that except age, annual income, size of land holding and cropping intensity remaining other variables exerted positive total indirect effect on knowledge of organic farming practices.

The highest positive total indirect effect on knowledge of organic farming practices was exercised by marketing orientation (0.3091), followed by organic farming experiences (0.1969), education (0.1799), extension participation (0.1791) and localite cosmopolite value orientation (0.1330) respectively. A considerable total indirect positive effect on knowledge of organic farming practices also exercised by the variable namely, irrigation potentiality (0.1014), risk orientation (0.0923), innovativeness (0.0383) and mass media exposure (0.0001) in descending order. Whereas, size of land holding (-0.361), age (-0.1125), annual income (-0.0649) and cropping intensity (-0.02420) exerted negative total indirect effect on knowledge of organic farming practices.

Substantial Indirect Effect

It is observed from [Table-1] that the first order substantial indirect effect on knowledge of organic farming practices was exerted through the variables namely size of land holding, risk orientation, mass media exposure and innovativeness.

The first highest positive substantial indirect effect on knowledge of organic farming practices was exerted by age (0.1943) through the size of land holding, followed by annual income (0.0294). The other variables exerted considerable substantial indirect effect through size of land holding were education (-0.1828), social participation (-0.1467), risk orientation (-0.1286) and marketing orientation (-0.1113) were found negative and in descending order. It is interesting to note that most of the independent variables cosmopolite value orientation, mass media exposure, organic farming experiences, size of land holding and cropping intensity exerted positive direct effect on adoption of organic farming practices in order of their magnitude where as variables age (-0.0300) and marketing orientation (-0.1544) in decreasing order of magnitude had exerted negative effect on organic farming practices.

Total Indirect Effect

It is revealed from the [Table-2] that except age, annual income and size of land holding remaining other variables exerted positive total indirect effect on adoption of organic farming practices.

The highest positive total indirect effect on adoption of organic farming practices on exercised by localite cosmopolite value orientation (0.2331) followed by risk orientation (0.2047), extension participation (0.1849), social participation (0.1770), and organic farming experience (0.1699) and education (0.1615) respectively. A considerable total indirect positive effect on adoption of organic farming practices was also exercised by the variable namely, mass media exposure (0.1558), innovativeness (0.1296), crop intensity (0.0929), irrigation potentiality (0.0713) and marketing orientation (0.0398) in descending order. Whereas, size of land holding (-0.2196), age (-0.1942) and annual income (-0.0958) exerted negative total indirect effect on adoption of organic farming practices.

Substantial Indirect Effect

It is observed from the [Table-2] that the first order substantial indirect effect on adoption of organic farming practices exerted first order substantial indirect on negative form on knowledge of organic farming practices through size of land holding.

Education (0.0964), marketing orientation (0.0847) and social participation (0.0721) exerted first order positive substantial indirect effect on knowledge of organic farming practices through risk orientation. Whereas, very negligible first

order substantial indirect effect was exerted by marketing orientation (0.0525) and risk orientation (0.0471) through innovativeness. Age, (-0.1725) had exerted negative first order substantial indirect effect on knowledge of organic farming practices through mass media exposure.

The foregoing discussion led to conclude that marketing orientation about organic farming products was most important variable, affecting directly and positively the knowledge of organic farming practices. It had also provided the way for education and extension participation in exerting their indirect substantial effect on knowledge of organic farming practices.

Effects of Independent Variables On adoption of Organic Farming Practices

It is clear from the [Table-2] that the independent variables except two namely age and marketing orientation had exerted positive direct effect on adoption of organic farming practices.

The highest direct positive effect on adoption of organic farming practices was exerted by education (0.1832), irrigation potentiality (0.1449), extension participation (0.1393) and risk orientation toward organic farming practices (0.0990). Other variables namely innovativeness, annual income, localite was exerted through the variables namely education, irrigation potentiality, extension participation and risk orientation respectively.

The first highest positive substantial indirect effect on adoption of organic farming practices was exerted by social participation (0.0919) through education were innovativeness, irrigation potentiality, cropping intensity and risk orientation in descending order. It is interesting to note that most of the independent variables were exerted first order substantial indirect effect on adoption of organic farming practices through education.

Localite cosmopolite value orientation (0.0313), cropping intensity (0.0263) and education (0.0196) exerted first order positive substantial indirect effect on adoption of organic farming practices through irrigation potentiality. Whereas, very negligible first order substantial indirect effect was exerted by education (0.0553) and localite cosmopolite value orientation (0.0478) through extension participation. Size of land holding (-0.0402) had exerted negative first order substantial effect on adoption of organic farming practices.

It can be conclude from the path's result that education about organic farming practices was the most important variable, affecting directly and positively the adoption of organic farming practices. It had also provided a way for the variables viz.; risk orientation and age in exerting their direct substantial effect on adoption of organic farming practices.

Conclusion

The result of path analysis reflects that marketing orientation about organic farming practices was the most important variable, affecting directly and positively the adoption of organic farming practices. It had also provided a way for education and extension participation in exerting their indirect substantial effect on knowledge of organic farming practices.

Path's result inferred that education about organic farming practices was the most important variable, affecting directly and positively the adoption of organic farming practices. It had also provided a way for the variables viz.; risk orientation and age in exerting their indirect substantial effect on adoption of organic farming practices.

Conflict of Interest: None declared

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