

# Identifying the component structure of job satisfaction by principal components analysis among extension officers in North West Province, South Africa

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## Abstract

The component structure of a 34-item scale measuring different aspects of job satisfaction was investigated among extension officers in North West Province, South Africa. A simple random sampling technique was used to select 40 extension officers from which data were collected. A structured questionnaire consisting of 34 job satisfaction and 10 personal characteristic items was administered to the extension officers. Items on job satisfaction were measured at interval level and analyzed with Principal Component Analysis. Most of the respondents (82.5%) were males, between 40 to 45 years, 85% were married and 87.5% had a diploma as their educational qualification. Furthermore, 54% of the households size between 4 to 6 persons, whereas 75% were Christians. The majority of the extension officers lived in their job area (82.5%), while 80% covered at least 3 communities and 3 farmer groups. In terms of number of farmers covered, only 40% of the extension officers covered more than 500 farmers and 45% travelled more than 40 km to reach their farmers. From the job satisfaction items 9 components were extracted to show areas for job satisfaction among extension officers. These were in-service training, research policies, communicating recommended practices, financial support for self and family, quality of technical help, opportunity to advance education, management and control of operations, rewarding system and sanctions. The results have several implications for motivating extension officers for high job performance especially with large number of clients and small number of extension agents.

*Keywords:* job satisfaction, job performance, motivation, extension officers, South Africa

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## 1 Introduction

In many developing countries agricultural development is hinged on extension services by helping farmers to identify and link with research on their production problems. They also provide awareness on opportunities for improvement of farm yields leading to increased income and better standard of living (Agbamu, 2002). Long & Swartzel (2007) noted that the mission of extension services is to provide research based information, educational programs and technology on farmers' needs and enabling them to make informed decisions about their economic, social and cultural well-being. The findings of Santucci (2002) stated that most farmers depend on public extension workers for information.

Agents feel satisfied with their jobs when extension educational programs have yielded satisfactory results

that accomplish predetermined program goals. Employees that have a high job satisfaction care more about the quality of their work and, therefore are more committed to their organization. To ensure high levels of job satisfaction, administrators need to know and understand what their employees want from work to develop better in-service training programs designed to enhance job satisfaction and reduce job dissatisfaction (Scott *et al.*, 2005b). Scott *et al.* (2005a) defined job satisfaction as an individual's attitude about work roles and the relationship to worker motivation.

The extension workforce has attracted individuals of diverse and different characteristics such as age, gender, working experience, educational qualification and marital status among other characteristics which have been found to be associated with job satisfaction either positively or negatively. As a construct, job satisfaction is extremely complex with no single conceptual model completely and accurately describing the construct (Hagedorn, 2000). Shanmugasundaram & Prema (2005) reported that organizational communica-

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tion, team work, task identity and clarity of task were found to be positively and significantly correlated with job satisfaction of extension personnel in India. Ladebo *et al.* (2005) indicated that perceived organizational support (POS) and organizational justice (procedural and distributive) explained unique variances in job satisfaction. POS moderated the relationships between job satisfaction and perceptions of distributive and procedural justice in Nigeria. It implies that the job satisfaction could be enhanced through ensuring that the extension personnel perceive managerial actions and behaviors as being just and equitable.

Hubeis (2007) noted that job satisfaction was influenced by psychology, and social, while physical and financial factors have no influence among extension agents in West Java. Aguilar & Vlosky (2009) modeled job satisfaction as a function of control/autonomy/influence, challenge, performance measures, feedback, instrumentality and stability/security to find differences in job satisfaction among male and female extension agents in the United States of America. Women place higher importance on job stability/security as a factor influencing job satisfaction with the levels of feedback and instrumentality being less important determinants of job satisfaction for them. Ibrahim *et al.* (2008) concluded that a significant relationship exists between training of extension workers, regular promotion, payment of allowances and the level of job satisfaction among extension workers in North East Nigeria. Scott *et al.* (2005b) reported that a significant relationship exists between job satisfaction and gender. Nestor & Leary (2000) found no relationship between gender and job satisfaction. Studying job satisfaction is important because organizational productivity is influenced by the quality of the relationship between people and the jobs they do. If there is a good fit between people and their jobs, such that work is a personally rewarding experience, then there may be little for management to do to foster high motivation and satisfaction (Scott *et al.*, 2005a).

The Department of Agriculture, (DoA, 2009) reported that currently, the Extension Recovery Plan (ERP) is being implemented in all the nine provinces of South Africa. This is based on the fact that agricultural improvement in the country, especially among small scale and resource-poor farmers, requires a major effort to improve the quality of extension services available to farmers. The implementation of ERP was based on 5 pillars namely ensuring the accountability and visibility of extension, promotion of professionalism and improvement of image, re-skilling and reorientation of extension, provision of ICT infrastructure and other resources and recruitment of extension personnel. The foregoing has several implications on extension delivery and consequently requires that extension officers are sufficiently satisfied and motivated for effective job per-

formance. The purpose of this study was to identify the component structure of job satisfaction among extension officers by Principal Component Analysis (PCA).

## 2 Materials and Methods

The study was carried out in North West province, South Africa. The study population included all extension officers (N=200) in the province. A simple random sampling technique was used to select 40 extension officers from which data were collected. A structured questionnaire consisting of 34 job satisfaction and 10 personal characteristic items was administered to the extension officers. Job satisfaction was measured on a 5-point Likert type scale of not satisfied (1), least satisfied (2), fairly satisfied (3), almost satisfied (4) and most satisfied (5). The questionnaire was face validated by lecturer in the Department of Agricultural Economics and Extension of the North West University, South Africa, and extension professionals from the Department of Agriculture, South Africa. The reliability coefficient for the questionnaire was 0.85. From the list of 34 items, the extraction method of the Principal Component Analysis was used to determine variables to be fitted into the regression equation, which were then subjected to multiple regression analysis.

## 3 Results and Discussion

Table 1 show the demography and work characteristics of extension officers in North West Province, South Africa. These include gender, age, marital status, household size, religion, educational level, working experience, living in job area, job designation and number of communities covered, number of farmers covered and distance to farmers. Most of the respondents (82.5%) were males, between 40 to 45 years, 85% were married and 87.5% had a diploma as their educational qualification. The trend of the results agrees with Saito & Weidemen (1990) that the extension profession is dominated by men in Africa and the level of education is generally low. Furthermore, 54% of the households size between 4 to 6 persons, whereas 75% were Christians. The most prominent category of extension officers were agricultural technicians, and 92.5% had working experiences of at least 10 years. The majority of the extension officers lived in their job area (82.5), while 80% covered at least 3 communities and 3 farmer groups. In terms of number of farmers covered, only 40% of the extension officers covered more than 500 farmers and 45% travelled more than 40 km to reach their farmers. Shanmugasundaram & Prema (2005) stated that the majority of extension agents in India were middle-aged, possessed the desired professional education and had low levels of professional experience.

**Table 1:** Demographic and work characteristics of extension officers.

Variables	Frequency	Percentages
Gender		
Male	33	82.5
Female	7	17.5
Age		
Less than 40	5	12.5
40-45	19	47.5
45-50	16	40.0
Marital status		
Married	34	85.0
Divorced	3	7.5
Single	3	7.5
Household size		
1-3	10	27
4-6	20	54.05
Above 6	7	18.95
Religion		
Christianity	30	75.0
Free thinkers	10	25.0
Educational level		
Diploma	35	87.5
B.Sc	5	12.5
Studying for higher degree		
Yes	35	87.5
No	5	12.5
Working Experience		
Less than 10 years	3	7.5
10-20 years	27	67.5
Above 20 years	10	25.0
Living in job area		
Yes	33	82.5
No	7	17.5
Job Designation		
Agricultural Technician	18	45.0
Senior Agricultural Technicians	3	7.5
Extension officers	4	10.0
Chief Agricultural Technicians	10	25.0
Senior Extension officers	5	12.5
Number of communities covered		
1-3	8	20.0
4-6	19	47.5
Above 6	13	32.5
Number of farmers groups covered		
1-3	8	20.0
4-6	15	37.5
Above 6	17	42.5
Number of farmers covered		
Less than 200	5	12.5
200 - 500	19	47.5
Above 500	16	40.0
Distance to farmers		
Less than 40 km	5	12.5
40-100 km	17	42.5
Above 100 km	18	45.0

**Table 2:** Job satisfaction index among extension officers.

Items	Mean	SD
Qualification for job	2.90	1.19
In-service training	2.77	1.29
Work exposure	3.37	1.05
Lack of motivation	2.32	1.18
Direction by supervisors	2.33	1.14
Research policies	3.77	0.89
Political problems	2.10	0.95
Identifying farmers' problems	3.02	1.29
Feeding back farmers' problems to research	2.52	0.96
Communicating recommended practices	2.65	1.27
Liaison with other agencies	2.60	0.84
Job specialization	2.07	1.04
Financial support for self and family	2.15	1.00
Job security	2.60	0.95
Job autonomy	2.40	1.27
Operating supplies and materials	2.22	1.34
Transportation	2.70	1.22
Availability of experimental land	1.90	1.05
Work equipment and tools	2.10	0.87
Availability of labour/technical help	2.45	0.95
Quality of labour/technical help	2.37	1.00
Library facilities	2.15	1.12
Opportunities to advance education	3.00	1.26
Opportunities to gain professional recognition	2.95	1.15
Opportunities to publish findings	2.00	1.01
Management reputation for professional achievement	2.30	0.99
Management control of operations	2.32	0.85
Flexibility and initiative	2.67	1.07
Rewarding system	1.97	1.09
Relationship among professionals and administrative staff	2.45	0.90
Continuity of programme	2.07	1.02
Clear statement of project embarked upon	2.10	1.25
Budgeting	1.90	1.00
Sanctions	1.90	1.12

**Table 3:** Principal Component Analysis Matrix using Extraction Method \*.

		1	2	3	4	5	6	7	8	9
Qualification for job	V1	8.1E-02	.622	.612	.149	.121	.216	-2.6E-04	.207	.165
In-service training	V2	.309	.404	.683	.154	.205	3.25E-02	-4.0E-02	-8.6E-02	-.158
Work exposure	V3	.567	.314	.343	-8.9E-02	.190	.318	-.273	-.259	1.80E-02
Lack of motivation	V4	.483	.461	-.337	-.231	-.332	6.564E-02	6.27E-02	-.304	.227
Direction by supervisors	V5	.649	-.134	.135	-.241	-.200	-.252	-9.0E-03	-.344	-.369
Research policies	V6	.614	-6.0E-02	-.168	-2.2E-02	-.321	.194	-.126	8.74E-02	.513
Political problems	V7	.548	-7.7E-02	.484	.106	-.403	1.23E-02	-7.E-02	-1.3E-02	-8.3E-03
Identifying farmers' problems	V8	.408	-.522	.133	-.207	7.38E-02	.295	.142	7.86E-02	-2.7E-02
Feeding back farmers' problems to research	V9	.687	2.5E-02	.210	.304	-.177	-.401	7.13E-02	.225	-1.9E-02
Communicating recommended practices	V10	9.8E-02	-.172	.583	.278	.521	-5.4E-02	6.57E-02	-7.3E-03	.447
Liaison with other agencies	V11	.664	-.196	.465	8.43E-02	-1.1E-02	-.133	-.211	5.51E-02	-3.9E-02
Job specialization	V12	.284	.256	.223	.365	-1.5E-02	.139	-.422	.278	-7.6E-02
Financial support for self and family	V13	.149	-.606	.382	-.142	-.126	.367	.162	-.153	3.42E-02
Job security	V14	.722	-.385	.139	-.207	-.189	9.44E-05	-1.5E-03	.223	-.171
Job autonomy	V15	.552	-.335	-.126	.275	-.122	.238	-.226	6.85E-03	-.212
Operating supplies and materials	V16	.499	.108	-.425	.133	.384	.124	8.61E-02	-.307	2.78E-02
Transportation	V17	.467	-.426	3.47E-02	-.278	.498	7.85E-02	.131	-4.0E-02	.142
Availability of experimental land	V18	.342	.290	.134	.506	-.271	-.115	.457	-.224	.264
Work equipment and tools	V19	.447	-.414	.335	-.201	-.203	-.209	.280	-.221	-8.4E-03
Availability of labour / technical help	V20	.409	.247	8.63E-02	-.376	-.184	5.65E-04	.478	.376	.171
Quality of labour / technical help	V21	.485	.403	-.122	-.438	-.113	8.66E-02	7.19E-02	.497	-.118
Library facilities	V22	.563	-1.6E-03	-.375	.403	-.402	5.56E-02	-2.9E-03	-4.3E-02	6.31E-02
Opportunities to advance education	V23	.565	.224	-.102	-.564	.335	.146	-7.6E-02	-2.6E-03	-7.9E-02
Opportunities to gain professional recognition	V24	.725	.359	-.270	-.190	.226	.226	2.64E-02	1.44E-02	-6.8E-02
Opportunities to publish findings	V25	.627	.439	-.159	4.90E-02	-5.8E-02	-.244	-3.7E-02	-5.2E-02	-.112
Management reputation for professional achievement	V26	.512	.185	-9.7E-02	-.213	.275	-.410	-5.9E-04	-9.1E-02	6.19E-02
Management control of operations	V27	.815	-5.0E-02	.112	7.20E-02	7.31E-02	-.335	-8.4E-02	1.73E-02	-.187
Flexibility and initiative	V28	.674	.116	-.165	.103	.193	-.265	-.135	-.246	8.45E-02
Rewarding system	V29	.482	.154	-9.4E-02	.315	-.156	.671	8.47E-02	-.201	-.143
Relationship among professionals and administrative staff	V30	.790	-6.5E-02	-7.7E-02	-.301	1.85E-02	-6.7E-02	-3.2E-02	7.32E-02	.208
Continuity of programme	V31	.647	-.408	-.315	.195	8.20E-02	.207	-.152	.188	.102
Clear statement of project embarked upon	V32	.588	-.275	-.253	.319	.268	-4.9E-02	.148	8.86E-02	4.98E-02
Budgeting	V33	.323	-.210	-.460	.558	.280	-.158	6.82E-02	.287	-5.0E-02
Sanctions	V34	.124	.200	6.48E-02	.317	.244	.204	.630	6.60E-02	-.426

\*: 9 components extracted

Ladebo *et al.* (2005) found that among extension agents in South West Nigeria, majority were male; with an average age of 37.45 years and the mean tenure in the organizations was 8.38 years. Also, majority had BSc degree in agriculture and was married.

Table 2 shows the mean and standard deviation of 34 items on job satisfaction by extension officers which were rated on a 5-point Likert type scale of not satisfied (1), least satisfied (2), fairly satisfied (3), almost satisfied (4) and most satisfied (5). The actual mean was 3 due to the rating scale and a mean of greater than 3 denoted satisfaction, while a mean less than 3 denoted dissatisfaction. In Table 2 the results revealed that extension officers were only satisfied with 4 out of 34 indicators of job satisfaction. These were research policies (3.77), work exposure (3.37), identifying farmers' problems (3.02) and opportunities to advance education (3.00). Oladele (2004); Banmeke & Ajayi (2005); Akinsorotan (2007) reported that in Nigeria determinants of extension agents' job satisfaction included ability to identify farmers' problems, opportunity to further education and work exposure. However, extension officers were very dissatisfied with the availability of experimental land (1.90), rewarding system (1.97), budgeting (1.90) and sanctions (1.90). Shanmugasundaram & Prema (2005) stated that extension agents in India had medium levels of job satisfaction.

Table 3 presents the results of the Principal Component Analysis using the Extraction Method. From the list of 34 variables, the extraction method of the Principal Component Analysis identified 9 variables to be fitted into the regression equation. These were in-service training, research policies, communicating recommended practices, financial support for self and family, quality of technical help, opportunity to advance education, management and control of operations, rewarding system and sanctions. These factors have several implications for motivating extension officers for high job performance especially with large numbers of clients and small number of extension agents. Scott *et al.* (2005b) stated that when considering job satisfaction, demographic variables should be considered to thoroughly understand the possible factors that lead to job satisfaction and dissatisfaction. Weak relationships were observed between gender, salary, job security and the job satisfaction. Females rated these constructs higher than males, indicating a higher level of satisfaction with personal learning and growth opportunities at work, job security, and compensation. Scott *et al.* (2005a) found that extension agents in Mississippi were most satisfied with the personal satisfaction construct of growth satisfaction, meaning they were most satisfied with the opportunities that they have for personal learning and growth at work.

The result of multiple regression analysis of relationships between component structure and job satisfaction of extension officers was presented in Table 4. The inde-

pendent variables were significantly related to job satisfaction with  $F$  value of 28.71,  $p < 0.05$ . Also,  $R$  value of 0.94 showed that there was a strong correlation between independent variables and job satisfaction. The result in Table 4 further predicted 89 percent of the variation in job satisfaction. Significant determinants were research policies ( $t = 2.45$ ), communicating recommended practices ( $t = 3.27$ ), quality of technical help ( $t = 3.39$ ), management and control of operations ( $t = 7.28$ ) and rewarding system ( $t = 3.62$ ). The results have several implications for motivating extension officers such that extension managers and policy planners should focus on significant variables in order to boost the morale of the extension officers for work because of the large number of clients and the small number of extension agents. Villard & Earnest (2006) identified four characteristics with a significant relationship to job satisfaction: highest level of education completed, appointment, previous management training and main program area of extension delivery such as pasture management, livestock production and marketing. The characteristic with the highest level of correlation was highest level of education completed. Other relationships identified with low correlations were appointment, previous management training and main program area. The correlations between the job satisfaction and years in extension services, gender, and ethnicity were identified as negligible associations. Strong & Harder (2009) reported that several maintenance factors affected extension agents' decisions to leave service such as salary, job stress, working long and abnormal hours, balancing work and family

**Table 4:** Multiple regression analysis of component structure of job satisfaction among extension officers.

	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig</i>
(Constant)	11.645	5.174		2.251	.032
In-service training	-.270	1.107	-.019	-.243	.809
Research policies	3.962	1.618	.194	2.449	.020
Communicating recommended practices	3.563	1.089	.249	3.273	.003
Number of farmers covered	1.214	1.168	.067	1.039	.307
Quality of technical help	4.842	1.426	.267	3.396	.002
Management and control of operations	11.212	1.540	.529	7.282	.000
Rewarding system	4.740	1.308	.286	3.622	.001
Sanctions	1.135	1.173	.070	.968	.341
Opportunity to advance education	.717	1.124	.050	.638	.528
<i>F</i>	28.71				
<i>p</i>	0-00				
<i>R</i>	.947				
<i>R Square</i>	.896				
Adjusted <i>R Square</i>	.865				

and job dissatisfaction. In Kentucky, insufficient payment was the leading organizational factor contributing to an extension agent's decision to leave his/her position (Mowbray, 2002). Place *et al.* (2000) found factors such as over-commitment, continuous multi-tasking and working late were statistically related to the amount of stress an agent experienced. Kutilek *et al.* (2002) found the significant professional/personal experiences in extension were the intense job assignment, obligation to work irregular hours, and a shortage of work independence.

#### 4 Conclusion

Most of the respondents were males, between 40 to 45 years, married, had a diploma as their educational qualification with household size between 4 to 6 persons. The most prominent category of extension officers were agricultural technicians, had working experience of at least 10 years. The majority of the extension officers lived in their job area covered at least 3 communities and 3 farmer groups with more than 500 farmers and travelled more than 40 km to reach their farmers. It can be concluded from this study that the component structure of job satisfaction among extension officers in North West Province, South Africa, are factors apart from demographic characteristics that have been the usual sources of variance in job satisfaction research. These components of the job satisfaction index are in-service training, research policies, communicating recommended practices, financial support for self and family, quality of technical help, opportunity to advance education, management and control of operations, rewarding system and sanctions. It is important therefore that extension managers and administrators explore the opportunities to improve these factors among extension officers in order to enhance motivation and improve productivity.

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