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Direct, total indirect and substantial effects between profile of the young practicing farmers and their AIT association

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Abstract

The present study was conducted in Anand, Kheda and Vadodara districts of the Middle Gujarat. Farmers of these districts are comparatively more innovative and have a higher interest in using Agricultural Information Technology in their everyday lives. A total of nineteen variables were subjected to path analysis and the study revealed that education had exerted a maximum direct and substantial indirect effect and achievement motivation had the maximum total indirect effect in the determination of the AIT association of the young practicing farmers.

Keywords: Young practicing farmers, Agricultural Information Technology (AIT), direct-indirect effect

Introduction

Agricultural Information Technology also known as e-agriculture focuses on the enhancement of agricultural and rural development through improved information and communication processes. More specifically, e-agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICTs) in the rural domain, with a primary focus on agriculture. ICT includes devices, networks, mobiles, services and applications; these range from innovative Internet-era technologies and sensors to other pre-existing aids such as fixed telephones, televisions, radios and satellites. Provisions of standards, norms, methodologies and tools as well as development of individual and institutional capacities and policy support are all key components of e-agriculture.

The most vibrant and engaged group of people is the youth. The world's greatest young population resides in India. According to the study by the Ministry of Health and Family Welfare's Technical Group on Population Projection, youngsters aged 15 to 29 make up 27.20 per cent of the population in 2021 or around 345 million people. Young farmers are capable of understanding new agricultural innovations and methods. As a result, in terms of working knowledge, skill, attitude, and exposure to all those components and devices that are either directly or indirectly required for utilizing e-extension for agricultural growth, every young practicing farmer today must be positivist. Another developing area of interest is the training intervention for young practicing farmers in the use of AIT technologies for agricultural information dissemination.

Objective

To study direct, total indirect and substantial effects between profile of the young practicing farmers and their AIT association.

Methodology

The study was undertaken on the young practicing farmers of Anand, Kheda and Vadodara districts of Middle Gujarat. From these districts, out of twenty-six talukas, three talukas were selected randomly, from each district for the study. From each taluka, five villages were selected and again from each village, five young practicing farmers were selected randomly for the study. Hence, a total of 225 young practicing farmers were selected and interviewed either at their homes or field in light of the objective. An Ex-post-facto research design was used for the study for the measurement of variables. Then, it was carried out to identify the direct, total indirect and substantial effects of independent variables on the AIT association of the young practicing farmers.

Statistical path analysis is nothing more than a series of multiple regression analysis, it has the additional advantage of allowing us to examine tentative causality in a way that regression does not. Path analysis is a very useful tool for assessing the casual influence of a set of independent variables on dependent variable.

Results and Discussion

All the nineteen variables were subjected to path analysis.

The data thus, indicate that observed relationship between the variables were only partially absolute and partially relative. Partially relationship was a contribution made by other variables exercising their influence jointly.

It is therefore, necessary to study the influence of one variable on other variable both directly as well as through other variables presented in the situation. The result of path analysis is presented in Table 1.

Table 1: Path coefficients showing the direct, total indirect and substantial indirect effects of independent variables on AIT association of the young practicing farmers (n=225)

Sr. No.	Variables	Direct effect	Total indirect effect	Substantial indirect effect through	
				1	2
X1	Age	-0.0100	0.1348	0.0421 (X11)	0.0294 (X6)
X2	Education	0.4798	0.3606	0.1388 (X17)	0.0550 (X3)
X3	Languages known	0.0807	0.5611	0.3271 (X2)	0.1182 (X17)
X4	Experience in farming	-0.0155	0.1310	0.0375 (X11)	0.0316 (X17)
X5	Family size	-0.0128	0.0232	0.0065 (X11)	0.0038 (X8)
X6	Social participation	0.0461	0.2248	0.0632 (X2)	0.0211 (X8)
X7	Land holding	0.0483	0.1895	0.0604 (X2)	0.0477 (X11)
X8	Herd size	0.0384	0.1250	0.0536(X11)	0.0307 (X7)
X9	Parental occupation	-0.0130	0.3256	0.0931(X2)	0.0629 (X11)
X10	Annual Income	-0.0022	0.3005	0.0742(X2)	0.0537 (X11)
X11	Extension contact	0.1054	0.4645	0.1876(X2)	0.0969 (X17)
X12	Source of information about AIT	-0.0439	0.6250	0.2818(X2)	0.1344 (X17)
X13	Agricultural mass media	0.0485	0.3748	0.1104(X2)	0.0868 (X11)
X14	Innovative proneness	0.0439	0.4926	0.2397(X2)	0.1223 (X17)
X15	Achievement Motivation	0.0570	0.7578	0.2865(X2)	0.2403 (X17)
X16	Credibility towards AIT tools	0.0546	0.7421	0.2622(X2)	0.2500 (X17)
X17	Scientific orientation	0.2625	0.5351	0.2538(X2)	0.0885 (X19)
X18	Economic motivation	-0.0116	0.3665	0.1322 (X2)	0.0980(X17)
X19	Risk orientation	0.1025	0.6160	0.2265 (X17)	0.2255(X2)

Direct effect

The data presented in the Table 1 indicate that education had maximum direct positive effect (0.4798), followed by scientific orientation (0.2625), extension contact (0.1054), risk orientation (0.1025), languages known (0.0807), achievement motivation (0.0570), credibility towards AIT tools (0.0546), agricultural mass media (0.0485), land holding (0.0483), social participation (0.0461), innovative proneness (0.0439) and Herd size (0.0384).

It was further observed that remaining five variables exerted negative direct effect on AIT association. Annual income of the young practicing farmers exerted highest negative direct effect (-0.0022), followed by age (-0.0100), economic motivation (-0.0116), family size (-0.0128), parental occupation (-0.0130), experience in farming (-0.0155) and source of information about AIT (-0.0439).

Total indirect effect

Table 1 reveal that the maximum positive indirect effect was exerted by achievement motivation (0.7578) followed by credibility towards AIT tools (0.7421), source of information about AIT (0.6250), risk orientation (0.6160), languages known (0.5611), scientific orientation (0.5351), innovative proneness (0.4926), extension contact (0.4645), agricultural mass media (0.3748), economic motivation (0.3665), education (0.3606), parental occupation (0.3256), annual income (0.3005), social participation (0.2248), land holding (0.1895), age (0.1348), experience in farming (0.1310), herd size (0.1250) and family size (0.0232).

Substantial indirect effect

Data further reveal that maximum substantial indirect effect was channelled through education in the case of 14 factors. The second-largest substantial indirect effect was channelled through scientific orientation in the case of 10 factors. However, the third-largest substantial indirect effect was channeled through extension contact in case of 8 factors, herd size exerted substantial indirect effects in case of 2 factor, while language known, social participation, land holding and risk orientation towards AIT tools exerted substantial indirect effects in case of 1 factor.

Conclusion

Path effects were obtained by solving simultaneous equations set up to use the correlation matrix for nineteen variables. Education had a direct positive effect (0.4798) on the AIT association while the annual income of the young practicing farmers exerted the highest negative direct effect (-0.0022) in the study. It can be said that education exerted a maximum direct and substantial indirect effect and achievement motivation had the maximum total indirect effect in the determination of AIT association of the young practicing farmers.

Conflict of Interest

All authors declare that they have no conflict of interest

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