

Impact of Human Proximity on Work from Home effectiveness in Indian Organizational context

Rohit Rajhans¹

¹Symbiosis Centre for Management and Human Resource Development, SCMHRD, Symbiosis International (Deemed University), SIU, Hinjewadi, Pune, Maharashtra, India

¹rohit_rajhans@scmhrd.edu

ABSTRACT

The purpose of the paper is to evaluate the impact of Human proximity on the Work from home effectiveness by devising elements of Hofstede's model of cultural dimensions and establishing a relationship between two factors. This is an exploratory research which will be carried by using a survey method to capture details about level of effectiveness and also the intensity of human proximity required for respective job roles. Data will be collected from people across genders, job roles and industry sectors in India. Further data will be analyzed using a quantitative analysis to see the co-relation between Human proximity and Work from Home effectiveness by using dimensions of Hofstede's model. Also, the research is limited to only two dimensions of Hofstede's model (i.e. Power Distance Index and Individualism vs Collectivism) to address the elements of Human Proximity. The research is carried in Indian organizational context covering a limited set of occupations which gets impacted due to work from home. Learnings of the research will help the organizations to check the level of preparedness as per the job role in an organization to be suitable for remote working. Paper tries to establish a co-relation between human presence required and Job effectiveness across industries and job roles and help organizations address the gap areas to increase job effectiveness.

Keywords

Work from Home, Job Effectiveness, Human proximity, Remote workers

Article Received: 10 August 2020, Revised: 25 October 2020, Accepted: 18 November 2020

Introduction

The definition what constitutes remote working had gone through a lot of debate with eventual no mutual agreement on the same on specific term [1], [2]. Telework (Work from home) happens when Information Communication Technology (ICT) allows work to be carried out at a geographical distance from the place where the results of the work are necessary or typically done in the past [3]. The concept adopted for work from home was "any sort of replacement of IT for work-related travel: moving work to workers instead of moving workers to work [4].

A. Work from Home Landscape

Work from home refers to the performing task away from organization location and also then transferring the work to other location [5]. Technology has enabled us by changing nature of work and allowing us to work from anywhere including home. Organizations are leveraging technology by allowing employees to work remotely and often from home to harness the output from them. Companies already offer the ability to work remotely alongside other flexible methods, which can lead to potential saving for companies [6]. Work from home offers benefits such as Job flexibility, well-being and work life balance for the employees, it also helps organizations to minimize the costs and enhance the productivity of their employees [6]. Research also proves that if employees are allowed to work from home then the overall organizational performance is improved and also the absenteeism is reduced [7].

Over the past 20 years, home-working has risen by 80 percent to 5.3 percent of employees [8]. Homeworking is the most prevalent among highly skilled professionals and

administrative staff. Increased travel time and advent of technology has been crucial drivers for influencing remote working across organizations. Working from home forms a major component which can help organizations attract talent, increase diversity and respond to coronavirus outbreak, where keeping the business up and running in turn depends on the agility of employees working from home. Any organization essentially consists of four key elements and they are Technology, Task, Structure and People [9]. Leavitt's model displays that there should be high interdependence of these five factors and therefore the change in one factor directly impacts the other whether it is planned or unplanned [9]. Researches also believe that technology enablement is associated to reduction in costs and increase in functionality or usability for an organization. It is also imperative that organizations build systems that promote the coordination of activities and their staff accordingly [10]. The structure of the organization is defined according to its degree of complexity, formalization and centralization [11]. Teleworking (Work from home) suitability also depends upon the organization culture which in turn means that it is a system of shared meaning held by the members that distinguishes the organization from other organizations with and within the industry [11]. Research also shows that jobs which have characteristics of minimum physical requirements, defined deliverables and defined milestones proves more effective in a teleworking (work from home) mode [10]. Also, the traits that an employee must have for higher suitability for his/her work and effectiveness are capable of working with minimum supervision, Good communicators, Familiar with technology and has a good employee-manager relationship [10].

B. Challenges in Remote Working

There may be some similarity between office work and home life, thus reducing the recovery effects of home work [12]. Remote working also poses challenges of motivating employees who are not working together in an office setup. Common work from home issues are dealing with isolation, maintaining or losing trust, communication, misunderstanding and suspicion [13]. Managers has to carry extra responsibility of leading their team remotely through aggressive communication. Also, managers need to enable continuous communication for their team members specially more than ever in a remote working environment. An organization consists of wide range of jobs across levels in a hierarchy which could be suitable for remote working or work from home.

Literature review

A. Human Proximity

Human Proximity is defined as the closeness expected between two or more individuals in an organization wherein there exists an opportunity as well as psychological obligation [14]. When people are working on easy task then presence of others increase their performance but if they are working on tough task then it may distract and create a stress in them [15]. Attention, social effect and familiarity can be improved by the presence of others nearby [16]. Proximity of workers was typically defined by three parameters; work flow, dependency of tasks and level of coordination required [17].

With growing number of organizations and the kind of complexity that is taking place in business environment along with the workforce which is distributed it becomes essential for the study of relation of human proximity and the group dynamics [18]. Employees are comfortable when they maintain a distance of around a foot with other employees- although the distance may vary depending upon the culture, relationship and task that employees have to perform in the organization [19]. There are two sides of coin for proximity; firstly, it is helpful for employees who needs autonomy and want to work with least interruptions and secondly it creates problems for employees whose work want them to work in groups and make decisions together [20]. Also, employees who are separated from their colleagues and work itself in a physical attracts relatively lesser voluntary work collaboration [21]. People who are proximate to each other can have a significant impact on others around them [22]. Also, the relationship between manager and his/her sub-ordinates relies on the power distance of organizational culture [23]. Distributed work with people away from each other's sight might lead to comparative inattention to their coworkers, lower level of effort [20].

Hofstede's model has two important dimensions namely Power Distance Index and Individualism vs Collectivism which reflect introduction of proximity or physical presence of two or more individuals [24]. High Power Distance Index indicates that hierarchy is more complex and there exists a hierarchical distribution of power wherein it takes long time

to take decision whereas the Low Power Distance Index indicates that the hierarchy is flatter and power sharing and dispersion happens amongst employees [24]. At the same time, Individualism indicates the roles where the dependency is less and could be managed at individual levels whereas the collectivism indicates that the role is required heavy collaboration amongst teams [24].

B. Work from Home Effectiveness

Job effectiveness can be defined as the "the evaluation of results of an employee's job performance" [25]. Work from home is beneficial to employers who intend to make the job more effective by adopting a work from home practice [26]. Work from home increases job satisfaction, positive increase in employee's productivity and higher level of commitment towards the organization [27],[28]. Employees too can seek to have a work life balance by having a right balance between and work and home commitments. Studies [27], [29] were conducted in past to understand the efficacy of remote working and it was found that self-motivation, integrity and self-confidence are the emerging competencies which can lead to effective work from home practice. Organizations are increasingly shifting towards a teleworking or work from home to avoid staff and space requirements [30].

C. Job Effectiveness

Work from home gives the employees more control over their work and the tools they require to work. This in return will make the employees more satisfied [31]. Employees also end up saving time and money since they are not travelling and also money which is additionally spent on meals is saved when working from home. Work from home allows employees to balance their career and personal responsibilities properly due to less travel and proper time management [30],[32]. According to Hackman and Oldham [33], autonomy is one of the dimensions for employee to be more satisfied with the job he/she is doing and therefore remote working facilitates greater effectiveness if there is a significant balance employee is able to maintain between personal and professional commitments. Job effectiveness also depends on person's job role, the amount of work load that can be controlled and also the level of trust displayed by his/her manager [34]. Frequency of communication help employees in engaging and motivate them for their work [35]. Factors such as clear work policy, support from manager and supervisor, training to manager/s and communication skills leads to effective work environment. Also, employee needs to define clear family and work boundaries. It is essential to establish a psychological contract amongst employees as to what is expected from them in a work from home setup [28].

D. Well-Being

Employees might get the feeling of being isolated and loneliness in the distant work setup and therefore he/she could feel less satisfied with work, after all social interaction is needed. Some set of employees may also experience stress which is not comfortable due to lack of buffer period

between work and home provided by organization in their premises [31]. Due to unavailability in the company premises employees might feel that he/she is overlooked and it is not good for his/her career progression and so they will feel dissatisfied with their work [36]. Employees usually have a notion that since they are working from home so they can juggle and better take care of their parents/kids but it turns out to be negative and develops additional stress due to remote working [37]. Employees working from home are at a distance from their co-workers and therefore the decreased interaction and casual communication may also contribute to job dissatisfaction among the workers. Increased risk of musculoskeletal disorders due to improper work ergonomics and not taking breaks is one of serious illness in UK. Employees reported positive well-being in case they were able to separate borders of work and family [38]. With access of technology now 24x7 it leads to longer working hours which results to intensification of work [39].

E. Job Characteristics

The nature of the work the employee is having or simply speaking the job characteristics also play a crucial role in suitability for the work from home for the employee/s [40]. Jobs that are high in task identity (i.e. it includes entire piece of work) would be more suitable for work from home than the one which is low on task identity. Feedback from the co-workers and also the manager is also crucial to decide whether the job can be done in a work from home or not. Also, jobs which require good amount of collaboration and teamwork will be vulnerable to not working from home compared to the ones where this factor is low and thus the team interaction is crucial to decide whether task can be done from home. Supervising employees when they are working from home is a difficult task and at times could prove negative for career advancement in absence of organizational politics and lack of visibility [41].

Methodology

A. Sample

Organizations which allowed employees to work from home form a target group for the research. Employees across diverse industry sectors, gender and job roles were selected. Fulltime employees and white collared employees who were primarily falling into the work from home mode were approached to understand the effectiveness of their work. Google form was leveraged to conduct a survey and the heterogeneous sample was covered for the better insights. Convenience non-probabilistic sampling technique was used since it was inexpensive and easy for researcher to cover the survey amongst the sample [42]. The researcher at his/her autonomy selected the organizations and job roles and the demographic dividend to conduct the research because work from home effectiveness depends on industry [8] and also the job characteristics such as job role [10]. Larger the sample size lesser are the biases but after one point in time it starts diminishing [43]. Due to practical challenges and time constraint researcher collected n=107 responses were collected across industries [8] and job roles [10]. Also, further analysis was done to establish

relationship between human proximity and work from home effectiveness. Set of questions covered three segments (Demographics, Work from home effectiveness and the Human Proximity) to capture the data for further analysis.

B. Method

A detailed demographic and occupational information will be captured and the response of the participants on the structured questionnaire will be gathered. Work from home suitability depends upon job characteristics such as job roles [10] and it is prevalent amongst high-skilled and managerial positions and eventually on industry [8]. With the distributed workforce it becomes essential to study the relation of human proximity and the group dynamics within the organization [18]. Also, there are negative effects associated with a concept of "Work from Home" [12]. Common work from home issues are dealing with isolation, maintaining or losing trust, communication, misunderstanding and suspicion [13]. Managers has to carry extra responsibility of leading their team remotely through aggressive communication. Also, managers need to enable continuous communication for their team members specially more than ever in a remote working environment. An organization consists of wide range of jobs across levels in a hierarchy which could be suitable for remote working or work from home.

- Section 1: "About You", covered demographic details of the respondents.
- Section 2: "About the role & Industry", covered the description of role and industry they work
- Section 3: "Importance of human proximity and decision making at organization", covered the role specific human closeness that is required through set of questions revolving around it
- Section 4: "About effectiveness of the work", covered the level of effectiveness they have been able to achieve with work from home setup
- Section 5: "Challenges of remote working", covered details from the workforce who worked for the first time from home or otherwise and understood the challenges they face to execute their day-to-day work

Hypothesis

Studies shows that people who are proximate to each other can have a significant impact on others around them in an organizational context [22]. Hofstede's model has two important dimensions namely Power Distance Index and Individualism vs Collectivism which reflect introduction of proximity or physical presence of two or more individuals [24]. High Power Distance Index indicates that hierarchy is more complex and there exists a hierarchical distribution of power wherein it takes long time to take decision whereas the Low Power Distance Index indicates that the hierarchy is flatter and power sharing and dispersion happens amongst employees [24]. Jobs which have characteristics of minimum physical requirements proves more effective in a teleworking (work from home) mode [10]. Thus, it establishes an inverse relationship between human proximity and work from home (teleworking) effectiveness.

There has been no research to establish a relationship between human proximity and work from home effectiveness for specific industry sector and job roles and thus that sets a rationale for doing this research. The hypothesis made below tries to explore factors under consideration and also their relationship.

H0: There is an inverse relationship between human proximity and work from home effectiveness

Ha: There is not an inverse relationship between human proximity on work from home effectiveness

Results and Analysis

The responses (n=107) received from the survey was transformed into a composite index [44]. Since the factors were interrelated as per the literature review did before the study under human proximity and work from home effectiveness. Further, industry wise and job role wise analysis was done by visualizing on Tableau software. The responses were checked for further statistical reliability using SPSS software and it was found over 0.7. The accepted values of Cronbach's alpha are 0.7, however the value of 0.7 and above are accepted too [45], [46].

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.848	.816	17

Fig 1. Results of Reliability

The plot of Proximity Index vs Work from home effectiveness index was visualized through Tableau application for variety of roles and industry sector to establish relationship between the two indexes. The analysis was done for the job roles because the suitability of the work from home depends on job role as per previous studies [10]. The relationship also depends on the nature of industry sector [8].

The minimum and maximum of work from home (WFHE) effectiveness index was 1 and 4.7 respectively on a 5point Likert scale, and for the human proximity (HP) index it was found to be 1.4 and 5 respectively.

A. Industrywise Analysis

BFSI (Banking and Financial Services Institutions) (n=13) had the WFHE index and higher side (greater than 4) versus the HP index was on the lower side (less than 2.5). This shows that despite the proximity being lower employees were able to achieve higher effectiveness in their respective work in a work from home mode. Similarly, for IT& ITeS sector (n=19) data shows that the human proximity index is on lower side (less than 1.5) and the effectiveness the employees were able to achieve for their work was equally on higher side (greater than 4.2). This is due to the fact traditionally majority of the roles in these industries were desk based, which meant tasks could be completed within an

office setup. IT& ITeS were no exception when it came to the nature of the work of the workforce and despite having the lower human proximity the effectiveness has increased in remote working for both the industries showing that the industry can easily adapt to work from home in future due to advent of technology that is available for remote working and still highest level of effectiveness can be achieved.

Manufacturing sector (n=17) had shown higher value (greater than 4) for the WFHE index with the proximity being on the lower side (less than 2.5). This shows that manufacturing Sector which is traditionally heavy in terms of requirement of people working in teams and in physical space reflects that even with lower human proximity effectiveness could be increased proportionately. Similarly, for FMCG sector (n=20) it was found that proximity index was on higher side (greater than 3) and at the same time the work from home effectiveness index was partially on higher side (greater than 4) and remaining on lower side (lesser than 2.5) which reflects that this sector has to have people working in teams specially in field roles like Sales and SCM in order to have an overall higher index of work from home or alternatively leverage technology if working from home.

B. Job Rolewise Analysis

Job roles were also analyzed when it came to the effectiveness of work from home and it was found that HR (Human Resources) (n=27) function has a higher work from home effectiveness index (greater than 3.5) with a relatively proximity required for their work (lesser than 2). Finance roles (n=11) both human proximity and work from home effectiveness index was on higher side (greater than 3.) Traditionally HR and Finance roles are meant to be desk based and office roles unlike Sales & SCM (Field roles) and the ease of migration that companies were able to achieve which reflects from the analysis where effectiveness has certainly increased. For Sales and Marketing roles (n=21) the work from home effectiveness index has certainly increased (greater than 3.5) with human proximity also on higher side (greater than 3) and it validates that Sales roles are field roles and require high physical proximity. Also, SCM & Operations roles (n=15) results show that employees had highest (greater than 3.5) level of human proximity required as well as the effectiveness was highest (greater than 3) which shows that inspite being high human proximity the work from home effectiveness has certainly increased to an extent. Sales roles in case of work from home were tele calling based which helped employees to get higher effectiveness in their work.

As per the previous study from the literature review and also from past research it was established that the physical distance between the employee and the point of work reduces the effectiveness of work. But the study proved that employees with higher physical proximity were able to achieve good results due to advent of technology and it proved effective for them. Thus, hypothesis which was made as null hypothesis at the beginning was disproved since higher human proximity is also resulting in higher work from home effectiveness for majority of industry sectors and job roles.

On the flip side the major challenges employees faced in case of working from home were improper communication with their teams, lack of clarity about their work outcomes, internet connectivity and lack of social connect. With access of technology now 24x7 it leads to longer working hours which results to intensification of work [39].

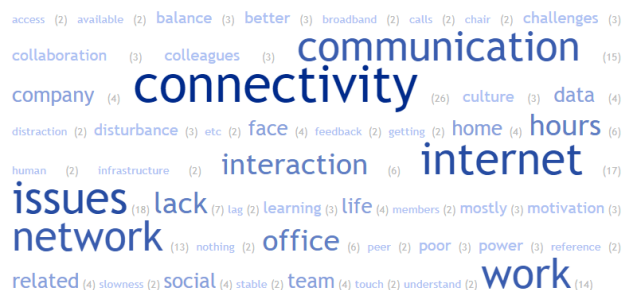


Fig2. Work from Home challenges

Discussion

The findings from study had enabled us to understand that as employees start depending heavily on technology it takes toll on their health as they feel more burnout, stressful and isolated (resulting in psychological issues) environment which employers have to take care of before migrating directly a task to work from home. Study has also proven that many employees feel that regular connect with their peers and manager is of paramount importance to fill the physical gap that gets created in work from home setup and that may further increase their effectiveness. Enabling managers to have a regular connect with their teams is beneficial for employees as there will be role clarity as well as the expected outcomes from the work. By disproving the hypothesis made from previous research study also reflects to break the common notions people had with effectiveness in work from home setup.

The study also proves for the Human Resources (HR) professionals to take a cognizance of the fact that what roles could be migrated to work from home (WFH). A thorough exercise across the organization by doing a pilot could fetch results for the suitability of job roles which could be moved for working from home. Mere assumption of access to technology and work outcome cannot be established without having a training session for each and every employee for the Dos and Don'ts of working from home and special attention to emotional well-being is quite important. A substantial amount of savings could be expected in terms of Infrastructure specially for roles like HR and Finance moving in work from home (WFH) also the operational costs incurred has the potential to come down.

This shouldn't be looked as a cost cutting exercise to bring the costs down but a strategic thought process of compensating employees for the work from home allowance instead of earlier conveyance allowance, Internet allowance, and ergonomics has to be taken into consideration. Technology can be an enabler to establish social connects which employees would have had if they had high proximity working in physical office setup.

Since this study was conducted in India across different organizational sizes, it clearly brought the underlying issue of network and connectivity that employees face on a daily basis when they are working from home.

Practical implications of the study could be summarized as

- a) Employees showed good amount of adaptive behaviors and skills over period of time working from home which could be leveraged by new joiners in organization
- b) As from the analysis, employees end up in an over-work scenario and therefore a clarity of goal and work expectations to be set by employer by enabling the managers
- c) Continuous communication around employee well-being and empowering teams to have a face-to-face connects through video applications will eliminate the feeling of isolation or loneliness
- d) Psychological contract to be established for the purpose of benefits from work from home setup

Limitations

Current study was limited to the organizations within India and the industry sector chosen were at the discretion of the researcher for the study. At the time the study was conducted, entire country was grappled with crisis and therefore the number of responses and job roles were completely not accessible. In normal situation, this study could be extended further across geographies and varied job roles apart from the ones covered under the study.

Conclusion

The current research was unique as it tried to address the real issue of human proximity element by using a Hofstede's model and understand the impact it had on the effectiveness in work from home. Over the course of above study, it is highly noticeable that organizations take due diligence of different roles internally by conducting a study and understand which roles could be mapped for remote working. Also, to address the issues of network connectivity and emotional support (Due to distant location) managers and co-workers strike an active conversation with their team. Remote working if need to be implemented should go hand in hand with wellbeing of employees and regular training needs to be conducted so that employee gets the optimum productivity of their work.

References

- [1] C. Sullivan, "What's in a name? Definitions and conceptualisations of teleworking and homeworking. New Technology, Work and Employment," vol. 18, no. 3, pp. 158-165, 2003.
- [2] S. R. Madsen, "The benefits, challenges, and implication of teleworking: a literature review," *Journal of Culture and Religion*, vol. 1, no. 1, pp. 148-158, 2011.

- [3] M. Hynes, "Telework isn't Working: A Policy Review," *The Economic and Social Review*, vol. 45, no. 4, pp. 579-602, 2014.
- [4] J. M. Nilles, "Editorial: the future of e-work," *The Journal of E-Working*, vol. 1, no. 1, pp. 1-12, 2007.
- [5] T. B. Cross and M. Raizman, "Telecommuting: The Future Technology of Work (First Edition)," Irwin Professional Pub..
- [6] S. Lewis and C. L. Cooper, "Work-Life Integration - Case Studies of Organizational Change," John Wiley and Sons Ltd.
- [7] E. T. Stavrou, "Flexible work bundles and organizational competitiveness: a cross-national study of the European work context," *Journal of Organizational Behavior*, vol. 29, no. 8, pp. 923-947, 2005.
- [8] "Working from home: What's driving the rise in remote working?," Chartered Institute of Personnel and Development, London, 2020.
- [9] B. D. Gordon and M. H. Olson, *Management Information Systems: conceptual foundations, structure and development*, McGraw Hill, 1985.
- [10] T. Bui, K. Higa, V. Sivakumar and J. Yen, "Beyond telecommuting: organizational suitability of different modes of telework," in *29th Hawaii International Conference on System Sciences*, Wailea, 1996.
- [11] P. R. Stephen, "Organizational Behaviour," Prentice Hall International Inc., 1993.
- [12] T. Hartig, C. Kylin and G. Johansson, "The Telework Tradeoff: Stress Mitigation vs. Constrained Restoration," *Applied Psychology*, vol. 56, no. 2, pp. 231-253, 2007.
- [13] Finning, "Finning finds a better way to manage remote teams," *Human Resource Management International Digest*, vol. 14, no. 4, pp. 5-6, 2006.
- [14] P. R. Monge, L. W. Rothman, E. M. Eisenberg, K. I. Miller and K. K. Kirste, "The Dynamics of Organizational Proximity," *Management Science*, vol. 31, no. 9, pp. 1129-1141, 1985.
- [15] R. B. Zajonc, "Social Facilitation," *Science*, vol. 149, no. 3681, pp. 269-274, 1965.
- [16] K. Sara and N. C. Jonathon, in *What do we know about Proximity and Distance in Work Groups? A Legacy of Research*, Research Gate, 2002.
- [17] J. L. Kmetz, "An Information-Processing Study of a Complex Workflow in Aircraft Electronics Repair," *Administrative Science Quarterly*, vol. 29, no. 2, p. 255, 1984.
- [18] R. E. Kraut, J. Galegher and C. Egido, "Relationships and Tasks in Scientific Research Collaboration," *Human-Computer Interaction*, vol. 3, no. 1, pp. 31-58, 1987.
- [19] R. Sommer, in *Personal space*, NJ: Prentice Hall, Englewood Cliffs, 1969.
- [20] S. Kiesler and J. Cummings, "What Do We Know about Proximity and Distance in Work Groups? A Legacy of Research 1," *Distributed Work*, vol. 1, 2002.
- [21] R. E. Kraut, S. R. Fussell, S. E. Brennen and J. Siegel, "Understanding effects of proximity on collaboration: Implications for technologies to support more collaborative work," in *MA: MIT Press*, Cambridge, 2001.
- [22] B. Latane, "The psychology of social impact," *American Psychologist*, vol. 36, no. 4, 1981.
- [23] S. Bailas, "Power distance as a determinant of relations between managers and employees in the enterprises with foreign capital," *J. Intercult*, vol. 1, pp. 105-115, 2009.
- [24] G. Hofstede, G. J. Hofstede and M. Minkov, *Cultures and Organizations: Software of the Mind*, McGraw-Hill Education, 2010.
- [25] D. A. Heainisch and S. M. Jex, "Measurement of negative affectivity: A comparison of self-reports and observer

- ratings," *Work & Stress*, vol. 12, no. 2, pp. 145-160, 1998.
- [26] E. S. Butler, C. Aasheim and S. Williams, "Does telecommuting improve productivity?," *Communications of the ACM*, vol. 50, no. 4, p. 101, 2007.
- [27] Y. Baruch, "Teleworking: benefits and pitfalls as perceived by professionals and managers," *New Technology, Work and Employment*, vol. 15, no. 1, pp. 34-49, 2000.
- [28] R. E. Morgan, "Teleworking: an assessment of the benefits and challenges," *European Business Review*, vol. 16, no. 4, pp. 344-357, 2004.
- [29] C. Sullivan and S. Lewis, "Home-based Telework, Gender, and the Synchronization of Work and Family: Perspectives of Teleworkers and their Co-residents," *Gender, Work & Organization*, vol. 8, no. 2, pp. 123-145, 2001.
- [30] L. F. McKee, "Setting up work at home," *Personnel Administrator*, vol. 33, no. 12, pp. 58-62, 1988.
- [31] B. Shamir and I. Salomon, "Work-at-Home and the Quality of Working Life," *The Academy of Management Review*, vol. 10, no. 3, p. 455, 1985.
- [32] S. Zedeck and K. L. Mosier, "Work in the family and employing organization," *American Psychologist*, vol. 45, no. 2, pp. 240-251, 1990.
- [33] J. R. Hackman and G. R. Oldham, "Development of the Job Diagnostic Survey," *Journal of Applied Psychology*, vol. 60, no. 2, pp. 159-170, 1975.
- [34] R. A. Karasek and T. Theorell, *Healthy Work: Stress, Productivity and the Reconstruction of Working Life*, New York, 1990.
- [35] B. A. Lautsch, E. E. Kossek and S. C. Eaton, "Supervisory approaches and paradoxes in managing telecommuting implementation," *Human Relations*, vol. 62, no. 6, pp. 795-827, 2009.
- [36] A. J. Dubrin, "Comparison of the Job Satisfaction and Productivity of Telecommuters versus in-House Employees: A Research Note on Work in Progress," *Psychological Reports*, vol. 68, no. 3, pp. 1223-1224, 1991.
- [37] Newman, "Telecommuters bring the office home," *Management Review*, vol. 74, no. 12, pp. 41-42, 1989.
- [38] E. E. Kossek, B. A. Lautsch and S. C. Eaton, "Telecommuting, control, and boundary management: Correlates of policy use and practice, job control, and work-family effectiveness," *Journal of Vocational Behavior*, vol. 68, no. 2, pp. 347-367, 2006.
- [39] C. A. Grant, L. M. Wallace and P. C. Spurgeon, "An exploration of the psychological factors affecting remote e-worker's job effectiveness, well-being and work-life balance," *Employee Relations*, vol. 35, no. 5, pp. 527-546, 2013.
- [40] F. Belanger, "Workers' propensity to telecommute: An empirical study," *Information & Management*, vol. 35, no. 3, pp. 139-153, 1999.
- [41] C. Perin, "The moral fabric of the office: panoptican discourse and schedule flexibilities," *Research in the Sociology of organizations*, vol. 8, pp. 241-268, 1991.
- [42] R. L. Ackoff, "The design of social research," in *University of Chicago Press*, Chicago, 1953.
- [43] J. Gill and P. Johnson, *Research Methods for Managers* (Fourth ed.).
- [44] A. Joshi, S. Kale, S. Chandel and D. Pal, "Likert Scale: Explored and Explained," *British Journal of Applied Science & Technology*, vol. 7, no. 4, pp. 396-403, 2015.
- [45] R. van Griethuijsen, M. van Eijck, H. Haste, P. J. den Brok, N. C. Skinner, N. Mansour, G. A. Savran and S. BouJaoude, "Global Patterns in Students' Views of Science and Interest in Science," *Research in Science Education*, vol. 45, no. 4, pp. 581-603, 2014.

- [46] K. S. Taber, "The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education," *Research in Science Education*, vol. 48, no. 6, pp. 1273-1296, 2017.