

SUBSTITUTES FOR LEADERSHIP MODEL REVISITED: AN ANALYSIS OF CONSTRUCT VALIDITY OF ORIGINAL SCALES DEVELOPED BY KERR AND JERMIER

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ABSTRACT

This paper tests the construct validity of leadership substitutes questionnaire developed by Kerr and Jermier (1978), which has 13 subscales. Principal components analysis for a representative sample of 117 was conducted to examine the validity of 55-item version of substitutes for leadership scale. Scale's reliability value was found to be 0,647, which is poor and is parallel to the results documented in academic literature. These generally low reliabilities suggest the need for additional refinement of these sub-scales. Following this finding, a new scale is formed with subscales of Kerr and Jermier (1978)'s scale. By employing Principal Components Analysis, a reliable questionnaire with Cronbach's alpha of 0,861 is formed with three subscales of the original questionnaire, which are "organizational formalization"; "advisory and staff functions"; "intrinsically satisfying tasks". According to findings of the study, under all these three conditions, leaders could be substituted. However, other than the three factors above, a leader's behavior remains very important to subordinates regardless of varying situational conditions.

Keywords: Leadership substitutes, Kerr and Jermier's questionnaire, District Governors, Deputy Governors, Turkey

INTRODUCTION

In academic literature, situational leadership approach, which stresses that there is no one best way of leadership, but rather situational variables are decisive and important, had opened a new way in evaluating leader's effectiveness (Chemers, 2000). One of the situational leadership theories which is path-goal theory attracted much attention, and an extension of which, substitutes for leadership model emerged lately in 1978. Since then, the substitutes for leadership model has generated a considerable amount of interest because it offers an intuitively appealing explanation for why leader behavior impacts subordinates in some situations but not in others. The theory continues to generate empirical research.

The model asserts that certain individual, task and organizational variables can substitute, neutralize or enhance the effects of a leader's actions on followers' motivation, job performance and job attitudes. Contrary to the assumption of situational theories, it has been shown in numerous studies, however, that circumstances often counteract the potential power of leadership, making it virtually impossible in some situations for leaders to have much impact regardless of their style or how good the fit is between leader and situation (Howell et.al 1990).

LITERATURE REVIEW

Substitutes for Leadership

Substitute for leadership model as asserted by Kerr and Jermier (1988) defined leadership substitutes under three categories of conditions where leaders do have limited influence on task performance: individual characteristics, job (task) characteristics, and organizational characteristics, which can substitute for the leader's behavior or neutralize the effects of leadership.

Podsakoff and MacKenzie (1997) noted the advantages of substitutes for leadership model over other contingency approaches to leadership a following: Firstly, the moderating effects proposed by the substitutes model help to explain why some leader behaviors may be effective in some situations, but have no effect, or even dysfunctional effects in other situations. Secondly, it represents the most

comprehensive attempt to identify those factors, other than the leader's behaviors, and perceptions. Third, it focuses attention on a set of organizational factors that may influence the effectiveness of a leader's behavior, and is therefore consistent with the increasing interest in MESO approaches to organizational behavior (cf. Tosi, 1991). Finally, as noted by Kerr and his colleagues (cf. Howell et.al, 1990; Howell, Dorfman and Kerr, 1986; Kerr, 1977) the model provides insights into those situations when leaders might want to actually create substitutes in the environment to enhance the effectiveness of their organization.

Substitutes for leadership model predicted, for example, that if a job itself provided plenty of task-relevant feedback, or the tasks were unambiguous and routine; leader structuring behavior would be unnecessary; or if a compatible and cohesive work group provided emotional support, leader consideration would be redundant. Under such conditions, leader behaviors were hypothesized to show minimal or even negative relationships with subordinate motivation, satisfaction or performance (Chemers, 2000).

Given these advantages, leadership substitutes model has generated a considerable amount of interest among leadership researchers.

Variables of Substitutes for Leadership

Substitutes for leadership model asserts that under three categories of conditions, leaders do have limited influence on task performance: individual characteristics, job (task) characteristics, and organizational characteristics, which can substitute for the leader's behavior or neutralize the effects of leadership. The substitutes that Kerr and Jermier (1978) identified were: individual characteristics (subordinate-ability, experience, training, knowledge; need for independence- professional orientation; indifference toward organizational rewards); job (task) characteristics (unambiguous, routine and methodologically invariant task; feedback concerning accomplishment; intrinsically satisfying task) and organizational characteristics (organization-formalization; inflexibility; highly specified and active advisory and staff functions; closely knit, cohesive work groups; organizational rewards not within the leader's control; and spatial distance between superior and subordinates).

Kerr & Jermier (1978) defined neutralizers as well. The effect of neutralizers is to create an "influence vacuum," from which a variety of dysfunctions may emerge (Kerr and Jermier, 1978). Howell, Dorfman, and Kerr (1986) expanded the model further to include enhancers. Enhancers are defined as "attributes of employees, tasks, and organizations that amplify a leader's impact on employees" (Howell et.al.,1990), which show a positive moderating effect.

Construct Validity of Scales

In academic literature, construct validity of Kerr and Jermier's substitute for leadership subscales themselves has been a growing concern. Williams, et. al, (1988) investigated the construct validity of the substitutes for leadership scales. Previous studies provided mixed support for the substitutes theory and Williams et. al (1998) believed it was due to lack of construct validity of the scales. Kerr and Jermier's original questionnaire was highly criticized for this reason. In their study of 11 different samples, Williams et.al (1988) found that "one factor that loaded consistently across all five samples was Spatial Distance between Superior and Subordinate. These results, along with higher reliabilities obtained for this subscale (all above .70), indicate that the psychometric properties of this scale are adequate for continued use in research" (p.314). The study indicated that 9 of the 13 scales (all but organizational formalization, closely knit workgroups, and spatial distance) did not exhibit high enough reliability for future research use ($\leq .62$) and 10 of the scales had reliability less than 0,70 (Williams, et. al, 1988). Also Childers et.al (1986) showed that average reliability across the 13 subscales were as low as 0,57. Thus the reliability of the scales developed by Kerr and Jermier is poor. The present study aimed to test the reliability of Kerr and Jermier's scale in Turkish setting.

District Governors and Deputy Governors

In academic literature, substitutes for leadership is mostly studied as a moderator on performance. Also substitutes for leadership seem appropriate variables to study, especially where the leader and follower are separated by distance, almost necessarily making it more difficult to lead. (Lyon, 2003).

In our study we aimed to focus on District and Deputy Governors since they fit the conditions where leader could be substituted. In Turkey, a Deputy Governor (Vali Yardımcısı) is an official responsible to assist the Provincial Governor for the implementation of legislation, constitutional and government decisions in individual provinces. There are 81 Governors in Turkey, one for each province. Deputy Governors are proposed by Minister of Interior and appointed by the joint decision of Cabinet members which is at final stage, subject to approval of the President. In contrast to District Governor, s/he works in close collaboration with Governor, and have no spatial distance with Governor. Governor delegates some of her/his authority to Deputy Governors which causes the Deputy Governor to have limited powers over Provincial units. Compared to District Governor, Deputy Governors work less autonomous than District Governors.

District Governor (Kaymakam) is an official responsible for the implementation of legislation, constitutional and government decisions in districts. There are 935 districts in Turkey. District Governors are appointed with the same procedure that Deputy Governors are appointed. Besides army units and judiciary branches in the districts, District Governors are supervisors of all branches and can control and manage the units all over the district.

In this study, a sample from District Governor and another from Deputy Governors are deliberately selected for the study because in the academic literature, many researchers mentioned the importance of necessity of sample fitness. District and Deputy Governors are quite appropriate to test the model with subordinate characteristics such as subordinate-ability, experience, training, knowledge; professional orientation; methodologically variant task; feedback concerning accomplishment; intrinsically satisfying task; organization-formalization; inflexibility; organizational rewards not within the leader's control; and spatial distance between superior and subordinates. High competition for reappointment necessitates them to work as leader rather than managers. Although both District and Deputy Governors do similar tasks specified by legal framework, and work in same formal organization structure, however they have varying degrees of autonomy. Also degrees of routineness of the task is higher for Deputy Governors. In this regard, these two samples serve a good base to test the model.

Previous Research

Substitute for Leadership model after Kerr and Jermier's study, has been the subject of a respectable number of empirical studies (Ford, 1981; Howel and Dorfman, 1981; Jermier and Berkes, 1979; Pitner, 1988; Sheridan, Vredenburgh and Abelson, 1984). It has also become a necessary reference in any leadership study which considers contextual factors (Tosi and Kiker, 1997).

Originally, researchers mainly studied the substitutes for leadership as moderators of leadership (Kerr & Jermier, 1978; Howell & Dorfman, 1981; Sheridan, Vredenburgh and Abelson, 1984; Podsakoff, Todor, Grover, & Huber, 1984; Howell & Dorfman, 1986; Farh, Podsakoff, & Cheng, 1987; Podsakoff, Niehoff, MacKenzie, & Williams, 1993; Podsakoff, MacKenzie, & Bommer, 1996a). Some scholars (Podsakoff et al. 1996b) examined the effects of leader behaviors and substitutes for leadership on outcomes such as satisfaction and performance, and some examined the effects of transformational leader behaviors and substitutes for leadership on outcomes such as employee satisfaction, commitment, trust and organizational citizenship behaviors.

Several authors searched whether the items in the questionnaire developed by Kerr and Jermier (1978) were loaded on the hypothesized factors (Childers, et.al, 1986); or loaded as strongly on non-hypothesized factors, or did load to on any of the 13 Kerr and Jermier (1978) substitutes dimensions.

However, a review of a number of studies on substitutes-for-leadership hypothesis indicated very little support for the theory's predictions (Podsakoff, Niehoff, MacKenzie and William 1993). Some of the studies tested the model for non-leader samples such as graduate students.

The methods used in academic literature also varied. Kerr and Jermier (1978) used multiple regression procedures, which did not examine the interaction effects. Sheridan, Vredenburgh and Abelson (1984) used split groups path analysis to examine the interaction effects of the substitutes variables. Podsakoff et al (1984) used moderated regression procedures.

According to Podsakoff and Mackenzie (1997), the lack of unifying analytical procedure to identify potential “substitution effects” may also be part of the reason why early tests of the model proved less than supportive. Also according to Podsakoff and Mackenzie (1997), another problem is that several previous tests of the model in literature did not include the full complement of substitutes, while other tests of the model included other variables that were not originally identified by Kerr and Jermier (1978), as potential substitutes. As a result, the problem of including new substitutes variables into the mix, or excluding some of them resulted in not testing the model itself. So it is difficult to tell whether the lack of support in literature is attributable to the substitutes model itself, or to the specific variables under examination (Podsakoff and Mackenzie, 1997).

Podsakoff et.al (1996) found that with very few exceptions, substitutes for leadership had stronger relationships with employee criterion variables than did leader behaviors. Substantial proportion of the variance in-role and extra-role performance; on average, the substitutes for leadership uniquely accounted for more of the variance in the criterion variables than did leader behaviors.

Some researchers noted that substitutes for leadership may not be applicable to Turkish case, because still hierarchical formal leadership has much importance in culture, values and belief systems (Kılınc, 1995).

METHODOLOGY

Sample and Data Collection

We aimed to test the reliability of subscales of original questionnaire designed by Kerr and Jermier (1978) and selected a sample in Turkish setting. We tested the model on managers working in the same hierarchical organization under the same legal context but having different levels of individual, task (job) and organizational characteristics. Our sample consisted of two different hierarchical level leaders. One from Deputy Governors, and the other from District Governors of Turkey.

For this research, 350 self-administered questionnaires were sent to Deputy Governors and District Governors. Participation to our survey was voluntary and no remuneration was offered. 117 questionnaires were filled in by respondents and were ready to use.

Mean age of the sample was 32 and all were men. This is due to the fact that female district governors and deputy governors are still rare in the population. Mean tenure of the sample was 10 years after 3 year probation. In terms of educational background, 60 % of the sample had undergraduate degree; 37 % had graduate and 3 % had PhD degree.

Questionnaire

In this study we used the original questionnaire developed by Kerr and Jermier (1978), and tested whether the items were loaded on the hypothesized factors or loaded as strongly on non-hypothesized factors or did load to on any of the 13 Kerr and Jermier (1978) substitutes dimensions.

Questionnaire had 13 subsections which define the leadership substitutes and overall there were 55 items. Following these 55 questions, basic demographic information were asked. However, they are limited in order to protect confidentiality to ensure more willingness to participate to the survey. The response format of the scale consisted of points from 0 to 7 (From “not agree at all” to “totally agree”). Back-to-back translation was done by the researchers for the questionnaire. A pilot study among 21 academicians was conducted especially for wording’s perfection.

Analysis and Findings

To test internal validity of the questionnaire, Cronbach’s Alpha value was calculated; but was found to be 0,647, which is “questionable” for degree of reliability as George and Mallery (2003) recommended. Next a principal component analysis was conducted for the sample using 55 items to reach a reliable scale.

As part of Principal Components Analysis, firstly, we controlled whether the size of the sample was big enough for the study conducted. There are statistically widely used three methods for sample size. Nunnally (1978), recommends sample size to be 10 times of number of variables; whereas Tabachnick and Fidell recommended as 300 minimum. MacCallum et.al (1999), recommended to use communalities

instead of number of respondents in sample size tests. If all of the communalities were greater than 0,6; even a small sample size less than 100 could be enough. In case where all of communalities were greater than 0,5 but less than 0,6; sample size of 100-200 could be enough. If communalities were less than 0,5, sample size had to be more than 300. In our study, the communalities values obtained from Principal Component Analysis done for 55 items were 0,834 and 0,983. As MacCallum et.al (1999) recommended, a sample size even as 100 is enough. Our sample size which is 117 is found to be big enough for Principal Components Analysis.

Secondly, initial internal consistency reliabilities for the leader substitutes subscales were calculated and are reported in Table 1. As indicated in the table, Reliability coefficients for subscales 1, 7, 9, 10 and 12 exceeded 0.7 and were found to be reliable subscales. While reliability coefficients for subscales 2, 3, 4, 5, 6, 8, 11 and 13 were found to be very unacceptable or poor.

Table 1: Cronbach's Alpha of Overall Scale and Subscales

Scale		Cronbach's Alpha	Classification of Cronbach's Alpha (George and Mallery (2003))
Overall		0,647	questionable
1 st subscale:	Ability, Experience, Training, and Knowledge	0,710	acceptable
2 nd subscale:	Professional Orientation	0,583	poor
3 rd subscale:	Indifference Toward Organizational Rewards	0,229	unacceptable
4 th subscale:	Unambiguous, Routine, and Methodologically Invariant Tasks	0,350	unacceptable
5 th subscale:	Task-Provided Feedback Concerning Accomplishment	0,100	unacceptable
6 th subscale:	Intrinsically Satisfying Tasks	0,511	poor
7 th subscale:	Organizational Formalization	0,866	good
8 th subscale:	Organizational Inflexibility	0,417	unacceptable
9 th subscale:	Advisory, and Staff Functions	0,858	good
10 th subscale:	Closely-Knit, Cohesive, Interdependent Work Groups	0,886	good
11 th subscale:	Organizational Rewards Not Within The Leader's Control	0,628	questionable
12 th subscale:	Spatial Distance Between Superior and Subordinates	0,710	acceptable
13 th subscale:	Subordinate Need For Independence	0,386	unacceptable

As a second stage, an iterative "item trimming" procedure was performed for the original scale items in which the items did not consistently load together on a single factor and which obtained relatively low reliabilities. An item was eliminated if the reliability of the scale improved with its removal. Items are deleted in line with the following conditions: 1.If Cronbach's Alpha increases after deletion; 2. If the item has relationship with several other items. 3. If the item cannot be loaded to just one component but can be loaded to more than one item. 4. If the Cronbach's Alpha value was less than 0,7, (in this case all the items in the component are deleted); 5. If there is just one item in the component, the related item is deleted. This trimming process was continued until the point at which the item-factor resolution and the reliabilities of the subscales did not improve items were not eliminated from subscales composed of only three items regardless of their factor loadings or reliabilities. A new version of the questionnaire with 3 subscales and 11 items is finally obtained. Upon completion of the trimming procedure a second factor analysis was performed on the revised substitutes scale for each sample.

As a third stage, the reliability results of Principal Components Analysis (PCA) is carefully done. When deciding whether the data set is suitable for PCA, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy Index and Bartlett's sphericity test is performed. KMO index was found 0,761 which proved that acceptable for PCA as Kaiser (1974) recommended. Significance value of Bartlett's sphericity test was found 0,000 which showed that it is suitable for PCA. Following this, sample size is evaluated.

Communalities values from Principal Components Analysis split between 0,607 and 0,855. Than sample size is found to be enough as MacCallum et.al (1999) recommended.

Than Principal Components Analysis was performed and the components which had Eigen value greater than 1.0 were accepted to be significant. To maximize the component loadings of the items, Varimax was done. Finally a scale was formed which composed of 11 items and explained 75,7 % of the total variance. Cronbach Alpha was found to be as high as 0,861 for the new scale. The findings are presented in Table 2.

The new reliable scale of leadership substitutes was composed of subscales of 7, 9 and 2. “Organizational formalization”, “advisory and staff functions” and “intrinsically satisfying tasks” were found to be substitute for leadership. As seen in Table 2, new scale’s Cronbach’s alpha was found to be 0,861 and was “good” enough as recommended by George and Mallery (2003). Nunnally (1978) recommends reliabilities of .70 or better (but not much beyond .80) for basic research and between ,90 and ,95 in cases where important decisions are to be made on the basis of the test scores the most widely accepted is Cronbach’s Alpha coefficient.

Table 2: Cronbach's Alpha of Overall Scale and 3 Subscales

	Component		
	1	2	3
% of Variance Explained	33,7	25,5	16,5
Cronbach's Alpha of Component	0,888	0,831	0,760
Organizational Formalization			
Q7.2. My job responsibilities are clearly specified in writing	0,894	0,065	0,227
Q7.3. In this organization, performance appraisals are based on written standards.	0,817	0,155	-0,071
Q7.5. My duties, authority, and accountability are documented in policies, procedures, and job descriptions.	0,805	0,001	0,348
Q7.1. Clear, written goals and objectives exist for my job.	0,797	0,074	0,274
Q4.1. Because of the nature of the tasks I perform, on my job there is little doubt about the best way to get the work done.	0,754	0,367	0,066
Advisory, and Staff Functions			
Q9.2. In my job I must depend on staff personnel located outside of my work unit or department to provide me with data, reports, and informal advice necessary for my job performance.	-0,106	0,912	0,070
Q9.1. For feedback about how well I am performing, I rely on staff personnel inside the organization, based outside my work unit or department.	0,232	0,838	0,302
Q9.3. I receive very useful information and guidance from staff personnel who are based outside my work unit or department.	0,155	0,812	0,076
Q2.1. For feedback about how well I am performing I rely on people in my occupational specialty, whether or not they are members of my work unit or organization.	0,266	0,652	-0,334
Intrinsically Satisfying Tasks			
Q6.3. My job satisfaction depends to a considerable extent on the nature of the actual tasks I perform on the job.	0,129	0,125	0,868
Q6.1. I get a great deal of personal satisfaction from the work I do.	0,457	0,028	0,77

CONCLUSION

The present study tested the reliability of Kerr and Jermier’s (1978)’s original scale of leadership substitutes. A noteworthy result is that, overall reliability of the original scale was 0,647 and which meant that scale was not reliable. Reliability coefficients for subscales 1, 7, 9, 10 and 12 exceeded 0.7 and were found to be reliable subscales, where reliability coefficients for subscales 1, 2, 3, 4, 5, 6, 8, 11 and 13 were found to be very unacceptable or poor. Our findings are in line with academic literature and shows that reliability of the original scale is low. These generally low reliabilities suggest the need for additional refinement of these sub-scales. After performing Principal Components Analysis, a new scale was formed by three subscales of “organizational formalization”; “advisory and staff functions”; “intrinsically satisfying tasks”. This scale had a Cronbach’s alpha of 0,861 and was found to be “good” as recommended by George and Mallery (2003).

It is evident in academic literature that leadership matters most when substitutes are not present in subordinates' skills, job design, or the organization's structure. When substitutes are present, these factors might reduce the importance of task leadership, but they will not completely replace leaders in these roles. The results of the present study revealed that "organizational formalization" is a very strong substitute for leadership. In cases, where the work and responsibilities of the subordinates are written clearly; duties, authority and accountability are documented in policies, procedures and job descriptions; this worked as a leadership substitute. As a second category, when the subordinates depended on staff personnel located outside of their work unit or department for data, reports and informal advice necessary for the job, leadership could be substituted. Also when subordinates relied on people in their specialty, within or outside the work unit for feedback about performance, leadership substitutes were strong. As a third category, when the subordinates found the job as intrinsically satisfying, this again worked as a substitute for leader. According to findings of the study, under all these three conditions, leaders could be substituted. However, other than the three factors (organizational formalization, advisory and staff functions and intrinsically satisfying tasks), a leader's behavior remains very important to subordinates regardless of varying situational conditions.

Due to study limitations, results must be interpreted with caution. Although the sample could be a good candidate for leadership substitute; the fact that only one sample is selected for the study makes it hard to generalize the results to all Turkish officials. Study could be extended by working on different sample categories. Another important point for further research is that, leadership substitutes can vary among types of organizations. Categories of substitutes can be examined for mechanistic versus organic type of organizations. Also another possible research area can be work groups and matrix type organizations.

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