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Work from Home Covid 19: The Relation Between Satisfaction, Level of Stress, Infrastructure with Network Issues and Performance of Teaching Fraternity

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Abstract:

This research examines the relation between satisfaction, level of stress, infrastructure with network issues and performance of teaching fraternity in the context of work from home during Covid-19 pandemic. For the study a sample of 138 respondents representing the teaching fraternity of undergraduate and post-graduate Levels in the twin cities of Hyderabad and Secunderabad was considered. A structural equation model was constructed by using satisfaction, level of stress, infrastructure with network issues and performance as constructs and the results of the same were obtained through Smart PLS. The empirical results of the study show that stress level and infrastructure with network issues had a significant impact on performance. Whereas, satisfaction of online teaching had an insignificant impact on performance. Further, Satisfaction of online teaching and infrastructure with network issues had a significant impact on stress levels of teaching fraternity.

Key words: Work from Home, Covid 19, Satisfaction of Online Classes, Stress, Performance,

Infrastructure with network issues and Smart PLS

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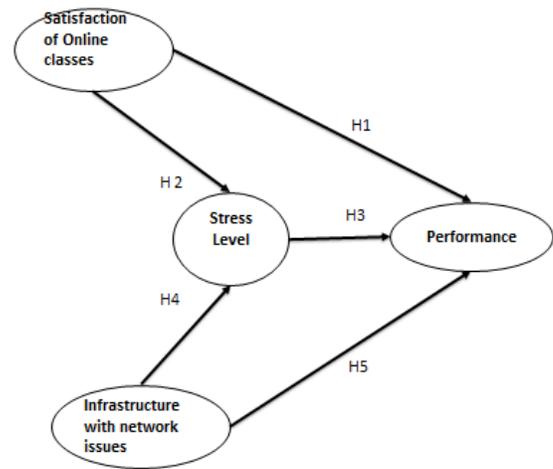
I. INTRODUCTION

Millions of people across the globe are experiencing dramatic consequences due to the COVID 19 pandemic. This is even more for the teaching fraternity who had to quickly switch over to a new work from home model for them. Many universities and schools have adapted the online mode of teaching and are able to continue their operations without any interruption. No institution nor teaching fraternity might have predicted that the work from home would continue for an indefinite prolonged period. On the other hand, in order to provide quality education to their students, both the institutions and teaching fraternity are trying to simulate the normal classroom atmosphere in a virtual style by making use of advanced technological platforms like zoom meetings, Microsoft teams etc. The work from home has totally changed the working conditions and facilities available to teaching fraternity. There is a possibility that this might have an impact on the stress level of the teaching fraternity. The satisfaction of the faculty members with new online teaching might also impact their performance. In this context, the current study tries to identify whether there is any relationship between the “infrastructure with network issues” in the work from home atmosphere, satisfaction of teaching fraternity with the online teaching, their stress levels in new working conditions and the performance of teaching fraternity.

Theoretical Background and Hypotheses Development

In the current study an attempt was made to develop a structural equation model based on four constructs, namely, satisfaction of online classes, Stress level, infrastructure with network issues and Performance of the teaching fraternity. Subsequently five different hypotheses were developed to examine the relationship between the constructs. A diagrammatic representation of the model and the theoretical background for the development of hypotheses is presented below.

The Model



Satisfaction of online classes and Performance

As per Lambrou et. al (2010) [1], job satisfaction is the result of a positive emotional state due to job experience. In previous studies (Argule, M 1989 [2], Fisher 2003 [3], Ostroff 1992 [4] and Peng 2014) it was observed that Job satisfaction displayed a positive correlation with job performance. Fisher (2003)[3] found that an individual is found to be performing well when he is satisfied with his work. Organizations are more effective when their employees are satisfied (Ostroff, 1992 [4]). Employee teamwork, ability utilization, creativity, autonomy and working conditions were grouped under employee satisfaction. Mafini, C., & Poee, D. R. (2012) [5] All these five variables showed a positive correlation on organizations performance. Skaalvik & Skaalvik (2011) [6] defined teachers’ job satisfaction as teachers’ affective reactions to their work or to their teaching role. As the saying goes “a satisfied worker is a productive worker’ Latif et, al (2015) [7], it can be assumed that the satisfaction of online teaching increases the performance of teaching fraternity.

Therefore, the following is hypothesized:

H1: There is a positive relationship between satisfaction of online classes and performance

Satisfaction of online classes and Stress Level

Past researches Hoboubi et. al. (2017) [8], Singh et al (2007) [9] have shown that Job satisfaction is one of the important factors regulating job stress. Faculty satisfaction with the conduct of classes is of paramount importance which motivates them to deliver their best. In the light of Covid 19, the teaching has been completely shifted to a virtual mode right from primary education to university programs. The lack of face to face contact with the students, reduced involvement of students in the online classes, technological difficulties lead to dissatisfaction of the online teaching among the faculty (Bolliger, D. U., & Wasilik, O (2009) [10]). In a study by Goswami and Dsilva (2019) [11] it was found that there was a significant negative relationship between job satisfaction and job stress. Hence, we can assume that dissatisfaction of online classes might increase the stress levels of teaching fraternity. Accordingly, the following was hypothesized:

H2: There is a negative relationship between satisfaction of online classes and Stress level

Stress level and Performance

As per to the World Health Organization (WHO) [12], stress related to work is the result of a mismatch between the abilities and knowledge level of employees and the pressures and demands related to work. As work from home has become the new normal in current pandemic situations, unlike the employees in the IT sector, for most of the teaching fraternity, working full time from home has been a first-time experience. The sudden adaptation to online teaching, remote coordination with peer group, higher officials and students on one hand and the expectation of management to quickly adapt to this new work style without any interruption to regular activities might lead to increased work-related stress levels among the

teaching fraternity. When stress related to work functions as a motivator, it may lead to creativity and subsequently job satisfaction (Hoboubi et. al. (2017) [8]. Donald et. Al. (2014) [13] have found that stress is an important predictor of performance. Job stress could cause a decline in employee performance. Earlier research studies (Fonkeng, (2018) [14]), Ahmed & Ramzan (2013) [15], Jamal (1984) [16], Elovainio et al (2002) [17] have documented that excessive levels of stress have negatively affected the performance of employees. In a study by shah et al (2012) [18] the relationship between stress and job performance, it was found that organizational structure and reward structure are stress inducers and organizational structure and employee efficiency are negatively related whereas reward structure and employee efficiency were positively related.

Therefore, the following hypothesize was developed:

H3: There is a negative relationship between stress level and Performance Infrastructure with network issues and Stress Level

The mandatory suspension of face-to-face teaching and the sudden switchover to virtual classes has brought a drastic change in the work environment and the facilities available to the teaching fraternity. The teaching fraternity is suddenly exposed to several non-traditional work practices like lack of reliable power supply, interruptions in Wi-Fi connectivity, continuous learning and upgradation to the latest virtual platforms and tools to conduct the online classes, absence of a proper workspace, etc. Unlike the IT employees this complete gadget based working style would add the dimension of stress to work life of teaching fraternity. Any direct or indirect negative impact on behavior, thoughts, physiology or an attitude is referred to as stress (Tiwari et al 2008)[19]. According to a research report (ILO 2017) [20] it has been found that high stress levels were reported by 41% of workers who worked remotely as compared to only 25% of workers who worked from office. Hence, we

assume that as the “infrastructure with network issues” increases, the stress levels of teaching fraternity might also increase. Therefore, the following has been hypothesized:

H4: There is a positive relationship between “Infrastructure with network issues” and stress level Infrastructure with network issues and Performance

Nada et. al. (2015) [21] found that the performance of human resource and organizations are influenced to a great extent by the information technology capabilities. The importance of Information Technology became even more important in the fierce competition to carry on different activities effectively (Subramanian et al. {2009} [22]). Clemon et. al. (2004) [23] noted that due to huge development and growth in IT, organizations are finding new opportunities for success. Technologies advancements have made work from home a possibility (Timsal and Awals 2016) [24]. Further, the flexibility of time of work with space flexibility is possible due to the availability of newer technologies (Cole 2016) [25]. During the lockdown, the teaching fraternity also adapted to a new method of online teaching by the use of information technology. The role of a teacher also changed (Veena and Sheetal, 2020) [26]. As per study of (Nada et. al. [21]) organizational performance is been directly and positively influenced by IT infrastructure.

Therefore, the following is hypothesized:

H5: There is a positive relationship between Infrastructure with network issues and performance

Methodology

Sample and Data Collection

The data was collected from the undergraduate and post graduate teaching fraternity in the twin cities of Hyderabad and Secunderabad, who had at least

one month of online teaching experience during the lockdown period after March 2020. A structured interview schedule which consisted of five questions related to general information of the respondents and 34 statements based on the Likert five-point scale (Strongly Agree, Agree, Neutral, Disagree and Strongly disagree) was used for the purpose of data collection. The male respondents were found to be 73 while 65 of them were female out of the total 138 respondents. 72 respondents belong to the age group of 25 to 35 years, 49 of them were from the age group of 36 to 45 years, 16 of them belonged to 46 years to 55 years and 1 respondent was above 55 years. The respondents were from different educational streams like management (45), engineering, commerce or other streams (93). Forty of the respondents had a teaching experience of less than 5 years, 34 of them had 6 to 10 years, 32 of them had 11 to 15 years and 16 each with 15 to 20 years and more than 20 years of teaching experience respectively.

Measurement Scale

The present study used four constructs related to work from home of teaching fraternity at graduation and post-graduation level. The construct ‘satisfaction of online teaching’ included five items measured through a Likert Scale with five-points (Cronbach’s $\alpha = 0.86$). The construct ‘stress level’ included four items with a Likert Scale with five-points (Cronbach’s $\alpha = 0.93$). The construct ‘infrastructure with network issues’ included four items which were measured using a Likert Scale with five-points (Cronbach’s $\alpha = 0.91$). The construct ‘performance’ included five items measured through a Likert Scale with five-points (Cronbach’s $\alpha = 0.86$). Cronbach’s alpha is most prominently used measure to evaluate the reliability of a set of scale items. According to (Nunnally 1978)[27] Cronbach’s $\alpha > 0.7$ indicates the reliability of the construct showing that all the variables in the scale have a high positive correlation to each other. All the four constructs considered in the study have a Cronbach’s α of > 0.7 , therefore the model fit was tested.

A confirmatory factor analysis (CFA) and the goodness-of-fit statistics for the measurement model suggested a reasonable fit to data (L. t. Hu & Bentler, 1999) [28] as follows: $\chi^2_{(22)} = 33.232$, Chi-square/df ratio = 1.51, $p = 0.059$, CFI = 0.990, NNFI = 0.972, SRMR = 0.027, and RMSEA = 0.051. According to Hulland (1999) reflective indicator loading of > 0.5 indicates that an item is a measurement of the latent constructs. According to Fornell and Larcker, (1981) [29] an AVE > 0.5 indicates convergent reliability of a construct. The results confirm, convergent validity for all the measures as estimated loadings of indicators was positive and significant. For composite reliability, we used a threshold of 0.7 (Nunnally, 1978) [27] and the results showed that a minimum of 0.9 was achieved for all the constructs. Dhillon-Goldstein Rho was used to measure Composite Reliability (CR) or internal consistency. A composite reliability which is > 0.7 indicates an adequate consistency of the model (Gefen, Straub and Boudreau, 2000) [30]. Table 1 shows the results of the correlation, , and discriminant validity.

Table 1: Results of the Correlation, Composite Reliability and Discriminant Validity

Constructs	Items	Loadings	Ave	CR	Discriminant Validity
Satisfaction of Online Teaching	SO T1	0.82	0.636	0.897	0.8
	SO T2	0.867			
	SO T3	0.844			
	SO T4	0.722			
	SO T5	0.723			
Stress Level	S1	0.862	0.749	0.947	0.87
	S2	0.864			
	S3	0.83			

	S4	0.899			
	S5	0.866			
	S6	0.869			
Infrastructure with network issue	IN1	0.88	0.779	0.934	0.88
	IN2	0.839			
	IN3	0.915			
	IN4	0.894			
Performance	P1	0.734	0.651	0.903	0.81
	P3	0.809			
	P4	0.896			
	P5	0.724			
	P6	0.857			

The Results, Discussion and the Implications of the Structural Equation Model

The results, discussion and the implications of the structural equation model are presented below.

Multi Collinearity, R² and Q²

Variation Inflation factor (VIF) is the most prominent measure to find out multi collinearity between variables. As a rule of thumb VIF value of less than 5 indicates low multi collinearity (Hair et al, 2011) [31]. The results of VIF (Appendix A) indicate that in the structural model there is minimum collinearity in every series of predictors. R² values of performance (0.516) and Stress level (0.555) are in accordance with sample predictive power (Sarstedt et al, 2014) [32] model. Similarly, the blindfolding with an omission distance of 7 yield Q² figures performance (0.319) and stress level (0.425) are found to be positive and more than zero. Hence, as per Hair et al, 2013 [33] this model has predictive relevance.

The Results of Hypotheses Testing of the Structural Paths

The results of the hypotheses testing obtained through smart PLS which include path coefficients, t values and p values of five structural paths hypothesized in the model are presented in table 2

Table 2 - Results of Hypotheses Testing in Smart PLS

Structural Path	Path Coefficient	T Statistics (O/STD EVI)	P Values	Conclusions
H1: Satisfaction of Online Teaching -> Performance	0.141	0.1	0.158	Not supported
H2: Satisfaction of Online Teaching -> Stress Level	0.278	4.029	0	Supported
H3: Stress Level -> Performance	0.339	2.769	0.006	Supported
H4: Infrastructure with Network Issues -> Stress Level	0.584	9.74	0	Supported
H5: Infrastructure with Network Issues -> Performance	0.34	2.59	0.01	Supported

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According to Hair, et al, 2011 [31]in assessment of path coefficient with 5000 as sample chosen for bootstrapping the actual sample’s number of observation and the number of cases were found to be equal.

With bootstrapping the sample of 5000 in assessment of path coefficient, the number of observations of the actual sample of the study and the number of cases were found to be equal. (Hair, et al, 2011) [31]. A critical value of 1.96 for a two-tailed T test indicates rejection of null hypotheses at a 5% significance level. In a Path model the direct relationship between independent and dependent variables is represented by Path Coefficient which is beta (standardized regression coefficient). A ‘p’ value of less than 0.05 indicates a significant relationship between the variables.

As per hypothesized path model relationships among constructs, the empirical results agree in four out of five hypotheses. The path coefficient and t statistic of the path model ‘satisfaction of online teaching’ on ‘performance’ are 0.141 and 0.1 respectively. The ‘p’ value of the path model is 0.158 indicating an insignificant relationship between ‘satisfaction of online classes’ and ‘performance’.

In the case of path model ‘satisfaction of online teaching’ on ‘stress level’, the path coefficient and t statistic are 0.278 and 4.029 respectively. The ‘p’ value of the path model is 0.0 indicating a significant impact of ‘satisfaction of online classes’ on ‘the stress level’. However, the results indicate a positive relationship as against the expected negative relationship between these constructs.

In the case of the path model ‘stress level’ on ‘performance’, the path coefficient and t statistic are 0.339 and 2.769 respectively. The ‘p’ value of the path model is 0.006 indicating a significant impact of stress level on performance. The results

further indicate a positive relationship between 'the stress level' and 'performance'.

In the case of the path model 'infrastructure with network issues' on 'stress level', the path coefficient and t statistic are 0.584 and 9.74 respectively. The 'p' value of the path model is 0.0 indicating a significant impact of 'infrastructure with network issues' on 'stress level'. As expected, the results indicate a positive relationship between the constructs.

In the case of the path model 'infrastructure with network issues' on 'performance', the path coefficient and t statistics are 0.34 and 2.59 respectively. The 'p' value of the path model is 0.01 indicating a significant impact of 'infrastructure with network issues' on 'performance'. As expected, the results indicate a positive relationship between the constructs.

Discussion and Managerial Implications

The purpose of this research was to examine if satisfaction of online classes had a positive impact on performance and a negative impact on stress levels as most of the teaching fraternity of undergraduate and post-graduate Levels were experiencing online classes for the first time in the city of Hyderabad and Secunderabad. Further, the study also investigated whether this new online teaching mode developed stress levels that might have adverse impact on the faculty's performance. The research also is to find out if infrastructure with network issues with online mode positively impacted stress levels and performance.

To study the relationship between Satisfaction of Online Classes and Performance it was hypothesized that "*there is a positive relationship between satisfaction of online classes and performance*". The results of the study have shown a positive relation, however, the relation was found to be insignificant. The findings of the study were contradicting to earlier studies of Fisher 2003[3], Peng 2014 [34] where a significant relationship was reported between Job satisfaction and performance

of employees. The relationship was however positive in their studies also.

To study the relationship between Satisfaction of Online Classes and stress level it was hypothesized that "*there is a negative relationship between satisfaction of online classes and stress level*". As against an expected negative relationship, the results of the study have shown a positive and significant relationship between the two constructs. Therefore, it could be said that as the "satisfaction of online classes" increases, "the stress level" of teaching fraternity decreases. The findings of the study were in-line with earlier studies of Goswami and Dsilva (2019) [11], Singh et al (2017) [9] in terms of significance of the relationship. However, the direction of the relationship in their study was found to be negative.

To study the relationship between stress level and performance it was hypothesized that "*there is a negative relationship between stress level and performance*". However, the results of the study have shown a significant and positive relationship between the constructs. Therefore, it could be said that with an increase in stress level, the performance of teaching fraternity decreases. The study results contradict with early studies Ahmed and Ramzan (2013) [15], Jamal (1984)[16] who reported a negative relationship between stress level and performance.

To study the relationship between infrastructure with network issues and stress level the hypotheses developed was that "*there is a positive relationship between Infrastructure with network issues and stress level*". The results of the study have indicated a positive and significant relationship between above constructs. Therefore, it could be said that with lesser network issues, the stress levels of teaching fraternity decreases. The relationship between infrastructure with network issues and stress level was not found to be documented in earlier studies as per our literature review. Therefore, this study contributes to literature

indicating a positive relationship between these two constructs.

To study the relationship between Infrastructure with network issues and performance the hypotheses developed was that *“there is a positive relationship between infrastructure with network issues and performance”*. The two constructs displayed a significant and positive relationship according to the results. Therefore, it could be said that with better infrastructure and network the performance of teaching fraternity increases. The findings are in line with research of Nada et. al. (2015) [21] which also indicated that information technology had positive influence on performance. The study provides some new insights for management of educational institutes and for teaching fraternity to deal with the challenges and issues related to work from home during uncertain times of covid 19 pandemic.

Based on the responses of various parameters of ‘satisfaction of online teaching’, it was observed that online teaching was liked in the work from home scenario by the teaching fraternity. However, they expressed the need for extra preparation for each online session and also missed the personal touch with the students. There by it is suggested that the management of educational institutions should reduce the workload of the teachers. The teachers may utilize this time for extra preparation and to equip themselves with new pedagogical tools like Zoom split rooms, Kahoot Quizzes etc. This helps to make the class more interactive and creates a sense of personal touch between the teachers and students. By doing so the satisfaction of online teaching increases which further increases their performance.

As per observed parameters of ‘stress level’ the workplace was preferred when compared to work from home. Further, the teachers were stressed out due to the absence of a proper place to relax themselves and due to misunderstandings, that arise through virtual communication. Hence, it is suggested that the management should schedule

classes with small breaks between each session. The teachers are encouraged to utilize these breaks to take small walks or divert themselves through listening music and do something of their interest or relaxation exercises. The management should also schedule faculty meetings more frequently to be transparent in terms of two-way communication.

It was found that instability of internet connection, lack of support from IT department, insufficient access to tools and information and absence of a proper workspace are the major issues associated with infrastructure and network. Therefore, it is suggested that the management should provide 24/7 IT support and include training programs to enhance their skills for conducting online sessions in a smooth and effective way. Further, the faculty members may plan for a stable broad band internet connection, and allot a workspace to conduct the online classes without any interruption.

Through the implementation of above-mentioned measures, the performance of the faculty fraternity will increase due to increased satisfaction, decreased stress levels and reduced network issues during work from home.

Limitations and Future Research

The present study is limited to teaching fraternity working in universities and affiliated colleges within twin cities of Hyderabad and Secunderabad. Only four constructs i.e., satisfaction of online teaching, stress level, infrastructure with network issues and performance were used in the structural equation model of the study and various relationships among these constructs were tested. These could be driving factors for future research where in firstly, a wider sample covering other parts of India may be considered. Secondly, more variables like work life balance and communication barriers during Covid 19 work from home situation could be touched upon. Thirdly, a new model could be constructed where in mediating and moderating the effects of the above variables could be tested. Lastly, the setting could be changed from the

teaching fraternity to other sectors to understand the relevance of the model

Appendix 1

Constructs	Items	VIF (variance inflation factor)
Infrastructure with Network Issues	IN1	2.65
	IN2	2.125
	IN3	3.789
	IN4	3.183
Performance	P1	1.591
	P3	2.322
	P4	3.353
	P5	1.563
	P6	2.341
Stress Level	S1	3.277
	S2	3.236
	S3	2.401
	S6	2.593
Satisfaction of Online Teaching	SOT1	2.133
	SOT2	2.476
	SOT3	2.257
	SOT4	1.529
	SOT5	1.707

Appendix 2: Blindfolding with an omission distance of 7 yield Q2 figures

	SSO	SSE	Q ² (=1- SSE/SSO)
Infrastructure with Network Issues	552	552	
Performance	690	469.765	0.319
Satisfaction of Online Teaching_	690	690	
Stress Level	552	317.584	0.425

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