# Occupational Stress and Organizational Commitment of Employees in Virtual and Traditional Teams: A Comparative Study

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Abstract: The present study is a comparative study of the organizational commitment and occupational stress levels of employees of virtual team and traditional teams. The sample consisted of 100 employees from different software companies of which 50 were from traditional teams and another 50 from virtual teams. Assessment of the organizational commitment was done using Organizational Commitment Scale by Meyer, Allen and Smith (1993) and Occupational Stress is assessed by occupational stress checklist developed by the researcher based on the pilot study conducted. The obtained data was analyzed using the statistical technique of independent t-test to see the difference between traditional and virtual teams on the organizational commitment and occupational stress levels. Results indicate that the teams differ significantly on their organizational commitment level but do not differ significantly on their occupational stress levels. On organizational commitment scale they differed mainly on continuance and normative commitment and were found similar on affective commitment. This study has implications for future research in organizational psychology and socio cultural area. The study emphasizes on the need to understand this concept of virtual teams as it is a relatively new and upcoming field helping these teams to get more equipped and efficient.

Keywords: virtual teams, traditional teams, organisational commitment, occupational stress

# 1. Introduction

A team is a group of individuals who work interdependently for solving the problems and accomplishing tasks (Bell, Kozlowski 2002). "A new trend in today's global economy is the increased prevalence of virtual teams (VTs) individuals collaborating in geographically dispersed work teams who may reside in different time zones and countries" (Horwitz, Bravington, & Silvis, 2006, p. 472). Virtual project teams in the fast-paced, information technologydriven 21<sup>st</sup> century represent a new organizational structure as a response to the need for high quality, low-cost, rapid solutions to complex organizational problems. Teams enable organizations to pool the talents and expertise of employees by eliminating time and space barriers (Furst, Reeves, Rosen, & Blackburn, 2004). Overall, VTs provide organizations with unprecedented levels of flexibility and responsiveness (Powel, Piccoli, & Ives, 2004).

**Virtual team** is a group of people who interact through interdependent tasks guided by common purpose that works across space, time, and organizational boundaries with links strengthened by webs of communication technologies. (Lipnack and Stamps, 1997). While teams are not a new phenomenon,. Traditional collocated groups are being replaced with virtual teams, distributed across boundaries of time, space and organizational structures.

#### 1.1. Principles of Virtual Teams and Systems Theory

In their application of systems theory to virtual teams, Lipnack and Stamps (1997) assert that the principles of people, purpose and links form a simple systems model of inputs, processes and produced outputs. People make up the virtual teams, purpose is the task that holds teams together and links are the interactions and channels that weave the fabric of the team. The nature and variety of these links are the most distinguishing factor between virtual and traditional teams. Table 1 displays the principles that provide an integrated framework for understanding and working in virtual teams.

The inputs needed to develop virtual teams include independent members, cooperative goals, and multiple media (Lipnack and Stamps, 1997). Throughout the development process, the members share leadership and engage in interdependent tasks, which involve boundary-crossing interactions. The generated outputs include integrated levels of organizations, concrete results and trusting relationships.

Table 1: Virtual Team System of Principles

	Input	Processes	Output					
People	Independent members	Shared leadership	Integrated levels					
Purpose	Cooperative goals	Interdependent tasks	Concrete results					
Links	Multiple media	Boundary crossing interactions	Trusting relationships					

(From: Virtual Teams, Lipnack and Stamps, 1997)

Virtual teams are composed of individual members with certain areas of expertise. Because of this diversity, members typically share leadership by assuming leadership positions at some point in the process. And because teams are also embedded in organizations, they themselves are parts of larger systems. Therefore, they must integrate both the level of the members and the level of the group.

Three elements of virtual teams allow them to achieve their purpose: cooperative goals, interdependent tasks and concrete results. Virtual teams rely upon a clear purpose because of their cross-boundary work. Cooperative goals define the outputs desired, while interdependent tasks

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connect those desired outcomes to those achieved. When a team has completed its process, it expresses its purpose as concrete results.

Links are what give virtual teams their distinction from inthe-same-place organizations. Multiple media (wires, phones, computers, etc.) are the channels by which the members make the physical connection. These connections allow communication and boundary-crossing interaction that make virtual teams truly different. Through interactions, people develop trusting relationships in their patterns of behaviour that persist and feed back into subsequent interactions. While it can be argued that trusting relationships are needed by all teams, they are even more important to virtual teams because of a lack of face-to-face time. This trust may even have to replace hierarchical structures and bureaucratic controls (Lipnack and Stamps, 1997).

# 2. Review of literature

The review of literature points out a lot of studies which are done relating to trust, communication in virtual teams. The studies show that there is problems related to communicating virtually and there is also lack of trust as they do not meet face to face. Due to this there is weaker identification with the team and more conflict and more coordination problems within a team.

# 3. Research Design

The current study is a "**Comparative Study**" which has been undertaken to investigate differences between virtual and traditional team employees on organizational commitment and occupational stress.

# 3.1. Research Question

Based on the review of literature of earlier studies, the current study raises research question "Is there any difference between employees of virtual team and traditional team on their organizational commitment and occupational stress"?

# 3.2. Objective

To study the differences and similarities between employees in virtual and traditional teams on their organizational commitment and occupational stress.

# 3.3. Hypotheses

Hypothesis 1: There is no difference in organizational commitment between employees in virtual and traditional teams.

Hypothesis 2: There is no difference in occupational stress between employees in virtual and traditional teams.

# 3.4. Variables

- Independent Variable
- Virtual team employees
- Traditional team employees

# **Dependent Variables**

- Organizational Commitment of employees.
- Occupational stress in employees.

## 3.5. Sample

- The current study will involve total of 100 employees of whom 50 will be employees in a virtual team and other 50 will be employees in a traditional team of the organizations.
- Sample selection procedure:

## **Inclusion criteria**

All the employees were from software companies.

## **Exclusion criteria**

Employees who are not working for software companies are not included

# 4. Methodology

**Purposive sampling** method has been used to identify employees in each organization in multiple cities. The departments in which they may work vary. It was ensured both male and female employees were a part of the sample. None of the employees were forced to be a part of the study. The data was collected by mixed method. Some questionnaires were sent to the participants in form of booklet by mail and their responses also received by mail. A prior instruction is given to the participants and if any queries, are answered by the researcher on call. Others were given hard copy of the questionnaire. Accordingly, Scoring of the responses would be done according the instructions provided in the manual.

# 4.1 Tests Used

- Organizational Commitment Scale: The study utilized the revised version scale developed by Meyer, Allen, & Smith (1993).
- Occupational Stress Checklist: The researcher developed an occupational stress checklist and cross validated by her guide. It is a five point rating scale. It contains following sub factors:
- Communication
- Work design
- Health, Safety and Welfare and,
- Personal Sources.

# 4.2 Operational Definitions

- Virtual team: a group of people who interact through interdependent tasks guided by common purpose that works across space, time, and organizational boundaries with links strengthened by webs of communication technologies. (Lipnack and Stamps, 1997)
- Organizational Commitment: A person's dedication, involvement towards organizational goals, belief and values. (Mowday, Steers & Porter 1979). This has been assessed using Organizational Commitment Scale by Meyer, Allen, & Smith (1993).
- Occupational stress: it is a process, involving a transaction between an individual and his or her work environment. (Lazarus, 1991).This has been assessed

using occupational stress checklist developed by the researcher based on the interviews conducted as a part of the pilot study.

#### 4.3 Pre Research Interviews

- Before conducting the research, few pre research interviews of virtual employees was taken by the researcher in order to get a better understanding of the concept of virtual teams and what being a virtual employee is.
- According to the interviewees there is lack of commitment, work motivation.
- Communication is also an issue. It's difficult for employees to discuss problems at abstract level. It thus puts more responsibility on the employees.
- Stress is more in their case and also difficulty in work life balance.
- Though they had freedom to work from home, they missed interaction with team members and thus learning from each other.
- Also even it lessens travelling, some employees enjoy travelling.

## 4.4 Statistical Analyses

The current study would use the following statistical analysis

- **1. Descriptive Statistics**: Mean and Standard Deviations and graphs were used. Percentage was also used whenever required.
- **2. Inferential Statistics**: Independent t-test was used to compare the means of the two groups' namely virtual team employees and traditional team employees

# 5. Results

# **5.1 Organizational Commitment**

Organizational commitment is a person's dedication, involvement towards organizational goals, belief and values. (Mowday, Steers & Porter 1979). The current study assessed organizational commitment of employees in traditional and virtual team using the revised version of Organizational Commitment Scale, developed by Meyer, Allen, and Smith, (1993). There are three areas of organizational commitment that have been assessed by the above questionnaire. The three areas are Affective Commitment, Normative Commitment and Continuance Commitment.

- Affective Commitment: This dimension measures an employee's emotional attachment to, identification with, and involvement in the organization.
- Continuance Commitment: This refers to the commitment associated with the costs that employees perceive are related to leaving the organization.
- Normative Commitment: This reflects pressures on an employee to remain with an organization resulting from organizational socialization.

A comparison of employee's organizational commitment was done for virtual teams and traditional teams. This was done to test the Hypothesis 1 which states "there is no difference in organizational commitment between employees in virtual teams and traditional teams".

Independent t test was used to analyze the raw scores by testing the significance of difference of means obtained by virtual team employees and the traditional team employees on each of the three dimensions of organizational commitment. The results are stated below in the table 2

 Table 2: Shows the Mean, Sd and T Scores on the Three

 Kinds of Commitment

Kinds of	Tradition	al team	Virtual team		t value		
commitment	М	SD	М	SD			tailed)
Affective	28.12	7.566	28.42	6.562	0.212	98	0.833
Continuance	22.8	6	26.92	6.74	3.229	98	0.002
Normative	24.7	7.078	27.88	6.598	2.324	98	0.022

It is observed from the table that both traditional and virtual team employees score highest in affective commitment. The scores for both the teams on organizational commitment are least for Continuance commitment.

## **Affective Commitment**

The obtained t value on affective commitment is 0.212 which is not significant at both 0.01 and 0.05 level. This value indicates that the virtual team employees and traditional team employees do not differ significantly in affective commitment.

#### **Continuance Commitment**

The obtained t score on Continuance commitment 3.229.which is significant at both 0.01 and 0.05 level. This value indicates that the virtual team employees and traditional team employees differ significantly in continuance commitment. In other words, Continuance Commitment is significantly higher for virtual team employees when compared to employees from traditional teams.

#### **Normative Commitment**

The two groups differ significantly on their Normative Commitment. Normative Commitment is higher for virtual team employees .The obtained t value on normative commitment 2.324 which is significant at 0.05 levels. This value indicates that the virtual team employees and traditional team employees differ significantly in normative commitment

#### Summary

To sum up, it has been found that the two groups, virtual and traditional team employees differ significantly on:

- Continuance Commitment
- Normative Commitment

However they do not differ in the Affective Commitment factor of Organizational Commitment.

**Hypothesis 1** states that there is no difference in Organizational Commitment between employees in Virtual teams and Traditional teams. Thus the null hypothesis 1 is rejected, as the two groups differ significantly on Continuance and Normative Commitment.

#### **5.2. Occupational Stress**

Occupational stress is a process, involving a transaction between an individual and his or her work environment. (Lazarus, 1991). The researcher developed an occupational stress checklist to assess the occupational stress levels of the employees. It is a five point rating scale. It contains following subsections:

- Communication (8 items)
- Work design (11 items)
- Health, Safety and Welfare (8 items)
- Personal Sources (7 items)

To analyze which kind of stress is highest and lowest in the two groups (Virtual and Traditional) percentages were calculated. Percentages were utilized because the items related to each factor was not equal in number and hence converting the mean to percentages made the scores comparable.

 
 Table 3: Shows Mean Value in Percentage Obtained by the Two Teams on Different Factors of Occupational Stress

Two Teams on Different Tactors of Occupational Sitess							
Types of stressors	Traditional	%	Virtual	%			
Communication related	29.2	73	31.1	78			
Work design related	36.5	66	37.7	69			
Health and safety related	28.6	72	29.1	73			

Both the groups score highest in communication related factor and lowest in work design related factor. High score in any factor in the stress checklist indicates low stress level in that area. Thus high score in communication related factor shows low stress relating to communication in both the employees and high stress level in work design related factor. It is seen stress scores in all the three areas in table above is a little higher in virtual teams as compared to traditional teams which means that virtual team employees undergo lesser stress than traditional team employees.

**Table 4:** Shows Frequency of Personal Sources of Stress in

 Virtual and Traditional Teams

Types of personal sources of stress	Total virtual	Total traditional
Marital related	2	1
Children	1	1
Financial issues	11	9
Social network and friendship related	5	6
High or low expectations	12	17
Lack of confidence	3	3
Lack of motivation	7	4

It is seen that in subscale of personal source of stress is due to high or low expectations and financial issues. A comparison of employee's **Occupational stress** was done for virtual teams and traditional teams. This was done to test the **Hypothesis 2** which states "there is no difference in **Occupational stress between employees in virtual teams** and traditional teams". Independent t test was used to analyze the raw scores by testing the significance of difference of means obtained by virtual team employees and the traditional team employees on each of the three dimensions of **Occupational stress.** Results are stated below in the table 5.

 
 Table 5: Shows the Mean, SD and T Scores for Different Factors of Occupational Stress

Factors occupational stress	Traditional team				t value	df	Sig (2 tailed)
	М	SD	М	SD			
Communication related	29.16	5.804	31.10	6.165	1.620	98	.108
Work design related	36.48	6.988	37.68	6.979	.859	98	.392
Health safety related	28.62	4.328	29.14	5.257	.540	98	.590

There is no significant difference between the groups in their occupational stress levels .Thus the hypothesis that there is no difference between the occupational stress levels of the two groups is accepted.

#### Summary

In summation, both the teams are seen to be high in occupational stress in work design related factors and low stress in communication related factor. Overall stress is seen higher in traditional team employees. It is seen that in subscale of personal source of stress is due to high or low expectations and financial issues. Hypothesis 2 states that there is no difference in Occupational stress between employees in Virtual teams and Traditional teams. Thus the null hypothesis 2 is accepted, as the two groups do not differ significantly on their occupational stress levels.

# 6. Discussion

This subsection discusses the difference in the Organizational Commitment levels of employees in virtual and traditional teams.

#### 6.1. Organizational Commitment

It is defined as a person's dedication, involvement towards organizational goals, belief and values. (Mowday, Steers & Porter 1979). In 1982 they characterized commitment as consisting of three components:

- Affective
- Continuance
- Normative

To study the difference between the organizational commitment of virtual teams and traditional team hypothesis 1 was set which states "There is no difference in organizational commitment between employees in virtual and traditional teams". The hypothesis 1 was rejected as results in indicated a significant difference between the organizational commitments of the two different teams. The difference in the organizational commitment level of the two teams on the different kinds of commitment is discussed separately.

#### **6.2 Organizational Commitment Types**

Affective Commitment: this dimension measures an employee's emotional attachment to, identification with, and involvement in the organization. Both traditional and virtual team employees score highest in affective commitment. This could be attributed to the fact that emotional attachment or identification with the organization gives the employees a sense of self identity to them. This in turn leads to higher performance and productivity. This indicates that the employee's feel the organizations problem as their own and they feel a strong sense of belonging to the organization. They feel like a part of the family at work place. This could also be because of the fact that mostly the employees now stay in small families in cities where there is presence of IT companies so they have made their friends and colleagues as extended family to them.

However, they could also be high in affective commitment as they are able to identify with the cultures and values linked to the organization. These culture and values are internalized by the employees if they stay long in the organization and they get emotionally attached to the work place. This in turn reduces turnover of the employees and increases organizational citizenship behaviour. When the employees are high in affective commitment factor there is a win-win situation both for employees as well as the organization.

Continuance Commitment: this refers to the commitment associated with the costs that employees perceive are related to leaving the organization. The two groups differ significantly on their Continuance commitment. Continuance Commitment is higher for virtual team employees. High score in continuance commitment means it is a kind of necessity to stay in the organization and too much of their life would be disrupted if the employees leave their job. It would also deprive them of having freedom of taking their own decisions and responsibility. Another factor contributing to that could be lack of external opportunities as job markets are down and thus there is uncertainty. As per interviews commitment is reported to be low in the virtual team employees. There is no face to face meeting and no constant monitoring because of which accountability suffers and hence the productivity lowers.

Seer's (1989) definition of member-team exchange as reflecting one's role within the context of the team, suggests that team identification might influence the relationship between perceptions of member-team exchange quality and team continuance commitment. Team members who identify primarily with their team have likely internalized the team's mission and goals. For them, the team is a strong component of the self-concept at work.

**Normative Commitment**: this reflects pressures on an employee to remain with an organization resulting from organizational socialization.

Organization provides the employees with rewards in advance. Recognition of these investments causes employees to feel obligated to reciprocate by committing themselves to organization until the debt has been repaid. (Coetzee 2005). The two groups differ significantly on their Normative Commitment. Normative Commitment is higher for virtual team employees which indicates that they feel that the organization deserves their loyalty and did not feel it right morally to leave the organization at present. They have a strong sense of obligation to their organization. This could be attributed to company's terms, conditions and policies with regard to working in virtual teams. They may have a bond signed with the employees for certain tenure.

Horwitz et. al. (2006) found that organizational commitment was critical to getting virtual teams off to a successful start. Interestingly, according to the interviews of virtual team employees conducted by the researcher, the employees report that the organizational commitment remains low for them as they don't meet their team members face to face and also as they are not monitored directly all the time. This though puts more responsibility on them; it also gives them more flexibility at work. Managers and management researchers have long believed that organizational goals are unattainable without the enduring commitment of members of the organizations. Motivation is a human psychological characteristic that contributes to a person's degree of commitment (Stoke, 1999). It includes the factors that cause, channel, and sustain human behaviour in a particular committed direction. Putting it all together, both traditional and virtual team employees' score highest in Affective commitment and the two groups differ significantly on their Continuance commitment and normative commitment.

#### **6.3 Occupational Stress**

This subsection discusses the difference in the Occupational stress levels of employees in virtual and traditional teams. It consists of discussion on four factors:

- a) Communication Related
- b) Work design related
- c) Health and safety related
- d) Personal sources

**Occupational stress**: it is a process, involving a transaction between an individual and his or her work environment. (Lazarus, 1991). The researcher developed an occupational stress checklist to assess the occupational stress levels of the employees. It is a five point rating scale. It contains following subsections:

- a) Communication (8 items)
- b) Work design (11 items)
- c) Health, Safety and Welfare (8 items)
- d) Personal Sources (7 items)

To study the difference between the Occupational Stress of virtual teams and traditional team hypothesis 2 was set which states "There is no difference in Occupational Stress levels between employees in virtual and traditional teams". The hypothesis 2 was accepted as the results indicated no significant difference between the Occupational Stress of the two different teams. The different factors in the Occupational Stress of the two teams are discussed separately below. Both the groups score highest in communication related factor and lowest in work design related factor. High score in any factor in the stress checklist indicates low stress level in that area. Thus high score in

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communication related factor shows low stress relating to communication in both the employees and high stress level in work design related factor. This indicates that both the teams in the selected sample have presence of clear communication between team members. There is enough feedback given and there is presence of informal discussions and opportunities to discuss concerns with team members.

High stress levels in the work design related factor indicates that there are rigid work schedules, less clarity in their role definition, performance pressure or insufficient pay and unfavourable company policies that leads the employees to undergo high stress.

It is seen scores in all the three areas is a little higher in virtual teams as compared to traditional teams, which indicates that virtual teams undergo less stress than traditional teams. The reason could be less travelling and being able to work comfortably in a more autonomous and flexible environment. Interestingly, when the virtual team employees were interviewed, they reported high stress incidences related to communication owing to lack of face to face communication which is contrary to the findings of the current study. They also had an issue with clear communication or communication delay and lack of trust. Hence the employers also prefer aggressive, dedicated honest and trustworthy employees in virtual teams who can adapt to such virtual environment. Also most amount of stress from personal sources is seen from the mismatch of the expectations between the employees and supervisor or employer. They either perceive a high or low expectation which creates a dissonance leading to increased stress. This in turn could lead to depreciating performance of the employees and hence low productivity. Economic factors that employees are facing in the 21st century have been linked to increased stress levels. Researchers and social commentators have pointed out that the computer and communications revolutions have made companies more efficient and productive than ever before. This boon in productivity however, has caused higher expectations and greater competition, putting more stress on the employee (Primm, 2005). One of the leading work-stress models, Karasek's (1979), Job Demands-Control model hypothesizes that high stress occurs particularly when job demands are high and job autonomy is low. This explains the result of the current study as to why stress is found to be lower in virtual team employees as the job autonomy is high. Finally, it is seen that virtual teams undergo less stress than traditional teams and stress in both the groups is highest related to work design factor and lowest related to communication related factor of occupational stress.

# 7. Summary and Conclusion

- The traditional and virtual teams differed significantly on the organizational commitment level. The virtual team employees are found to have higher level of organizational commitment than the traditional team employees.
- The virtual and traditional teams do not differ significantly on the occupational stress level. On the whole virtual teams are seen to be less stressed than the traditional team employees.

With regard to the hypotheses set for the study:

**Hypothesis 1**: States that there is no difference in Organizational Commitment between employees in virtual teams and traditional teams. Hypothesis 1 is rejected.

**Hypothesis 2**: States that there is no difference in Occupational Stress between employees in virtual teams and traditional teams. Hypothesis 2 is accepted.

Occupational stress and organisational commitment are the two extremely important factors which affect productivity and efficiency of an employee at a workplace. Here in the current study it was found that in virtual team employees the occupational stress is less than in the traditional team employees and organisational commitment is higher in virtual team employees than in traditional team employees. If both compared, lower the stress higher is the commitment in virtual team employees and higher the stress lower is the commitment in traditional team employees. The results show a negative correlation between occupational stress and organisational commitment.

The above result is supported by a study done by Khatibi A., Asadi H. and Hamidi M.(2009) on The Relationship Between Job Stress and Organizational Commitment in National Olympic and Paralympic Academy whose results indicated a negative significant relationship between job stress and organizational commitment, affective commitment and normative commitment, but there was no significant relationship between job stress and continuance commitment found.

In another study by Orly,Michael(et al 2009) on Job stress and organizational commitment among mentoring coordinators revealed that stress hinders the coordinators' sense of emotional commitment. As the stress level rises, the coordinators' sense of belonging decreases. Another finding was that the stress in the coordinators' job does not influence their overall continuance commitment. Strong continuance commitment was found in two categories: role expectations that were not compatible with the role requirements, and the second, unwillingness to leave the job in the middle of the year.

Kobasa and Antosrovsky (1998) have argued that organizational commitment protects the individual from negative outcomes as stress. Job stress and its more severe forms are increasingly prevalent in the work environment. With the rapid pace of change and the ever-increasing demands on our times, stress becomes a major factor that most employees have to content with (Srinivas, 1991). Previous studies have demonstrated a strong relationship between occupational stress and organizational commitment (Lee and Henderson, 1996; Kobasa and Antrosrusky, 1998). Therefore, exploring the relation between occupational stress and organizational commitment is important in improving the quality of health care through investigating the factors that affect both.

Based on the summary of the statistical findings, the current study concludes:

Virtual teams have higher organizational commitment level as compared to the traditional team employees. Both the groups are similar in their affective commitment towards

their organization but virtual teams are higher on continuance and normative commitment level.

The traditional and virtual teams do not differ in their occupational stress level. High stress is seen in the work design related factor and least in communication related factor. Occupational stress on the whole is little higher in traditional team employees. Virtual teams are indispensible now in this globally changing environment, in fact globalization necessitates it. It helps bring human resources and expertise which is geographically distributed together. This concept is only two decade old and very few studies have been done. Hence it is important for us to understand the nature of such teams to maximize its potential. As stated **'Less than 30% of virtual teams are seen to be effective and successful.' (Caulat, 2006**).

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