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## RESEARCH ARTICLE

# Determinants of Perception of Professional Woman Faculties about Their Working Environment

Meenu Maheswaran<sup>1</sup>, R.D. Pandya<sup>2</sup> and Khushbu Bhati<sup>3</sup>

1&3. Ph.D. Scholar,  
Department of Agril. Extension  
and Communication

2. Principal and Dean (Retd.),  
N.M. College of Agriculture,  
Navsari Agricultural University,  
Navsari, Gujarat India

Corresponding author e-mail:  
[meenumaheswaran62@gmail.com](mailto:meenumaheswaran62@gmail.com)

## ABSTRACT

*There are several determinants which profoundly affects the perception of professional woman faculties about their working environment. In the present study, those factors which decisively affects the nature of perception of woman faculties about their working environment is identified using path analysis and stepwise regression analysis. Direct and indirect effects of profile characteristics of professional woman faculties on their perception about working environment can be well known from path analysis. Stepwise regression analysis was used to predict the extent of variation in perception caused by the independent variables. The study was conducted among hundred-woman faculties working in four state agricultural universities of Gujarat state viz: NAU, Navsari, JAU, Junagadh, AAU, Anand and SDAU, Dantewada. The path analysis results indicated that management efficiency (0.253) had exerted maximum direct positive effect and professional performance (0.250) had exerted highest positive total indirect effect on perception of professional woman faculties about working environment. In maximum substantial indirect effect on perception, annual income routed maximum times. From the stepwise regression analysis, it was understood that four independent variables such as job satisfaction (0.302\*), management efficiency (0.275\*), group cohesiveness (0.727\*) and infrastructural facilities (0.435\*) were the four variables which together accounted 21.40 per cent variation as indicated by adjusted R<sup>2</sup> value for perception of professional woman faculties about working environment.*

**Key words:** Determinants; Professional woman faculties; Perception; Working environment.

**D**eterminants are the factors which decisively affects the nature or outcome of something. There are some factors which affects the perception of professional woman faculties about their working environment. Perception is the organization, identification, and interpretation of sensory information in order to represent and understand the presented information or environment. It is the first event in the chain which leads from the stimulus to action (Boring *et al.*, 1961). A professional woman faculty's perception about the organizational policies and practices, including everyday interactions influence their environment. Job involvement and organizational commitment of woman agricultural personnel are related and mediate the organizational performance (Beevi *et al.*, 2022). In terms of research productivity, it is the work outcome of agricultural

scientists with a minimum of 3 years of experience in research, in form of publications, research projects undertaken, technologies developed, knowledge generated, research guidance offered, awards received, recognition achieved and Intellectual Property Rights (IPR) generated (Veldandi *et al.*, 2022). There are some characteristics of professional woman faculties which have direct and indirect effects as well as capable of predicting the variation using path analysis results. Statistically, path analysis is nothing more than a series of multiple regression analysis and it has an additional advantage to examine the tentative causality in a way that regression through does not. It is a widely used technique for modelling plausible sets of causal relations among three or more observed variables. In the social sciences path analysis has been widely used especially in sociology, and also in

psychology (Crossman and Ashley, 2020). Stepwise regression is a variation of multiple regression which provides a means of choosing independent variables that yield the best prediction possible with the fewest independent variables. It permits the user to solve a sequence of one or more multiple linear regression problems by stepwise application of the least square method (Borroughs Corporation, 1975). Therefore, path analysis and regression analysis were the effective statistical tools to identify the major determinants of perception of professional woman faculties about their working environment. The objectives of the study are as follows -

- Direct and indirect effects of profile of professional woman faculties on perception about their working environment
- Stepwise multiple regression analysis of independent variables and perception
- Stepwise variation accounted by different independent variables on perception

## METHODOLOGY

The study was conducted among hundred woman faculties working as Professors/ Research Scientists, Associate Professors / Associate Research Scientists / Associate Extension Educationists and Assistant Professors / Assistant Research Scientists / Assistant Extension Educationists in colleges, research stations and extension institutes of four state agricultural universities of Gujarat state viz: Navsari Agricultural University, Junagadh Agricultural University, Anand Agricultural University and Sardar Krushinagar Dantiwada Agricultural University.

**Path coefficient analysis :** Direct and indirect effects of profile characteristics of professional woman faculties on their perception about working environment can be well known from path analysis. For the purpose of using path analysis in the present study, only those independent variables were selected which had significant correlation with dependent variable, i.e. and their perception about working environment.

The path coefficients were obtained by solving a set of simultaneous equations as below (Fidelis and Sunday, 2018):

$$r_{ny} = P_{ny} + r_{n2}P_{2y} + r_{n3}P_{3y} + r_{n4}P_{4y} + \dots + r_{nx}P_{xy}$$

Where,

$r_{ny}$  = Correlation coefficient between one component item and dependent variable 'y'

$P_{ny}$  = Path coefficient between one item and 'y'

$r_{n2}, r_{n3}, r_{nx}$  = Correlation coefficient between item and other item compound intern

**Stepwise regression analysis :** The stepwise regression analysis was employed to predict the extent of knowledge and attitude by independent variable.

In the stepwise method, the regression was started with regression of Y and  $X_1 \dots X_n$  taken singly. The variable given the highest accountability in sum of square of Y is first selected. Then the bivariate regression in which  $X_1$  appeared were worked out. The variate which gives the highest additional accountability in sum of square in Y after fitting  $X_1$  variable was selected. All the trivariate regression that include both  $X_1$  and  $X_2$  were computed. The analysis was continued till the last variate of which additional contribution was least of all variables. The prediction equation used as:

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_kX_k$$

Where,

Y = Predicted dependent variable

a = intercept

$b_1 \dots b_k$  = Partial regression coefficient of respective independent variables

$X_1 \dots X_k$  = Independent variables

## RESULTS AND DISCUSSION

### Path Analysis of Perception of Woman Faculties about Working Environment

**Direct effect :** Table 1 and Fig. 1 revealed that management efficiency had exerted maximum direct positive effect (0.253), followed by decision making ability (0.209), age (0.178), communication ability (0.178), infrastructural facilities (0.162), job satisfaction (0.156), group cohesiveness (0.133), professional participation (0.093), innovativeness (0.088) and training received (0.017). As far as negative direct effect is concerned annual income (-0.257), teaching aptitude (-0.231), level of aspiration (-0.163), professional zeal (-0.099), academic qualification (-0.065), professional experience (-0.048), family education (-0.043), internet exposure (-0.042), professional stress (-0.034) and professional performance (-0.020) had exerted maximum direct negative effect on their perception about working environment.

From the above results, it can be concluded that among independent variables, management orientation had exerted highest positive direct effect on attitude whereas, annual income exhibited largest negative direct effect on attitude.

**Table 1. Path coefficient showing the direct, total indirect and substantial indirect effects of independent variables on perception (N=100)**

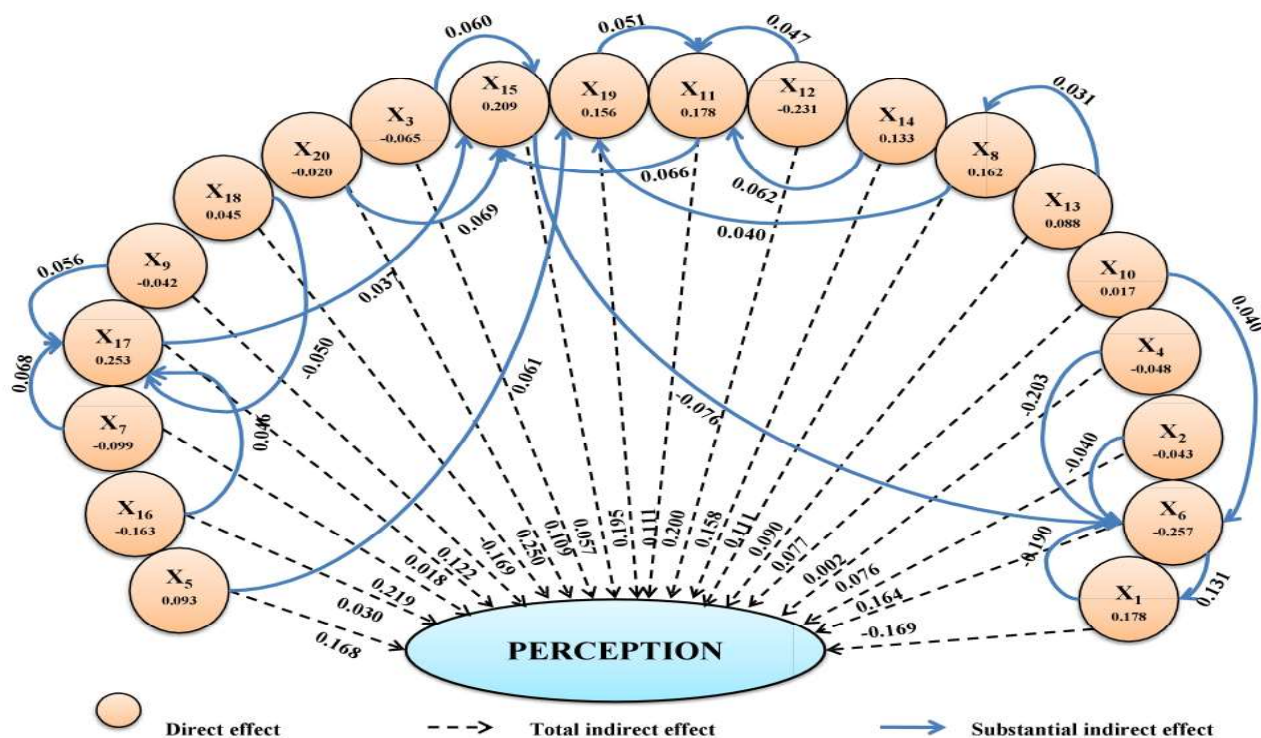
Variables	Direct effect	Total indirect effect	Substantial indirect effect through
X <sub>1</sub> Age	0.178	-0.169	-0.190 (X6)
X <sub>2</sub> Family education	-0.043	0.076	-0.040(X6)
X <sub>3</sub> Academic qualification	-0.065	0.109	0.060(X15)
X <sub>4</sub> Professional experience	-0.048	0.002	-0.203(X6)
X <sub>5</sub> Professional participation	0.093	0.168	0.061(X19)
X <sub>6</sub> Annual income	-0.257	0.164	0.131(X1)
X <sub>7</sub> Professional zeal	-0.099	0.219	0.068(X17)
X <sub>8</sub> Infrastructural facilities	0.162	0.111	0.040(X19)
X <sub>9</sub> Internet exposure	-0.042	0.122	0.056(X17)
X <sub>10</sub> Training received	0.017	0.077	0.040(X6)
X <sub>11</sub> Communication ability	0.178	0.111	0.066(X15)
X <sub>12</sub> Teaching aptitude	-0.231	0.200	0.047(X11)
X <sub>13</sub> Innovativeness	0.088	0.090	0.031(X8)
X <sub>14</sub> Group cohesiveness	0.133	0.158	0.062(X11)
X <sub>15</sub> Decision making ability	0.209	0.057	-0.076(X6)
X <sub>16</sub> Level of aspiration	-0.163	0.030	0.046(X17)
X <sub>17</sub> Management efficiency	0.253	0.018	0.037(X15)
X <sub>18</sub> Professional stress	-0.034	-0.169	-0.050(X17)
X <sub>19</sub> Job satisfaction	0.156	0.195	0.051(X11)
X <sub>20</sub> Professional performance	-0.020	0.250	0.069(X15)
Residual: 0.60542			

*Total indirect effect* : So far, the total indirect effect is concerned, 18 variables had positive total indirect effect on perception of professional woman faculties about working environment.

Further, it can be observed that professional performance had maximum positive total indirect effect (0.250), followed by professional zeal (0.219), teaching aptitude (0.200), job satisfaction (0.195), professional participation (0.168), annual income (0.164), group cohesiveness (0.158), internet exposure (0.122), infrastructural facilities (0.111), communication ability (0.111), academic qualification (0.109), innovativeness (0.090), training received (0.077), family education (0.076), decision making ability (0.057), level of aspiration (0.030), management efficiency (0.018) and professional experience (0.002). As far as negative total indirect direct effect is concerned age (-0.169) and professional stress (-0.169) were equally exerted maximum negative total indirect effect.

From the above results, it can be concluded that the professional performance exerted highest positive total indirect effect whereas age and professional stress exhibited largest negative total indirect effect on perception of professional woman faculties about working environment.

*Substantial indirect effect* : Data further revealed

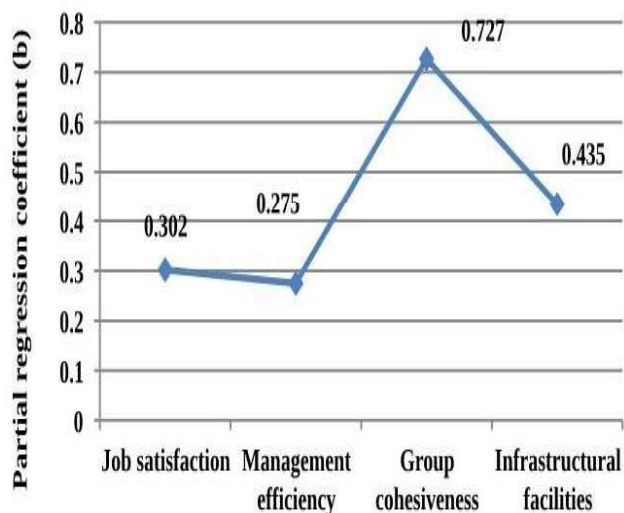


**Fig.1. Path coefficients showing direct, total indirect and substantial indirect effect of independent variables on perception**



**Table 2. Stepwise multiple regression analysis of independent variables and perception (N=100)**

Independent variable	(b)	SE	(R)	Adjusted R <sup>2</sup>
Job satisfaction (X <sub>19</sub> )	0.302*	0.145	0.413	0.214
Management efficiency (X <sub>17</sub> )	0.275*	0.108	0.462	
Group cohesiveness (X <sub>14</sub> )	0.727*	0.322	0.351	
Infrastructural facilities (X <sub>8</sub> )	0.435*	0.214	0.496	
*Significant at 0.05 level of probability				

**Fig. 2. Stepwise regression analysis of independent variables and perception**

that out of 20 substantial indirect effects, five each were routed through annual income, four routed through decision making ability, four routed through management efficiency, three routed through communication ability, two each routed through job satisfaction, one routed through age, one routed through infrastructural facilities.

With regards to substantial indirect effect, the first substantial negative indirect effect on perception was put forth by professional experience (-0.203) through annual income, followed by age (-0.190) through annual income. However, first substantial positive indirect effect on perception was put forth by annual income (0.131) of woman faculties through age. Whereas, the variable professional performance (0.069) exhibited positive substantial indirect effect on perception through decision making ability.

From the above results, it can be concluded that the management efficiency exerted highest positive direct effect on perception. As regards to total indirect effect, professional performance exerted highest positive total indirect effect on perception. While,

annual income the highest positive substantial indirect effect on annual income through age. The management efficiency, professional performance, annual income and age were the key variables providing a way for all other independent variables in exerting their substantial indirect effect on perception. This naturally suggests that positive increase in management efficiency, professional performance, annual income and age would bring the substantial change in perception of professional woman faculties about working environment.

*Stepwise regression analysis of independent variables and perception* : Stepwise multiple regression analysis with 20 independent variables and perception was carried out. The findings are presented in Table 2 and Fig.2.

Data presented in Table 2 and fig. 2 reveals that out of 21 independent variables, four variables namely job satisfaction (0.302\*), management efficiency (0.275\*), group cohesiveness (0.727\*), infrastructural facilities (0.435\*) were accounting influence on perception of professional woman faculties about working environment. All the four independent variables together accounted 21.40 per cent variation as indicated by adjusted R<sup>2</sup> value for perception of professional woman faculties about working environment.

By following model a result of stepwise regression analysis is as;

$$Y_2 = a + b_{19}X_{19} + b_{17}X_{17} + b_{14}X_{14} + b_8X_8$$

Where,

$Y_2$  = Perception; a = the intercept i.e., 28.927

$b_{19}$  = Coefficient of partial regression of  $Y_1$  on  $X_{19}$  i.e. 0.302

$b_{17}$  = Coefficient of partial regression of  $Y_1$  on  $X_{17}$  i.e. 0.275

$b_{14}$  = Coefficient of partial regression of  $Y_1$  on  $X_{14}$  i.e. 0.727

$b_8$  = Coefficient of partial regression of  $Y_1$  on  $X_8$  i.e. 0.435

$X_{19}$  = Job satisfaction;  $X_{17}$  = Management efficiency

$X_{14}$  = Group cohesiveness;  $X_8$  = Infrastructural facilities

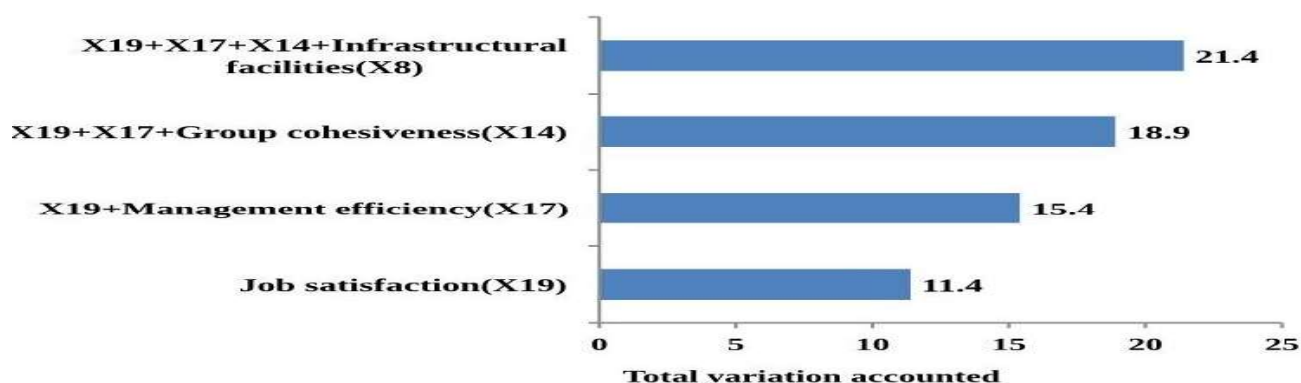
Therefore, the fitted equation would be as under:

$$Y_2 = 28.927 + (0.302) X_{19} + (0.275) X_{17} + (0.727) X_{14} + (0.435) X_8$$

*Stepwise variation accounted by different independent variables on perception* : Stepwise variation accounted by different independent variables on perception was carried out. The data presented in Table 3 and fig. 3 reveals that the job satisfaction alone contributed 11.40 per cent variation in perception of professional woman faculties about working environment, followed by job satisfaction + management efficiency accounted for 15.40 per cent, the job satisfaction + management

**Table 3. Stepwise variation accounted by different independent variables on perception (N=100)**

Variables Included	Multiple Correlation Coefficient 'R'	Coefficient multiple determination 'R <sup>2</sup> '	Adjusted R <sup>2</sup>	Total variation accounted (%)
Job satisfaction (X <sub>19</sub> )	0.351	0.123	0.114	11.40
X <sub>19</sub> + Management efficiency (X <sub>17</sub> )	0.413	0.171	0.154	15.40
X <sub>19</sub> + X <sub>17</sub> + Group cohesiveness (X <sub>14</sub> )	0.462	0.213	0.189	18.90
X <sub>19</sub> + X <sub>17</sub> + X <sub>14</sub> + Infrastructural facilities (X <sub>8</sub> )	0.496	0.246	0.214	21.40

**Fig. 3. Stepwise variation accounted by different independent variables on perception**

efficiency + group cohesiveness accounted 18.90 per cent and the job satisfaction + management efficiency + group cohesiveness + infrastructural facilities accounted 21.40 per cent variation in the perception about working environment of professional woman faculties.

From the above findings, it can be concluded that the perception of professional woman faculties about working environment was found to be predicted by four independent variables namely job satisfaction, management efficiency, group cohesiveness and infrastructural facilities. All these variables together contributed 21.40 per cent of the total variation in the perception of professional woman faculties about working environment.

## CONCLUSION

Management efficiency exerted maximum direct positive effect and professional performance had exerted highest positive total indirect effect on perception of professional woman faculties about working environment. In maximum substantial indirect effect on perception, annual income routed maximum times. Job satisfaction, management efficiency, group cohesiveness, infrastructural facilities were accounted significant influence on perception of professional woman faculties about working environment.

University authorities can focus on these variables while planning and executing various job oriented roles, policies, design of working environment for developing a good perception about professionalism among woman faculties of agricultural universities.

## CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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