Extension Re-Organizational Engineering Commensurate with Progresses in Technology

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Abstract

The primary purpose of this study was to measure the perceptions of the extension professional staff toward the organization’s management systems (existing and desired). Four provincial extension organizations (representing each geographical region in the country) were randomly selected for the study. A total of 478 extension professional staff were selected by a complete randomized sampling technique. Likert’s instrument, the Profile of Organizational Characteristic (POC), which is based on Likert’s system-4 theory, was used to gather data on existing and desired management systems of extension organizations. The results indicated that Iran’s extension organization epitomizes a system-2, which is a benevolent authoritative organization. However, the organization has a great potential to become a participative management system because the great majority of the professional staff desire a participatory management system. The result showed a moderate association between the participants’ perceptions of management system and their level of professional satisfaction. This implies that improving the existing management system could enhance the staffs’ professional satisfaction. About 20% of the variation in management system could be explained by the respondents’ professional characteristics, their tenure, level of participation in team activities, and perception of being justly promoted and rewarded.
Introduction and Theoretical Foundation

A global assessment of the agricultural environment indicates a dichotomy between developed and less developed countries. In many developed countries, industrialization, and advances in technology caused a major structural change in agriculture, while the agricultural performance in some less developed countries are still very grim, under low-technology utilizing agricultural production system (Quanmar, 2000). While extension services in many developed countries have played a major role in achieving agricultural transformation in their respective countries, the agricultural systems of many less developed countries, despite substantial investments in agricultural extension and research, are still characterized by persistent low technology use, low yields, and food-deficits (Ahmad, & Davidson, 2000).

Agricultural extension, like other major institutions, is facing one of its most challenging times as it strives to redefine its mission, structure, service delivery methodologies, and its stakeholders, in this most dynamic and turbulent policy and technological environment of the 21st century. Despite the great diversity in history, performance, organizational structures, policy environment, and agricultural systems, publicly-financed extension services globally are confronted with the challenge of determining and implementing the necessary structural and organizational changes to ensure sustainability in the future. However, the threats to extension’s survival in many less developed countries include, among others, inefficient bureaucracies and the inability of governments to bear the costs of financing networks of extension services to meet the targeted needs of millions of subsistence farmers (Nagel, 1997). Meanwhile, the major debate for agricultural extension in the 21st century is not over maintaining the status quo, but over the nature and scope of institutional restructuring needed to keep it vibrant and relevant (Ahmad, & Davidson, 2000). One of the dominant issues in current debate in the organizational management literature revolves around the question of organizational survival in this most dynamic environment that constitutes the post-industrial era, the so-called digital age. Experience from organizational change research seems to support the proposition that organizations’ survival depends to a large extent on the decisions and visions of their actors, and on their dominant institutional structures and cultures (Schein, 1991). The structure of a typical Extension organization contributes significantly to effective management. Fragmented both geographically and programmatically, the organization must rely on managers at several levels to effectively utilize human, economic, and material resources to address specific as well as general issues. These managers must perform these management functions while remaining within the parameters of the organization's structural limitations (Guthrie, 1996).

Some of the typical shortcomings of conventional extension organization common in many developing countries, are highly bureaucratic and ineffective organizational structures (Rivera, 1990). Extension organization in Iran is considered as traditional, and an industrial age organization, which is derived from 19th century practices. In an industrial-age organization, managers are seen as the boss and everyone else as the subordinate. By contrast, an extension professional’s work is considered knowledge work. The critical factors for knowledge productivity are attitudes, relationships, and job enrichment. Managers must begin to shift their focus from command and control to creating a culture of productivity - one that challenges, rather than reinforces, established practices. In knowledge work, the workers are the "bosses" and the administrators and managers are facilitators (Buford, 1990).
If the Iranian extension organization is indeed an industrial-age organization, then it will tend to deal with employee motivation, reward, and promotion in a way that is incompatible with that of an information-age organization. In an industrial-age organization, power, communication, and rewards are managed in traditional ways (Lawler, 1985). Leadership style is more autocratic than democratic and, as a result, communication is carried out in more of a top-down fashion (Likert, 1979). Moving the extension organization into the future requires a leadership style with attributes compatible with an information-age organization (Apps, 1993; Broshar, 1995; Patton, 1987).

In order to change and improve an organization management system, it is essential to assess and identify the existing management system of the organization. Through the use of the Profile of Organizational Characteristics (POC), and by comparing the perceptions of several subgroups’ Likert (1979) asserted that it is possible to measure the management system of an entire organization. Three decades ago Likert proposed a participative management organization which is applicable by most organizations of today if we desire to bring the management and leadership of our professional organizations up to-date with that of an information-age organization. Experts believe that excessive rigidity, impersonality and other inherent dysfunction of bureaucratic organization brought about interest in participative management approach (Lawler, 1986; Likert, 1979; & Patton, 1987). In a participative organizational structure promotion is based on competence rather than seniority. Based on numerous research conducted in various organizational settings, Likert proposed four basic systems of organization. System 1, which Likert originally labeled exploitive authoritative through System 4 organization, which Likert calls participative group, is more team-oriented. System 2 is less authoritative, and system 3 is less supportive than system 4, while coming closer to Likert's ideal model of organization.

Participatory management proponents view people as the most important resources of organizations. According to Likert participative managers foster humanistic values especially trust, honesty, cooperation, caring, and personal responsibility to develop authentic personal relationships. Those who advocate the humanistic organization theories share the concept of “symbiotic relationship”, where the primary focus is on human relations and the interaction between organizational structure and human characteristics (Lunenburg & Ornstein, 1991). The goal of Human Resource Development (HRD) is to find an optimum match between the needs of organization and the need of its human resources. A more participatory management structure can result in the growth and development of human resources, and therefore eliminates the incongruence between the individual needs and the organization goals. Hall (1988) stated that individuals and organizations might function to the mutual benefit of one another. As individual needs for competence are acted upon and satisfied, the organization's capacity for adapting effectively to its environmental demands is enhanced. What is missing in some organizations, according to Hall, is an environment that encourages and enables the expression of that competence.
Purpose and Objectives

The primary purpose of this study was to measure the perceptions of the extension professional staff toward the organization’s management systems (existing and desired). The more specific objectives of the study were to:

1. determine the professional characteristics of the extension staffs;
2. determine the extension professional staffs’ perception of existing and desired management systems and investigate if there is any statistically significant differences among participants of different geographical areas;
3. determine the Bivariate relationship between the management system and the staff members’ professional characteristics (independent variables); and
4. determine how much of the variability in participants’ perception of management systems could be explained by their professional characteristics (using multivariate regression analysis).

Methodology

This was a descriptive-corrolational study. Four provincial extension organizations (representing each geographical region of North-Central, Southern, Western, and Eastern provinces) were randomly selected for the study. A total of 478 extension professional staffs from these four organizations were selected by a complete randomized sampling technique as a sample of the study. Sample size and sampling technique utilized were supported by the study of Krejcie and Morgan (1970). Professional staffs are the extension personnel who participate in program planning, coordinating of extension educational activities, serve as extension specialists in educational training activities, and act as contact persons in delivering and disseminating agricultural innovations.

Likert’s instrument, the Profile of Organizational Characteristic (POC) which is based on Likert’s system-4 theory was used to gather data on existing and desired management systems of extension organizations. Content validity of the instrument was well established and reported in the literature. A pilot study was conducted on a similar population in Kerman extension organization to assess the reliability of the instrument. A reliability coefficient of 0.89 (Cronbach Alpha) was achieved for the instrument. Reliability coefficients of 0.92 and 0.87 for the POC instrument were reported earlier by Sadighi (2001), and Lind (1993) respectively. In a similar study profiling organizational characteristics of Mississippi Cooperative of Extension, the POC instrument was utilized and a reliability coefficient of 0.88 was obtained and reported by Sadighi, Raven, and Taylor (1997), and Sadighi (1996). A return rate of 88.91% (n=425) was achieved for the study, after a second follow up on the participants. Examining the differences between early and late respondent, and between respondent and non-respondents, a method-1 of the procedures for handling nonresponse issues proposed by Lindner, Murphy, and Briers, (2001) was followed and found no statistically significant differences on dependent variables.

The POC allowed the employees to briefly describe the management system as they perceived being practiced in the organization, and gave them an opportunity to indicate which management system they desired in the future. The possible response to each management question ranged from 1 to 20. Four categories consistent with Likert’s management system ratings were used to describe the management systems. For this
purpose, the responses on the management questions were converted to system-4. To facilitate the conversion, the overall means (ranging from 1-20) were computed for each respondent. The means were transformed to a Likert System-4 using the following formula developed by Likert (1979): \( \text{Sys} = \frac{X}{4} + 0.5 \); \( \text{Sys} \) = Management System; \( X \) = The overall mean computed for each respondent (Example: Given a mean of 12, \( \text{Sys} = (12) \frac{4}{20} + 0.5 = 2.9 \)). To determine each system’s rating the following assumptions were used: System-1 covers the range from 0.05 to 1.50, System-2 covers 1.51 to 2.50, System-3 covers 2.51 to 3.50, and System-4 covers 3.51 to 4.50 (Likert, 1979). In the above example: \( \text{Sys} = 2.9 \) which is equal to System-3 = Consultative Management System.

In addition to the management system, the questionnaire included information regarding to personal and professional characteristics of respondents, level of participation in teamwork, and professional satisfaction. The staffs’ level of satisfaction was measured by a set of 16 questions on five point likert-type scale responses ranging from 0 to 4. The sum of responses from 16 questions determined the staffs’ professional satisfaction scores.

**Results and Conclusion**

Findings are presented and discussed here for each objective and followed in the order that appeared on “purpose and objective” section.

**Objective One**

The majority of the participants (48.5%) had a Bachelor of Science degree in agriculture, while 10.4% of them had their BS degrees in agricultural extension education. 8.5% of the participants carried an associate degree in general agriculture and about 6.5% of the respondents had a Master of Science degree in agriculture and the rest held a high school diploma. The respondents consisted of extension professional staffs stationed at city (50.6%), provincial headquarter (30.3%), and villages (19.1%) to carry out their assignments. About 90% of the respondents were male, which is consistent with national extension personnel’s’ gender ratio, and 91% of them were married. The mean age of respondents was about 35 years; their minimum and maximum age was 26 and 62 years, respectively. The average tenure in the extension organization was 7 years. The mean score on staffs’ professional satisfaction was 2.4 (2=Relatively Satisfied; 3=Satisfied), with a standard deviation of 1.6. The respondents’ level of professional satisfaction was consistent with other studies (Sadighi & Mohammadzadeh, 2002; Sadighi & Akhondi, 2001).

**Objective Two**

The existing management system of the extension organization as perceived by respondents was computed to be a system-2, which is a Benevolent Authoritarian (BA) management structure. In a BA organization, the management and leadership styles practiced are more autocratic and motivation is based on extrinsic rather than intrinsic rewards. Likert’s POC instrument assesses organizational variables such as leadership, motivation, communications, interaction/influence, decision making, goal setting, control, and performance goals. From the assessment of organizational variables like these, the management system of an organization is determined (Table 1).
The desired management system as perceived by the professional staff (Table 1) was considered to be a system-4. System-4 is recognized to be a Participative Management (PM) organization, which is close to an ideal management structure. PM organization emphasizes on three key elements: manager's principle of supportive relationships, group decision making in an overlapping group structure, and manager's high performance goals for the organization. The findings of this study supports the finding reported earlier by Sadighi, and Mohammadzadeh (2002); Sadighi, and Akhoondi, 2000; and Sadighi, Raven, and Taylor (1997) and consistent with Likert’s (1979) assertion that most organizations are in system-2 and that most professionals would desire a system-4 management system. The respondent perception of management system in any subgroup within an organization is directly influenced by the leadership style of their immediate managers (superior). In other words, if an overall mean of a management score obtained by a respondent was computed to be a system-2, we could make a judgement on the leadership quality of the respondent's immediate managers (which in this case is autocratic). The identification of the perception of various subgroups within an organization provides valuable information; it may aid in designing different training programs based on subgroups’ needs and potentials. However, in this study, there was no statistically significant difference found in perceptions of various subgroups, consequently, a fairly uniform distribution about the mean (system-2) was observed by all subgroups. Based on the finding of this study, it could be argued that a change from a system-2 to a system-4 would face no resistance because almost all-professional staffs favored a system-4 management system.

Table 1
The Perceived Existing and Desired Management Systems.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Score</th>
<th>Stand. Dev.</th>
<th>Converted Sys*</th>
<th>Likert’s System-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>8.59</td>
<td>2.45</td>
<td>2.21</td>
<td>2**</td>
</tr>
<tr>
<td>Motivation</td>
<td>9.12</td>
<td>1.89</td>
<td>2.32</td>
<td>2</td>
</tr>
<tr>
<td>Communications</td>
<td>8.75</td>
<td>3.12</td>
<td>2.25</td>
<td>2</td>
</tr>
<tr>
<td>Interaction/Influence</td>
<td>7.99</td>
<td>2.88</td>
<td>2.09</td>
<td>2</td>
</tr>
<tr>
<td>Decision Making</td>
<td>8.58</td>
<td>1.48</td>
<td>2.26</td>
<td>2</td>
</tr>
<tr>
<td>Goal Setting</td>
<td>8.88</td>
<td>2.59</td>
<td>2.27</td>
<td>2</td>
</tr>
<tr>
<td>Control</td>
<td>9.25</td>
<td>2.89</td>
<td>2.35</td>
<td>2</td>
</tr>
<tr>
<td>Performance Goals</td>
<td>9.35</td>
<td>3.15</td>
<td>2.37</td>
<td>2</td>
</tr>
<tr>
<td>Existing Management</td>
<td>8.89</td>
<td>3.09</td>
<td>2.26</td>
<td>2</td>
</tr>
<tr>
<td>Desired Management</td>
<td>15.27</td>
<td>2.78</td>
<td>3.55</td>
<td>4***</td>
</tr>
</tbody>
</table>

n=425; *Sys=(Mean Management Score)4/20+.5; **=Benevolent Authoritarian (BA); ***=Participatory Management (PM).

Objective Three

The correlation coefficient (Pearson Product Moment) was used to measure the relationship between the professional staffs’ perception of management system and their professional characteristics. The independent variables with interval data (as shown in Table 2) were used for this purpose. The results yielded a correlation coefficient of 0.37 with
statistically significant relationship between the staff’s professional satisfaction and their perception of management system (the existing one). This is considered to be a moderate (Davis, 1971) and positive association between these two variables. This implies that as the respondents' perception of management system improved along a continuum from a system-1 toward a system-4, their professional satisfaction increased moderately which supports the finding of Marchant (1982).

The staffs’ perception of a just annual promotion, and their level of participation in team activities, both showed to have positive and moderate association with the management system. The staffs’ tenure had a low association with their perception of management system (according to Davis, 1971 Convention). Marital status showed to have a negative association with the management system. The data presented in table 2 indicated the other independent variables including salary, age, marital status, and having on-line access to have no statistically significant relationship with staffs’ perception of management systems.

The result of bivariate correlation indicated a very strong relationship between the staffs’ professional satisfaction and their level of participation in team activities (r=0.67). Therefore, active participation on basic issues concerning the organization and the individuals' job, and activities dealing with a specific change issue are considered to be a suitable mechanism to enhance extension staffs' level professional satisfaction.

Table 2

Correlation of Independent Variables on Motivation and Management System.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Management System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$r$</td>
</tr>
<tr>
<td>Tenure</td>
<td>0.21*</td>
</tr>
<tr>
<td>Level of Participation in Team activities</td>
<td>0.29**</td>
</tr>
<tr>
<td>Perceived Justly Promoted and Rewarded</td>
<td>0.32**</td>
</tr>
<tr>
<td>Having On-Line Access</td>
<td>-0.10</td>
</tr>
<tr>
<td>Professional Satisfaction</td>
<td>0.37**</td>
</tr>
<tr>
<td>Education level</td>
<td>0.20*</td>
</tr>
<tr>
<td>Marital Status</td>
<td>-0.02</td>
</tr>
<tr>
<td>Age</td>
<td>0.17</td>
</tr>
<tr>
<td>Salary</td>
<td>0.03</td>
</tr>
</tbody>
</table>

*p<.001; **p<.05

Objective Four

The result of linear regression indicated that the 19.7% of variance in participants’ perception of management system could be explained by their selected professional characteristics (as listed in Table 3; $R^2 =0.197$). This implied that there are other factors that could explain the remaining variance (73%) in management system that were not investigated in this study. The independent variables with interval data that were used in the regression analysis including the participants’ age, years of education, marital status, tenure, salary, level of participation in team activities, perceived being justly promoted and
rewarded, professional satisfaction, and having on-line access. Table 3 provides detailed information on the multivariate regression analysis.

Table 3

*Multivariate Linear Regression Analysis (Perceived Existing Management system Served as a Dependent Variable).*

<table>
<thead>
<tr>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Level of Participation in Team activities (X1)</td>
<td>0.162</td>
</tr>
<tr>
<td>Perceived Justly Promoted and Rewarded (X2)</td>
<td>2.443</td>
</tr>
<tr>
<td>Professional Satisfaction (X3)</td>
<td>3.044</td>
</tr>
<tr>
<td>Tenure (X4)</td>
<td>0.155</td>
</tr>
<tr>
<td>Constant</td>
<td>96.137</td>
</tr>
</tbody>
</table>

R² = 19.7%

The regression analysis provided variables with statistically significant level (as shown in table 3), so the following predication equation was formulated to estimate the staffs’ perception of existing management system:

\[
Y = 96.137 + 0.162(X1) + 2.443(X2) + 3.044(X3) + 0.155(X4). 
\]

**Conclusions**

1. Iran’s extension system epitomizes a benevolent authoritative organization (a system-2 by Likert classification of management system) where most of the decision making and goal setting are done at the top of the organization and the organization places major emphases on traditional methods of issuing rewards rather than intrinsic methods.
2. The organization has a great potential to become a participative management system because the great majority of the professional staffs desire a participatory management system and for that reason the process of change might not encounter any resistance. A change from a system-2 to system-4 is slow and time consuming, and some experts predicted that it might take 3 to 5 years. So, the implication is that it requires patience and steadiness.
3. There is a moderate association between the participants’ perception of management system and their level of professional satisfaction. This implies that improving the existing management system could enhance the staffs’ professional satisfaction.
4. About 20% of the variation in management system could be explained by the respondents' professional characteristics, their tenure, level of participation in team activities, and perceived justly promoted and rewarded. This implied that there are other factors that could explain the remaining variance in professional staff’s perception of management system that were not investigated in this study.
Educational Importance

For the purpose of organizational development, it is important to know the profile of extension organizational characteristics. Recognizing what management system the organization operates in could help staff development programs and efforts in the transition process. Experts indicated that when an organization shifts from a traditional authoritarian organization to a more participatory organizational structure, performance improves, costs are reduced, and improvement occurs in the satisfaction, motivation, and health of the members of the organization. Initiating a process of change toward a participative management system (what was desired by the staffs in this research) requires that the leadership adopt participatory management principal. To facilitate this process, convincing responses to a number of questions are needed. The reasoning and logic might become apparent as a result of a debate on this topic among professionals.

Some of these questions might be as follows: (a) what measurable improvement should result from a participative management system? (b) How efficient is the participative management in dealing with day to day activities in the organization? (c) How effectively might our clientele be served by a participatory management style? Responses to questions like these and others would facilitate the adoption of a participative management principal and initiate a process for organizational improvement. However, the success of participatory strategy was found to be dependent not only on a change in the attitudes and behaviors of the extension leaders and their personnel, but also on institutional and other contextual factors.

References


