A Critical Performance Evaluation of Design engineers in work from home model during lockdown

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Abstract- The popularity of work from home culture can be seen from the fact that in USA and UK many of the IT and ITES based companies are offering the option of work from home along with the incentive of installing required devices to perform the job, in the initial years of 21st century. India, most of the companies belonged to BPO and basic job was tele-calling, gradually many of other IT oriented companies joined the gamut. But in the pandemic period of COVI-19 the scenario underwent marked changet and the culture of work from home emerged as best preferred option. After March, 2020 most of the industries were locked down and then the focus of routine business was shifted to 'Work from Home', the initial thought was to keep the cycle running and keep the business culture alive but later on industries were required to work on specifics. According to the previous studies there were some flaws in the equilibrium of desired and performed work, and this was going to affect the working of organizations in the long run. This present study was conducted to evaluate the scenario of work from home during the period of pandemic of COVID-19 and also to find the associate pros and cons of the same. The focuswass on engineering and manufacturing industry of Gujarat. The respective sample size of the study is 200 respondents and SPSS Ver. 22.0 is used to test the hypothesis.

Keywords: Work from home, COVID-19, errors and mistakes in work, implications.

I. Introduction

There are a number of industries in the country that have allowed there employees to work from home, this is in connection to the threat of COVID-19. In order to prevent the employees against the exposure of COVID-19 and keep the system running this was the only option for industries. As a matter of fact there is a proper HR division in every organization and they are having a set of specification for recruitment of each and every employee. It is not so that this culture of work from home is new in its orientation, in the IT sector of America, in early 80s' companies have initiated the same and due to ongoing errors and monitoring issues the idea was postponed. **Casico (2000).**The main reasons for the same can be understood in the form of '*Social Hazards*' i.e. once a person is inside the boundaries of his home and is having an opportunity to work from the comfort of the same it may be an obvious situation that productivity and desired output are liable to diminish. On the other hand a number of social and family issues can also prevent him from concentrating on work.

Another example can be taken from United Kingdom, where the culture of work from home is very popular since the early years of 21st century, from 2010 to 2018 there are more than 3 million employees who have considered the option of work from home and 37% of the same belong to jobs like programming, designing, teaching, etc. **Golden (2006)**also in USA the growth rate of such employees is around 23% on annual basis. The popularity of work from home culture can be seen from the fact that in USA around 30% of the IT and ITES based companies are offering the option of work from home along with the incentive of installing required devices to perform the job. As a matter of fact, at the initial level most of the companies belong to BPO and basic job was tele-calling, gradually many of other IT oriented companies joined the gamut and the total percentage rose to 13% of addition on annual basis.

For a certain period of time this phenomenon of work from home has broken the boundaries of time and space but on the other hand the trivia of face to face communication has reduced, this lag in communication started to effect on lost customers and also negative impact on revenue of companies. **Garud (2015).**Even some of the researchers stated that such issues are rising because peer communication and discussion is not

there in the mode of work from home and even a given employee is isolated and started to feel pressure in responding to desired duties.

Source: https://brandongaille.com/

Figure1: Autonomy of Work from Home

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As stated in the above given figure 1, till 2010 more than 12 million employees were working from home, as a matter of fact they have taken the option of 1 to 3 days in a fortnight when they can work from home. **Glister (2011)** conducted a series of studies and stated that work from home or '*Remote working*' is the new face of office related work. The broad findings of the study stated that up to a certain level the employees' experienced higher satisfaction from their jobs, along with all other things remaining the same, but when it came to productivity it was found that in spite of working for scheduled time the number of mistakes and errors have increased the gradual error rate came to around 10-14% on average basis.

This present study is conducted to evaluate the scenario of work from home during the period of pandemic of COVID-19 and also to find the associate pros and cons of the same. The focus is on engineering and manufacturing industry of Gujarat.

II. LITERATURE REVIEW

Hofstede et al (2017) stated that any of the given organization is thriving for improving the productivity of their employees and the culture of work from home has given an opportunity to employees for dividing their time between office and family, as a matter of fact they are enjoying higher order of quality of work life but then again it is also evident from the results that a given employees is making more than normal mistakes in their routine work. In case of face to face communication such mistakes are avoided due to mutual consent and opinion but in case of work from home it is taking more than normal time to make necessary corrections.

Janet et al (2020) conducted an online study to evaluate the system of work from home during the period of COVID-19 and stated that there is a lot of difference in working from home in normal conditions and the scenario of work from home. The findings of the study stated that a given employee is more concerned about the health and wellness of family and also facing a threat to get infected from Corona. In such a scenario accountability and integrity towards work can get reduced. But then again to keep the life going on regular flow of money is required and for the same it is essential that a given individual may stay in job.

Bajaj (2020) stated that the organization in India (*Both manufacturing and Services*) have to keep patience till the time actual productivity of the given employees reach to desired level, this is because of the reason that in a country like India people are having a fear of working from home, even before the period of pandemic and if all of a sudden they are asked to show the regular level of perfection in their routine job, as they are doing in normal times. There are a number of reasons for the same i.e. lack of enough training to use technology based peripherals at home, purchase and installing the same in their homes, using them with highest level of efficiency (*without errors*) is difficult. Regular training and communication with such employees may boost their morale and increase their respective efficiency and productivity.

McDonough et al (2020) the researchers have analyzed a research report published by *PWC* (Price Waterhouse Cooper) and they critically acclaimed that in the times of pandemic it is more important to protect the culture of the organization in place of concentrating on profitability. As a matter fact this has to be visible from the actions of the organizations as well like employees are the integral part of a given organization and more than 75% of the same are working from home, in such a scenario imparting positivity with employees is more important, it may be in monetary or non-monetary forms. In case of work from home adequate training and nurturing can bring about positive changes and productivity of employees can be enhanced.

Objective

The main objective of the study is to evaluate the working culture of employees during the pandemic period of COVID-19 and assess the reasons behind mistakes and errors in assigned work. On the other hand the researcher would also try to examine the trend of acceptance as far as culture of work from home is concerned.

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Hypothesis

Hypothesis 1

H_0: Working conditions and job related pressure are having significant impact on work accuracy during the pandemic period of COVID-19.

H_1: Work efficiency and level of accuracy is affected by reasons other than working conditions and job related pressure, during the pandemic period of COVID-19.

III. RESEARCH METHODOLOGY

Sampling

In the present study non-probable and purposive sampling is used, this is because of the reason that in most of the cases the respondents were not available in person to record their responses, hence the researcher has mailed the questionnaire to respective sample units and collected the responses.

Sample Size

Sample size in the present study is 150 respondents; this sample size is the chosen after considering a number of previous studies in relation to pandemic period of COVID-19 and effect of the same on working efficiency of employees from different sectors of Industry, in India and abroad. Some of such studies are stated in literature and even in references.

Location of Study

The location of this present study is Gujarat and respondents were chosen from different manufacturing organization engaged in heavy engineering works.

Data Collection

In order to collect primary data a structured questionnaire is framed, this questionnaire includes different types of questions including, open ended, closed ended and even scale based. The time frame of the study is August 2020 to October 2020.

Statistical Tools Used

As the questionnaire was designed for collecting data on categorical basis, hence the researcher has chosen ANOVA (*One way*) for the sake of testing the hypothesis.

Software Used

SPSS Ver. 22.0 is being used as a platform for analysis of data.

IV. DATA ANALYSIS AND INTERPRETATION

Hypothesis 1

On the Basis of Qualification	F	Sign
Not able to concentrate of work due to monotony and work pressure	.115	**.792**
More concerned about the health and well-being of family members	.316	**.435**
Not versed to IT and ITES related peripherals	.466	**.517**
Missing the peer appreciation during the non-pandemic period	.236	.637

Desired level of accuracy is very high as compared to non-pandemic period	.688	.314
On the Basis of Experience in Present Job		
Not able to concentrate of work due to monotony and work pressure	2.120	.101
More concerned about the health and well-being of family members	.353	**.671**
Not versed to IT and ITES related peripherals	.898	.394
Missing the peer appreciation during the non-pandemic period	1.188	.211
Desired level of accuracy is very high as compared to non-pandemic period	1.015	.231
On the Basis of Previous Experience		
Not able to concentrate of work due to monotony and work pressure	.129	.789
More concerned about the health and well-being of family members	.457	**.562**
Not versed to IT and ITES related peripherals	.799	.239
Missing the peer appreciation during the non-pandemic period	.459	**.662**
Desired level of accuracy is very high as compared to non-pandemic period	.230	.682
On the Basis of Designation in Organization		
Not able to concentrate of work due to monotony and work pressure	1.110	.236
More concerned about the health and well-being of family members	1.239	.124
Not versed to IT and ITES related peripherals	2.103	.118
Missing the peer appreciation during the non-pandemic period	.237	.677
Desired level of accuracy is very high as compared to non-pandemic period	1.275	.115

Interpretation

This present study was based on a crucial topic and was conducted in the period of global pandemic of COVID-19, as a matter of fact this pandemic has affected the health of human body and at the next level it has affected the mental state of each and every individual across the globe. It can be said that all the industries, services, etc. were affected and circulation of money dropped to the lowest level. In such a difficult time, organizations were trying their level best to ensure their presence in a given market and also to keep the business going. In lieu of the same contribution of employees was desired but then we again kept away the employees from the present threat of COVID-19.

As can be seen from the above table of ANOVA results, the researcher considered the following parameters for evaluation of the mental state of employees from said industries:

-        Qualification of respondents
-        Experience of respondents in present job
-        Past work experience of the respondents
-        Designation and cadre of respondent in current employment
-        Some other demographic components.

On the basis of qualification it could be seen that most of the respondents were agreed to the point in question and stated that they were working since a long period of time and during this period they were worried about their loved ones, as how to prevent them from infection and keeping them safe, on the other hand they were also required to concentrate on their job requirement, so as to keep the wheel of life running. In most of the cases the respondents were able to cope up with the situation but about 27% of the respondents were facing difficulty in the same. People who were less qualified were having a threat to lose their jobs as more experienced people were available to work in less salary and at the same time, they were not able to receive adequate amount of training for carrying their jobs. As per the thumb rule of ANOVA test, if the amount of variation is minimum between values of'F' and 'Sign.' Value then hypothesis was accepted, in almost all the cases, there was some amount of variation related to point in question.

Then second component was related to work experience of the respondent i.e. in the present organization and also in the previous organizations he had served. It is evident from the results that in both the cases the level of variation is minimum, hence it could be interpreted that employees were well connected and concerned about their jobs but they were more concerned about their family members in the pandemic period. It was observed by the researcher that the respondents with good experience in the field of operation

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were able to concentrate more on their jobs, even working from home and employees with less experience were not able to concentrate completely on their jobs. Hence it could be interpreted that experience plays an important role in controlling the efficiency and productivity of a given employee.   .

Then comes the component of designation of employee in the given organization, the researcher found that employee from middle level management were more concerned to their jobs as they were integral part of decision making process of their respective organization and on the other hand the employees from execution and supervisory level were more concerned to their families, this could be associated with the respective pay grade of a given employee.

On the basis of above analysis the researcher would like to state that based on demographic factors the performance of a given employee was liable to lose track of accuracy and preciseness but then again in case of heavy mechanical engineering precision was very important and a million dollar project could be negatively affected by a wrong design or a poor decision. In such a scenario it was the responsibility of the each and every employee to concentrate on the desired level of job and act accordingly.

V.   RESULT

On the basis of above analysis and interpretation it could be stated that the null hypothesis *'Working conditions and job related pressure are having significant impact on work accuracy during the pandemic period of COVID-19'*could be accepted and the alternate hypothesis would be rejected.

VI.   CONCLUSION

Janet (2020); McDonough (2020); Janet (2017)and many other researcher have stated that work from home was not for each and every employee of a given organization and it cannot remain a point of self-selection, rather most of the employees were working from home during the pandemic period of COVID-19 and most of them experienced that this for first time in their life. At the initial level it all seemed easier because a given employee was staying at home with their near and dear ones and also earning money but when it came to specifics of job, the problem were encountered. Many of the employees were facing the issues like lack of enough training to use technology based peripherals at home, purchase and installing the same in their homes, using them with highest level of efficiency (*without errors*) was difficult. Regular training and communication with such employees may boost their morale and increase their respective efficiency and productivity.

Then on the other hand, analysis showed that employees were well connected and concerned about their jobs but they were more concerned about their family members in the pandemic period. It was observed by the researcher that the respondents with good experience in the field of operation were able to concentrate more on their jobs, even working from home and employees with less experience were not able to concentrate completely on their jobs. Employee from middle level management were more concerned to their jobs as they were integral part of decision making process of their respective organization and on the other hand the employees from execution and supervisory level were more concerned to their families.

REFERENCES

1. Ahmed, Yasmin (2020),"Permanent Work From Home Can be Damaging for Mental Health of Employees, Says SatyaNadella." https://www.indiatoday.in/, India Today, 18 May 2020,
2. Bajaj, Sachin (2020). "COVID-19: Building a Crisis-Resistant Organizational Culture and Technology Core." People Matters, 22 Apr. 2020, www.peoplemattersglobal.com/article/culture/covid-19-building-a-crisis-resistant-organizational-culture-and-technology-core-25406.

3. Bavel, Jay J., et al (2020),"Using Social and Behavioral Science to Support COVID-19 Pandemic Response." Nature Human Behavior, vol. 20, 141 (4).
4. Berman, Marc, and Tracy Thurkow (2020)"Covid-19 Creates a Moment of Truth for Corporate Culture." https://www.bain.com, www.bain.com/insights/covid-19-creates-a-moment-oftruth-for-corporate-culture/.
5. Chadha, Tushar (2020)"COVID-19: Impact On Organizational Culture." BW People, 15 Apr. 2020, bwpeople.businessworld.in/article/COVID-19-Impact-On-Organizational-Culture/15-04-2020-189253/.
6. Chandrashekhar, Anandi, and AyanPramanik (2020), "IT's Clicking: TCS Seeks to be Work From Home Bellwether." https://economictimes.indiatimes.com/, The Economic Times, 18 Apr. 2020, economictimes.indiatimes.com/tech/ites/its-clicking-tcs-seeks-to-be-work-from-homebellwether/articleshow/75209740.cms?from=mdr.
7. Choudhury, Prithwiraj, et al (2020),"Is It Time to Let Employees Work from Anywhere?" Harvard Business Review, 14 Aug. 2019, hbr.org/2019/08/is-it-time-to-let-employees-work-from-anywhere.
8. 10. Dhawan, Erica, and Tomas Chamorro-Premuzic (2018). "How to Collaborate Effectively If Your Team Is Remote." https://hbr.org/, Harvard Business Review, 27 Feb. 2018, hbr.org/2018/02/how-tocollaborate-effectively-if-your-team-is-remote.
9. Ducharme, Jamie (2020),"World Health Organization Declares COVID-19 a 'Pandemic.' Here's What That Means." TIME, 11 Mar. 2020, time.com/5791661/who-coronavirus-pandemic-declaration/.
10. Gautam, Ankur. "Post-Covid: Transformation in Work Culture." https://timesofindia.indiatimes.com/, 6 May 2020, timesofindia.indiatimes.com/readersblog/post-covid-19-impact-on-working-culture/postcovid-transformation-in-work-culture-18804/.
11. Giurge, Laura M., and Vanessa K. Bohns (2020),"3 Tips to Avoid WFH Burnout." Harvard Business Review, 3 Apr. 2020, hbr.org/2020/04/3-tips-to-avoid-wfh-burnout.
12. Hess, Abigail, and Jennifer Liu. "13 Ways the Coronavirus Pandemic Could Forever Change the Way We Work." https://www.cnbc.com, 30 Apr. 2020, www.cnbc.com/2020/04/29/how-the-coronaviruspandemic-will-impact-the-future-of-work.html.
13. Huen, Bobby. "COVID-19: Here's How One Pandemic Will Change Our Lives, Forever." https://www.zdnet.com/, 3 Apr. 2020, www.zdnet.com/article/covid-19-how-one-pandemicwill-change-our-lives-forever/.
14. Indo Asian News Service. "Demand for Cybersecurity to Rise in Post Covid-19 India." https://tech.hindustantimes.com/, Hindustan Times, 12 Apr. 2020, tech.hindustantimes.com/tech/news/demand-for-cybersecurity-to-rise-in-post-covid-19-india-storyATSJWdulvPBVVDGHDCefGN.html.
15. McDonough, Gerard, et al. "COVID-19: Protecting and Nurturing Organisational Culture Among Your Workforce." https://www.pwc.ie/, PwC, 14 Apr. 2020, www.pwc.ie/issues/covid-19/protectingnurturing-organisational-culture-workforce.html.
16. Merriman, Marcie. "Beyond COVID-19: How a crisis shifts cultural and societal behaviors." www.ey.com, www.ey.com/en_gl/advisory/beyond-covid-19-how-a-crisis-shifts-culturaland-societal-behaviors.
17. Parungao, Angelique. "The Future of Remote Work After COVID-19: 3 Common Predictions." https://www.ekoapp.com/, 15 May 2020, www.ekoapp.com/blog/the-future-of-remotework-after-covid-19-3-common-predictions.
18. Reynolds, Brie W. "Survey: Lack of Flexible Work Keeps Moms from Staying in the Workforce." https://www.flexjobs.com/, FlexJobs, 23 Aug. 2019, www.flexjobs.com/blog/post/surveyflexible-work-moms/. Accessed 19 May 2020. 22. Sharma, Anushree. "Looking at the Workplace Post Lockdown." People Matters, 24 Apr. 2020, www.peoplematters.in/article/c-suite/looking-at-the-workplace-post-lockdown-25432.