

The Influence of Supporting and Non-Controlling Supervision on Interest in Work Innovation and the Mediating Role of Trust in Supervisor: A Study on Electronics and Appliances Sector in Turkey

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Abstract- This study by looking at the climatic internal dynamics behind innovation showed that supporting and non-controlling supervision has a significant positive influence on interest in work innovation especially in a sector where innovation is a taken for granted issue. Interest in work innovation is not an investigated approach in the innovation literature. Besides, the questionnaire adapted is validated through confirmatory factor analyses. The sample consists of the engineers, supervisors and other employees working in the production plants of four leading labels which are known for highest innovation in the sector.

Index Terms—Interest in work innovation, supportive supervision, trust in supervisor

1. INTRODUCTION

In literature trust is approached from different perspectives. 1. it is seen as an unchanging trait which is a personality character defined as the propensity to trust in some people, 2. as an emergent state which occurs as a result of changing situations, 3. a process which sees trust as an intervening process which other important behaviors, attitudes and relationships are either strengthened or weakened (Burke, Sims, Lazzara, Salas; 2007) [1].

In this study we maintain the 3rd approach. Supporting and non-controlling climatic elements, by creating trust in the supervisor influences interest in work innovation.

Trust is defined by Boe (2002) [2] as “confidence; implicit faith; to have implicit faith in; to be confident and confined in” a person or a thing. People in organizations often work interdependently to achieve organizational and personal goals. People who trust each other can only take risks and rely on each other. Trusting environment provides a mechanism for enabling employees to work together more effectively Clark and Payne, (1997) [3]. Successful cooperations are known as having effective social bonds featured by trust (Borgen, 2001) [4].

The literature review regarding the subject of trust in organizations concentrates on the studies conducted to measure or to theoretically explain the trust relations between the leaders and followers. Möllering, Bachman and Lee (2004) [5].

Mayer and Gavin (2005)[6] defines the construct as “it is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (p.712). This definition highlights the relationship between trust and the critical issue of risk. Risk taking is inherent in vulnerability (Mayer and Gavin, 1995) [6]. In environments where there is no trust in the supervisor the focus of the employees will be distracted. They will spend less time in contributing to their works more innovatively.

Whithener, Brodt, Korsgaard, and Werner (1998) [7] suggested that five categories of behavior create trust in trustors: behavioral consistency, behavioral integrity, sharing and delegation of control, communication (e.g. accuracy, explanations, and openness), demonstration of concern Perry and Mankin, (2007) [8] analyzed the trustworthy behaviors of chief executives: degree of employee orientation, technical ability, fairness, honesty, and forthrightness.

Some researchers describe “trust in leader” occurring as a result of a social exchange process (e.g., Ertürk, 2006; Ergeneli, 2007; Wasti et al., 2007, Whithener et al., 1998) [9]-[10]-[11]-[7]. At the center of this exchange are care, consideration and goodwill, which create emotional ties between the follower and the leader.

Literature shows that outcomes of “Trust in Leader” Research concentrated on different issues, such as its effect on organizational and individual outcomes (i.e. Ertürk, 2006, Yoon & Suh 2003, Kitapçı et al. 2005)[9]-[12]-[13]; relationship between trust and the leaders’ styles (e.g. Joseph and Winston, 2005) [14]; as well as the characteristics of the trustee (trusted person). In our study trust in manager/supervisor is proposed as an “antecedent” of “interest in work innovation”.

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In some previous empirical research by Ertürk (2006)[9] “Trust in supervisor” is also found as a mediator between organizational justice and organizational citizenship behavior. In a study by Yoon and Suh (2003)[12] it was found that when employees trusted in their supervisors the quality of the service operations increased. The results of the study done by Erganeli, Ari, and Metin, (2007) [10] showed that trust resulted in empowerment.

Trust is one of the part and parcel components of open communication climates in organizations. W. Buchholz (1993) [15] in his article *Open Communication Climate* argues that three characteristics needs to exist in order to enable open communication to occur: 1.supportiveness, 2.participation and 3.trust .Supportive environments mainly define the relationship between employees and their superiors. In these environments, employees can share information with their superiors without hesitation. The key issue is that employees can share with their superiors any relevant information that has to do with the organization’s function and purpose. When superiors receive this type of information, it is expected that they will focus on the content; not on threatening the employee for bringing information to the attention of management. In order for employees to feel confident to take action, they must work in an organization where there is no doubt of managerial support (Fikes and Demirel, 2010) [16].

Many studies done in the strategic management literature define innovation as a critical enabler for firms to create value and sustain competitive advantage (Madhavan and Grover, 1998; Subramaniam and Youndt, 2005) [17]-[18]. In our study interest in work innovation is defined as “finding new ways of doing one’s work (Patchen, 1970) [19]. In previous literature we also observe some studies using the concept employee creativity for defining innovative employee behavior. In such studies creativity is defined as a characteristics of a person or as a process (Amabile, 1988) [20]. Some empirical studies measured the relationship between personal characteristics of the employees and creativity (Gough’s Creative Personality Scale; Gough, 1979; Hocevar & Bachelor, 1989; Kaduson & Schaefer, 1991) [21]-[22]-[23].Oldham and Cummings (1996)[24] investigated the correlation of CPS score to employee creative performance.

In our study a new causal model is predicted and tested which looks at the relationships between supporting and non-controlling supervision, organizational climate characterized by trust in the supervisor/manager and, interest in work innovation. A number of studies in literature indicate that employee creativity contribute to organizational innovation and effectiveness (Amabile,1996; Shalley, Zhou, and Oldham, 2004) [20]-[25], yet, creativity can occur in environments where the supervisors/managers have a supporting and non-controlling attitude (Shalley and Gilson, 2004)[26]. Another body of research concentrate on the relationship between empowering leadership style and employees’ motivation and investment in their work (Kirkman and Rosen, 1999; Thomas and Velthouse, 1990) [27]-[28]. Yuan and Woodman (2010) [29] investigated the influence of expected positive performance outcomes and expected image risks and expected image gains on innovative behavior at the workplace. These outcome expectations, as intermediate psychological processes, were shaped by contextual and individual difference factors,

including perceived organization support for innovation, supervisor relationship quality, job requirement for innovativeness, employee reputation as innovative, and individual dissatisfaction with the status quo (Yuan and Woodman, 2010) [29].

A study done by Ceci and Iubatti (2011) [30] searches answers to the question if personal relationships play a role in supporting innovative activities. The results conclude that the coexistence of personal and professional relationships shape a unique context that changes the usual dynamics of innovation diffusion (Ceci and Iubatti, 2011) [30]. Oldham and Cummings (1996) [24] examined three characteristics of the organizational context-job complexity, supportive supervision, and controlling supervision-to three indicators of employee’s creative performance: patent disclosures written, contributions to an organization suggestion program, and supervisory ratings of creativity. Results showed that employees were most creative in their work when they had appropriate creativity relevant characteristics, worked on complex, challenging jobs, and were supervised in a supportive and non-controlling organizational environment (Oldham and Cummings, 1996) [24]. The organizational context in which an individual performs a task influences his or her intrinsic motivation, which in turn affects creative achievement (Amabile, 1988) [20]. The existing literature fails to include the organizational component of trust in leader as a part of the leader’s supporting and non-controlling attitude which might increase the creativity of the employees in the work place. Existing literature in general supports that supervisory attitude that is supportive of the employees is expected to enhance creative achievement and on the other hand, supervisory attitude which is controlling is expected to diminish creative performance (Deci, Connell, Ryan, 1989) [31].

A study done by Stahl and Koser (1978) [32] indicated that R&D scientists’ creativity was significantly related to their supervisors’ supportive attitude.

For the purposes of our research we propose that non – controlling supervision creates a work climate based on trust which make the employees express themselves more confidently and creatively since they will know that their supervisors will show respect and concern for their feelings and opinions and let them express themselves more creatively. In the related literature studies relating work climate to innovation include other dimensions such as communication (Aiken and Hage, 1971; Bigoness and Perreault, 1981) [33]- [34] reward structure (Paolillo & Brown, 1978) [35] and achievement orientation (Litwin & Stringer, 1968) [36].

In this research we expected to provide answers to the following main research questions:

Are there any climatic and behavioral conditions which might have an influence on the employees’ “interest in work innovation”, especially in a sector where innovation is a taken for granted characteristics of the organization. More specifically:

1. Does supporting and non-controlling supervision have an influence on “interest in work innovation”?
2. Does trust in the supervisor as a component of the open communication climate in the organization mediates the relationship between supporting and non-

controlling supervision and interest in work innovation?

The results are expected to contribute to expanding the theoretical and empirical knowledge in organizational dynamics in the supporting and non-controlling supervision, organizational trust and interest in work innovation relationships. Based on these the main research hypotheses are: HA1: "Supporting and non-controlling" supervision has a significant influence on "interest in work innovation".

HA2: "Organizational trust", works as a function of "supporting and non-controlling supervision" and thus significantly influences "interest in work innovation".

In other words, Organizational trust mediates the relationship between supporting and non-controlling supervision and interest in work innovation.

In this study the definition of innovation is restricted to Patchen's (1970) [37] definition of work innovation: "finding new ways of doing things on the job". *An organization whose members readily find new ways of doing things on the job is probably a first or early user of an idea among its similar set of social systems.*

This study's restricted definition about innovation provides a more homogeneous range of phenomena for study and it is usually easier to construct theory about relatively homogeneous phenomena (Price, 1972) [38].

II. METHODS

2.1 Sample

Sample is chosen from the electronics companies sector where innovation is a taken for granted characteristics. Second reason for choosing this sector is that the original version of the measurement instrument was tested on electronics and appliance companies and reliability and validity of the instrument was tested on this sector. This research is conducted in the leading electronics and appliances companies in Turkey. Supervisors/middle managers, engineers, and other employees working in the manufacturing plants were reached. 400 respondents returned 244 valid surveys. Questionnaires were face administered.

2.2 Measurement Instruments

The questionnaire for this study is adapted from the following measuring instruments and converted to 6 point Likert scale.

Supportive and Non-Controlling Supervision: is developed by Oldham and Cummings (1996) [24], uses 12 items to describe employee perceptions of the extent to which they receive supervisory support (eight items) and are subject to a non-controlling supervisory approach (four items). When supervisors are supportive, they show concern for employees' feelings and needs; encourage them to voice their own concerns; provide positive, chiefly informational feedback; and facilitate employee skill development (Deci, Connel, & Ryan, 1989) [31]. When supervisors are controlling, they closely monitor employee behavior; make decisions without employee employment; provide feedback in a controlling manner, and generally pressure employees to think, feel or behave in prescribed ways (Oldham and Cummings, 1996) [24]. Reliability: Coefficient alpha for supportive supervision was .86. Alpha for non-controlling supervision was .67 (Oldham &

Cummings, 1996) [24]. Validity: Exploratory factor analysis of the 12 items found two factors. The first factor was composed of the eight items that reflected supportive supervision. The second factor was composed of the remaining four items and reflected non-controlling supervision (Oldham & Cummings, 1996) [24]. Non-controlling supervision correlated positively with job complexity, non-controlling supervision, and employee performance ratings. Supportive supervision correlated negatively with intentions to quit (Oldham & Cummings, 1996) [24]. In the original study many different types of employees are included: engineers in several specialties, operating personnel in automated power plants, clerical employees, salesmen, and semi-skilled production workers. The samples from the TVA, the electronics company, and the appliance company include, respectively, 834, 223, and 557 employees. The measures had very adequate validity and reliability.

Interest in Work Innovation: Patchen's (1970) [37] definition of work innovation is "finding new ways of doing things on the job". An organization whose members readily find new ways of doing things on the job is probably a first or early user of an idea among its similar set of social systems" (Price, 1972) [38]. The six items that are used to collect information about interest in work innovation Patchen (1965) [37] is adapted to a six point interval level scale; Strongly disagree, disagree, slightly disagree, slightly agree, agree, strongly agree.

Measuring Trust: Trust is measured using the construct adapted from Organizational Communication Scale (Roberts and O'Reilly, 1979) [39].

III. RESULTS

3.1 Descriptive characteristics of the sample

The sample consists of 85 supervisors responsible for 18 engineers working with 140 employees in the production units. 128 female and 116 male respondents constituted 34.8% of the supervisors, 7% of the engineers and 57.4% of the other operating employees. The highest means for the most important items for the sample are; 4.43 for item sn12: "My supervisor leaves it up to me to decide how to go about doing my job". For item sn7 mean is 4.2582: "My supervisor rewards me for good performance". For item sn3 mean is 4.0820: "My supervisor keeps informed about how employees think and feel about things". For the construct "interest in work innovation item innov1 has the highest mean with 4.2877: "In your kind of work if a person tries to change his usual way of doing it generally turns out better". For item innov5 mean is 4.0492: "During the last year several times I have suggested to my supervisor a different or better way of doing something on the job".

3.2 Exploratory Factor Analysis for the construct Supporting and Non-Controlling Supervision

PCA; Principal component analysis with varimax was done to the construct "supporting and non-controlling supervision". Results attained were KMO= 0.849 and Bartlett=0.000. Three Factors with eigenvalues over 1 were found. Only one variable was under the third component therefore the variable sn3 was left out of the model and the analysis was repeated. Results attained were KMO= 0.864 with sig=0.000 for the remaining two factors left were: F1sn(supporting supervision);sn1, sn2,

sn4, sn6, sn5,sn12, and F2sn(non-controlling supervision);sn9,sn8,sn10,sn7,sn11. Reliability analysis was run for each factor. Cronbach Alpha value was found to be F1ns= 0.826 and when sn11 was deleted final Cronbach Alpha value for F2ns was found to be F2ns= 0.840. Indexes then were computed F1ns and F2ns for the data set.

3.3. Exploratory Factor Analysis for the construct Interest in Work Innovation

Principal Component Analysis with varimax rotation was run to the construct “interest in work innovation”. Results attained were KMO= 0.773 and Bartlett sig.= 0.000. Results indicated 2 factors with eigenvalues 3.302 and 1.501 which explained 80.039% of the model cumulatively. F1innov; innov 4, innov6, innov1 and F2innov; innov3, innov2, innov5. Reliability analysis was done for each factor. Cronbach alpha value was found to be F1innov=0.876 and F2innov=0.872.

3.4. Reliability Analysis for the construct Trust

Reliability analysis for the construct Trust (items t1 and t2) was done. Cronbach Alpha value was found to be 0.828. Then T; t1+t2 was computed for the data set.

3.5. Confirmatory Factor Analysis for the construct Supporting and Non-Controlling Supervision

Confirmatory factor analysis of a measuring instrument is most appropriately applied to measures that have been fully developed, and their factor structures validated (Byrne, 2010) [40]. Results of the exploratory factor analysis for the measuring instrument of supporting and non-controlling supervision gave out two factors which were parallel to the original instrument developed by Oldham and Cummings (1996) [24]. In order to test for the validity of the factorial structure of the model given our data set we ran confirmatory factor analysis.

All of the beta coefficients indicated significant results therefore all of the items were kept in the model (See figs1-2):

	Estimate
sn12 <--- nsfactor1	.549
sn5 <--- nsfactor1	.660
sn6 <--- nsfactor1	.676
sn4 <--- nsfactor1	.688
sn2 <--- nsfactor1	.709
sn1 <--- nsfactor1	.734
sn7 <--- nsfactor2	.531
sn10 <--- nsfactor2	.900
sn8 <--- nsfactor2	.813
sn9 <--- nsfactor2	.793

Figure 1: Standardized Regression Weights: (Group number 1 - Default model)

Covariance coefficient between the two factors also proved significant with p=0.000. Model fit summary is stated below.

	Estimate
nsfactor1 <--> nsfactor2	.633

Figure 2: Covariance coefficient between the two factors

Model Fit: Default Model CMIN/DF=2.464
 RMSEA=0.78 Acceptable model fit; 0.06-0.08 (Anderson and Gerbing, 1984; Browne and Cudeck, 1993) [41]-[42]
 NFI=0.921 Acceptable model fit;>0.90 (Ullman, 2001) [43]
 GFI=0.941 Good fit of the model ;>0.90 (Schumacker & Lomax, 1996; Kleine, 2004) [44]-[45].

Two-factor model for the data set was confirmed.

3.6. Confirmatory Factor Analysis for the construct “Interest in Work Innovation”

Standardized beta coefficients were all significant, p = 0.000. All items were kept in the model (See figs3-4):

	Estimate
innov1 <--- innovf1	.777
innov6 <--- innovf1	.848
innov4 <--- innovf1	.893
innov5 <--- innovf2	.781
innov2 <--- innovf2	.871
innov3 <--- innovf2	.853

Figure 3: Standardized Regression Weights: (Group number 1 - Default model)

Covariance coefficient between the two factors also proved significant with p=0.000. Model fit summary is stated below.

	Estimate
innovf1 <--> innovf2	.408

Figure 4: Covariance coefficient between the two factors

Model fit; default model

CMIN/DF=1.852

RMSEA=0.059 Good model fit (Anderson and Gerbing, 1984; Browne and Cudeck, 1993) [41]-[42]

NFI=0.982 Acceptable model fit;>0.90 (Ullman, 2001) [43]

GFI=0.982 Good fit of the model ;>0.90 (Schumacker & Lomax, 1996)[44]

Two-factor model for the data set was confirmed.

3.7 Multiple Regression Analyses

Multiple Regression Analyses were run in order to test the first main hypothesis of the research.

H₁: There is a significant influence of supporting and non-controlling supervision on Interest in Work Innovation

Independent variables of the concept supporting and non-controlling supervision were first checked for normality and then nonparametric correlations were run for detecting any possible multicollinearity and no multicollinearity was found. Linearity tests were also done and the model was ready for multiple regression.

3.7.1. Results of the Multiple Regression Analysis to test H_{1a}

H_{1a}: Supporting supervision (F1ns) and non-controlling supervision (F2ns) have significant influence on interest in work innovation (F1innov) and explain the variance in it.

The first model proved statistically significant with F=107.673 and p=0.000. R square is 0.472 which indicated that supporting supervision (F1ns)(β=0.501) and non-controlling supervision (F2ns) (β=0.270) explain interest in work innovation (F1innov).

3.7.2. Results of the Multiple Regression Analysis to test H_{1b}

H_{1b}: Supporting supervision (F1ns) and non-controlling supervision (F2ns) have significant influence on interest in work innovation (F2innov) and explain the variance in it

The first model proved statistically significant with F=28.312 and p=0.000. R square is 0.184 which indicated that supporting supervision (F1ns)(β=0.208) and non-controlling supervision (F2ns) (β=0.286) explain interest in work innovation (F2innov).

3.8 Testing for the Mediation effect of the construct Trust in the model:

The second main hypothesis of the model is:

H₂: Organizational trust mediates the relationship between supporting and non-controlling supervision and interest in work innovation

In order to test for the mediation effect of the construct Trust in the model the following hypotheses were also needed to be tested for statistical significance first.

H_{2a}: Supporting supervision (F1ns) and non-controlling supervision (F2ns) have significant influence on Trust (T) and explain the variance in it.

The first model proved statistically significant with F=23.295 and p=0.000. R square is 0.184 which indicated that supporting supervision (F1ns)(β=0.210) and non-controlling supervision (F2ns) (β=0.248) explain the construct trust.

H_{2b}: Trust (T) has a significant influence on interest in work innovation (F1innov)

The model proved significant with F=70.809 and p=0.000. R square is 0.226 which indicated that Trust (T) (β=0.476) explain the construct (F1innov).

H_{2c}: Trust (T) has a significant influence on interest in work innovation (F2 innov).

The model proved significant with F=7.582 and p=0.006. R square is 0.030 which indicated that Trust (T) (β=0.174) explain the construct (F2innov)

These results indicated that we could continue to test for the mediation effect of T. In order to do this Multiple regression analyses for H_{1a} and H_{1b} are repeated with the inclusion of the construct Trust (T) as a third independent variable of the equation.

H_{1am}: Supporting supervision (F1ns), non-controlling supervision (F2ns) and Trust (T) have significant influence on interest in work innovation (F1innov) and explain the variance in it.

The model proved significant with F=87.400 and p=0.000. R square is 0.522 which indicated that Supporting supervision (F1ns) (β=0.450), non-controlling supervision (F2ns) (β=0.209) and Trust (T)(β=0.245) explain the construct F1innov.

With the addition of Trust into the multiple regression equation we observed a decrease in the beta values of F1ns and F2ns which indicate that there is some partial mediation of T while the model remained significant.

However, mediation did not hold true for the dependent F2 innov (the second factor of the construct)

H_{1bm}: Supporting supervision (F1ns), non-controlling supervision (F2ns) and Trust (T) have significant influence on interest in work innovation (F2innov) and explain the variance in it

Results proved F=18.797 and p=0.000. R square is 0.190 which indicated that Supporting supervision (F1ns) (β=0.208), non-controlling supervision (F2ns) (β=0.286) explained F2innov significantly but, Trust (T) (β=-0.001) did not explain the construct F2innov. Though the contributions of F1ns and F2ns are significant, contribution of T to the model is statistically insignificant with p=0.983.

When compared with the first equation (H_{1b}) the effect of Trust did not make a change in the beta coefficients, in other words beta coefficients of the other independent variables F1ns (β=0.208) and F2ns (β=0.286) remained the same which indicate that for F2innov as the dependent we cannot talk about the mediation effect of Trust in the supervisor.

IV CONCLUSION

When the supervisor is behaving in a supportive attitude and does not show a controlling behavior employees feel free to express themselves more innovatively. Finding new ways of doing one's work, letting creativity into work life requires a supportive environment. Non-controlling behavior and trust in one's supervisor are climatic components of open communication cultures (Demirel and Fikes, 2010; Butchoz, 1993) [16]- [15]. In such an environment employees feel free to express themselves in different contexts. Interest in work innovation or "finding new ways of doing one's job" is not an investigated area since its first introduction to the field (Price, 1972) [38]. Finding new ways of doing your job ends up in more satisfied employees and increased performance. This relationship can be the subject of a future study. Also finding out the other necessary conditions in the business organization improving the creativity and initiative taking capabilities of the employees where especially necessary in sectors which seek after 'innovation can be the subject of a future study. In this study we observed that when the supervisor's behaving in a supportive attitude and does not show a controlling attitude employees feel free to express themselves more innovatively. Also, the adapted and developed Questionnaire is validated for a contemporary data set in the electronics and appliances sector's leading companies known by innovation.

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