

Work-Family Permeability and Conflict: A new origin for Technostress among Educators- Critical Examination of Linkages

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ABSTRACT

The blurring of boundaries and conflicts between work and family domains has considerable challenges, resulting in technostress. Educators across the globe are grappling with the tough times and they do not have a choice at the moment. Technostress reflects one's discomposure, fear, tension and anxiety when one is learning through computer technology directly or indirectly that ultimately end in psychological and emotional repulsion and prevents one from further learning or even using computer technology, Wang et.al., (2019). This study aims at investigating the effect of work-family permeability and work from home practices on higher-Ed educators. The study considers the spillover of borders of work and family domain on to each other which leads to conflicts between the two domains which is bi-directional in nature leading eventually to technostress. Not much of literature is available to study the linkages. Higher education sector in India with the online mode is losing the battle as, the stakeholders are not equipped enough. Descriptive research design has been adopted with a sample size of 165, Data was collected through structured instruments with constructs such as permeability (Clark, 2002), Work-Family Conflict, Family-Work conflict (Dilworth, 2004), Technostress (Louis Leung & Renwen Zhang, 2017). The analysis was subjected to PLS path modeling and the hypothetical model was tested using SMART PLS and the results indicate that the permeability and Work-Family conflicts have a far-reaching impact on Technostress

Keywords

Permeability, Work-to-Family conflict, Work-to-Family conflict, Technostress, Work from Home, Higher-education, PCA, MLR algorithm, Path modelling.

Introduction

Covid-19 has forced a radical shift in working habits across the globe almost in all businesses. While many jobs are simply impossible to complete remotely, managers all over the world are forced to embrace the flexibility of a virtual workforce. Considering the Americans, who are the fore-runners of implementing Work-From-Home concept amidst Pandemic, one in five American workers reports having a mixed schedule that combines working from home and doing their job in person, while 26 percent report working exclusively from home, says an article by Forbes. A few million Americans took part in a surprise experiment about the consequence of work from home, many of whom report that they are happier, can work more efficient and would like to hang on to work from home even after the pandemic ends, says The New York Times. At the initial setting of work from home, there were reports of higher productivity and higher job satisfaction among employees of corporate sector. But within six months, many employees contradict their previous opinions of productivity, efficiency and job satisfaction in WFH. In Tribe's National Survey with corporate employees

working from home due to the pandemic, 23% said they'd like to work at home full time, 29% parents with young children at home who need their attention during the day and 96% mothers in this study prefer working at home full time, even after it's safe to go back to the office though they did not claim to have work-life balance.

In Indian Context, according to Quartz India, Work from home in India is disproportionately stressing out mothers. More Indian women than men have reported that they are feeling more stressed while working remotely, according to LinkedIn's Workforce Confidence Index, a fortnightly pulse on the confidence of the workforce. Data of another survey reports that the emotional well-being of working women in India has been worsen due to pandemic. 47% of working women are reported to experience more stress and anxiety during the lockdown whereas 38% of working men report to experience more stress and anxiety during the lockdown. The survey has also covered the child care challenge facing the employees which reveals that more than 44% of mothers are working outside the office hours due to the distractions of providing child care while 25% report to have same. Also, 46% percent working mothers and 42% fathers said

that they can't take of their children as they have to work till late night.

The data from the survey reveals that the pandemic has fastened the temporary worker's economies, the trend of which is believed to sustain at least to a shorter term for the following two reasons. One, several employers are hesitant to take on the responsibility for new permanent employees as the demand outlook remains murky. And two, companies want to bring in specialized skill sets for a variety of roles, according to the CEO of a staffing firm. A survey by Avtar reports that Covid-19 could be the great equalizer for gender diversity in high-order skill jobs. Over the last few years, work-from-home has gained greater acceptance, among both men and women said to be sharing household chores while also working from their residence which removed the biases in considerations about WFH being unproductive and less or unsuitable for full-time jobs. Another survey by an expense management firm, SAP Concur says that nearly 88% of the Indian employees prefer the flexibility to work from a remote location and 69% believe that remote working from a remote location has increased their productivity. On the other hand, there are employees who specify that their productivity has dropped, due to not being able to focus. The survey result includes extended time spent in the processes to claim for expenses. About 34% were noted not having much satisfaction with the amount of time they spend in the finance matters currently.

Higher Education Sector

As far as the higher education sector is concerned, India holds one of the largest networks in the global education industry with nearly 39931 colleges and 993 universities and 37.4 million students enrolling in various programs offered by various institutions with which Gross Enrollment Ratio has reached 26.3% in FY19. The admissions have quadrupled in 2019 when compared to 2001, says Brookings India Report about the revival of higher education in India. India ranks second in the E-learning market after the United states. The total FDI stood at US \$3.24 billion in March 2020 for the education sector, says data of Department for Promotion of Industry and Internal trade (DPIIT).

Educational institutions by default have larger gatherings with minimum possibility for social distancing and hence susceptible for quick infections and are therefore unsafe for all the stakeholders especially the students during this time. Since learning trend in online mode was already in practice among many students long before, pandemic was still permeating the physical class room during the lockdown. Yet the impact was severe in forcing and fastening the shift to digital learning models as the institutions were to be remain closed. Though many other sectors were allowed to be opened and operated physically, the schools, colleges and universities were to be the last to return to the normalcy. But with the incidents in Anna University and IIT Madras made it likely that the institutes may never return to normal at least in the near future.

The institutes had to quickly innovate and deploy digital capabilities to decide to conduct the classes without losing the teaching hours as the physical class room sessions were no longer feasible during the outbreak of COVID-19. Many institutes started virtual teaching- learning practices that could support the interaction between the faculties and students on a real time basis. Current trends indicate that digital formats will be an integral part of educational institutions in the post COVID-19 all over the world.

Only a few surveys and studies focus on employees in education sector. Many researchers fail to notice that they too have the same difficulties but at a higher level. In order to bridge this, this paper aims at studying the impact of permeability and work-family conflicts on technostress level among the employees of higher education sector, since they too are handling online classes for the students in various backgrounds such as the field of medicine, engineering, business, mathematics etc., assuming the impact varies with gender, age, experience, income, number of dependents in the family etc. The study will also bring out how well the employees of higher- education sector welcome the work-from-home concepts.

Literature Review

Permeability

Leung (2011) defines the term as that physical involvement of someone is in one role, but psychological or behavioral involvement will be in another role. J. Coulter Ward (2015) depicts that permeability denotes the role confusion with any role, not just limited to family and work roles he adds that it has been studied regarding how work and personal life can bleed into one another.

Work-Family Conflict

Family life can be interrupted by work completely or to an extent (Work-Family Conflict) in the same way work can also be interrupted by the family (Family-work Conflict). Gürcü Erdamar & Hüsne Demirel (2013) state that these conflicts might result in undesirable issues in both spheres of life. Work-family conflict results in decreased satisfaction with the marriage, family-work conflict results in decreased satisfaction of jobs.

The work-family conflict is an inter-role conflict phenomenon which states that the pressure due to a person's role in both work and family domains can sometimes become incompatible mutually in some aspects. i.e., work role participation is felt more difficult on the virtue of participation in the family role and vice versa (Greenhaus & Beutell, 1985).

Technostress

Technostress is a reflection of one's fear, anxiety and tension and discomposed mentality when he learns something via electronics and communication technologies such as computer and other gadgets in a direct or indirect manner of dependency that ultimately ends in aversion psychologically and emotionally, leading to the prevention of learning further and these technology usages further. It represents a psychologically negative mindset which prevents people from using ICT further. The symptoms of technostress are anxious, poor or lack of justification and inefficiency.

Thomas Fischer & René Riedl (2019) defines technostress as a mental problem arising from using too much of information. It was created by automating the systems and machineries in the organization, developed by a

computer-oriented issues and displayed in various manners in the current scenario.

Permeability on Technostress

Jarvenpaa and Lang (2005) find that individuals who use smartphones feel higher work pressure and they are unable to isolate or distance themselves from the phones and their work due to poor managing abilities of borders between family and home during WFH. They feel that the border between the domains vanish due to usage of gadgets using ICTs and any other way they are have to get connected continuously with their work. RaguNathan et al. (2008) describes that due to the fact that application programs get updated and modified more often and with the arrival of new complicated technological functions and terms, people relying on ICTs for working from remote locations are highly vulnerable to a perception of a heavier workload (Techno-overload), for they have to expend more time and higher efforts in comparison with those working in physical offices (Tarafdar et al., 2011).

McFarlane & Latorella (2002) explain that though ICT results in efficiency aof work, it would make the border between the work and home to be ambiguous eventually. Thus, the employees' personal space and time which actually are meant to be spent with family is infringed badly by the work due to ICT. Ayyagari et.al. (2011) coins a term "digital shackle" to define the which leads to increased stress in the 'work from home' IT employees.

Work-Family conflict on Technostress

The WFH employees are more susceptible to work-family conflicts (both work-to- family and family-to-work conflicts) which ultimately leads to technostress, (Duxbury & Higgins, 1991). For instance, Cinamon (2006) finds in his research that there are two types of conflicts,

- Work interfering family (which is termed now as Work-to-family conflict) and
 - Family interfering work (which is termed now as Family-to-work conflict)
- which in both young adults and adults created Stress associated with technology (Technostress). Ahuja and Thatcher (2005) work-life conflict leads to a stressor caused by work overload which ultimately leads to technostress.

Personal problems may interrupt during work time and these make some demands that conflict the demands of the work and the opposite. These interventions are associable with conflicts in both the domains in both directions leading to higher degree of technostress (Frone, et.al., 1992). Kirkman & Rosen (1997) find that when teleworkers experience reduced techno-invasion when the conflict in the work and family domains is perceived to have less contribution towards technostress. Irrespective of designation of

Methods

The study has been designed so as to address the question of how weakening of the border between the Work and Family domain because of one domain permeating into another, leading to Technostress in the work from home context of faculty in higher education sector.

Research design

A descriptive research design, which best suits the study is used in the paper to measure the impact of permeability, Work-to-family conflict and Family-to-Work Conflict on technostress.

Research Objectives

In order to investigate the effect of predictors permeability, work-family conflict on the outcome Technostress, an empirical study is necessary. The objectives of the research have been listed below.

- To assess the magnitude and direction of relationship between, permeability and technostress, work-to-family conflicts and technostress, family-to-work conflicts and technostress.
- To assess the impact of independent variables permeability, work-to-family and family-to-work conflicts on the dependent variable Technostress using regression test.

Hypothesis Development

Based on the model shown in the figure 1, the hypothesis can be developed as follows.

- H1: Permeability is positively related to Technostress.
 H2: Work-to-Family conflict is positively related to Technostress.
 H3: Family-to-Work conflict is positively related to Technostress.

Measures

employees in different sectors, they tend to keep their jobs organized using the some latest technologies in order for the expectations to be met in terms of response as soon as a request or query arises from customers', employers', supervisors', peers', subordinates' side or from any other end and whenever they have committed towards multi-tasking and focus on and complete all those simultaneously via multiple channels , (Wang, et.al., 2008).

All items were measured on Rensis Likert scale or 5-point Likert-type scale- some ranging from "Always" to "Never" and others from "strongly agree" to "Strongly disagree". Only a very few demographic items were obtained through open ended questions.

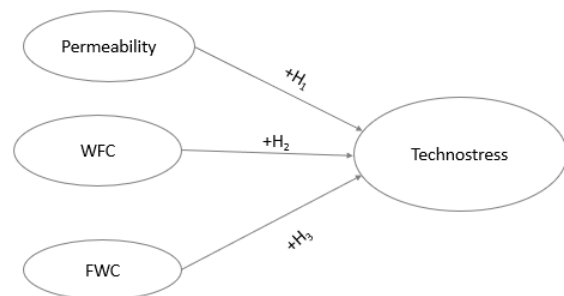


Fig 1: Hypothesis model of the proposed study
 Note: WFC= Work-to-Family Conflict, FWC= Family-to-Work Conflict

Permeability is measured using 5 items derived from Clark (2002), Work-to-Family conflict and Family-to-Work conflict (using structured instruments derived from Dilworth, 2004) and technostress (using structured instruments derived from Louis Leung, Renwen Zang, 2017) are measured using 3,3and 7 items respectively and the mean values of all the items are taken as the response of each construct.

Statistical Tools Used

PSPP, an open source software, alternate to the SPSS has been used for data analysis such as correlation matrix and the regression test and 'R' has been used to visualize the data of various constructs under study. The hypothesized structural model emerging from the review of literature was subjected to analysis and fit tests. The hypothesis model below has been tested and he results have been reported.

Methodology

The population is Teaching fraternity of National universities, Engineering Colleges, Polytechnic Technique Colleges, Industrial training Institutes, Arts, Science and Commerce Colleges and Business Schools, who are currently are pursuing work at home. The study used convenient sampling technique and voluntary response sampling methods. The faculty are identified in social media platform 'LinkedIn' and the survey questionnaire is sent to them via the chat. Out of 1550 educators to whom the questionnaire has been sent via google survey form, 165 revert back with the responses. There were no missing data since forced response techniques was used and hence every response (100%) were retained for analysis.

Among 165, 73.33% were male and 26.67% were female. 62.42% had completed their doctorates, 33.33% were post graduates, 3.64% were post-doctoral fellows and remaining were under-graduates. 52.12% were Assistant Professors, 16.36% were Associate Professors, 20.61% were Professors and remaining were lecturers, visiting/ guest faculties, etc. Among them, about 52.12% were serving in Engineering streams, 24.85% are working in Arts, science and commerce, 11.52% in business and management studies and the remaining in medicine, pharmaceutical and Mass media, education, law, etc. 75.15% and 16.97% of the employees are working in the same institution between 1 to 10 years and 11 to 20 years respectively where as those with the same range of total experience are about 45.45% and 40.64% respectively. About 53.94% of the respondents have less than 1 or 2 dependents in their families, 43.24% have three to five dependents and 3.03% more than five dependents.

Annual income of about 40.66% respondents was below 4 lakhs (that the educators of Arts and science colleges, Polytechnic colleges and Industrial Training Institutes), 31.52% earn in the range of four lakhs to seven lakhs, 16.97% between seven to ten lakhs. 10.3% percent earn above ten lakhs annually. Also, organizations of 50.91% of the respondents went for pay cuts where as 32.12% did not cut down employees' salaries, remaining voted that they did not prefer to disclose the payout details.

Data Analysis

In order to study the behavior of the variables in the hypothesized model, statistical analyses were performed. Table 1 shows the mean and standard deviation of all the variables under study along the reliability coefficient of the instruments measuring of each of them. Cronbach's alpha values are around 0.70, the recommended threshold of the reliability of the measurements (Fornell & Larcker, 1981).

Table 1: Descriptive Statistics and Reliability Coefficients of Variables under Study

Variables	Mean	SD	Cronbach's alpha
Permeability	3.84	0.72	0.65
Work-to-Family Conflicts	3.39	0.9s	0.72
Family-to-Work Conflicts	2.89	1.08	0.85
Technostress	3.67	0.83	0.82

Table 2: Outer Loadings of Indicators, CR, AVE, VIF of all the Variables under study

Variable	Outer loadings	SMC	CR	AVE	VIF
Permeability			0.78	0.43	1.12
P1	0.21	0.045			
P2	0.78	0.601			
P3	0.68	0.460			
P4	0.53	0.284			
P5	0.75	0.562			
Work-to-Family Conflict			0.84	0.64	1.45
WFC1	0.85	0.730			
WFC2	0.56	0.314			
WFC3	0.74	0.541			
Family-to-Work Conflict			0.91	0.77	1.42
FWC1	0.70	0.490			
FWC2	0.77	0.588			
FWC3	0.70	0.489			
Technostress			0.87	0.49	
T1	0.64	0.411			
T2	0.77	0.588			
T3	0.64	0.409			
T4	0.51	0.257			
T5	0.54	0.295			
T6	0.60	0.354			
T7	0.51	0.262			

Note: AVE = $[\sum SMC / (\sum SMC + \sum \text{standard measurement error})]$;
CR = composite reliability; AVE = average variance extracted;
VIF = variance inflation factor; SMC = squared multiple correlation;

WFC= Work-to- Family Conflict; FWC= Family-to-Work Conflict

Table 2 shows the outer or the measurement model variation in which the relationship between the variables with their latent constructs comprising the outer model were analyzed. Indicator reliability, construct reliability, have been analyzed. Indicator reliability is above 0.5 for all factors expect one and the composite reliability values (CR), a superior alternative to Cronbach’s alpha lie above the threshold (0.7) indicate a strong convergent validity of the constructs (Kline, 2015; Nunnally & Bernstein, 1994). It can be observed that all VIF values are far less than 5 or even lower than 1.50 which indicates that there is no issues of multi-collinearity and high inter-correlations between the variables.

Table 3: Correlation among Variables

Variables	P	WFC	FWC	TS
Permeability	0.18			
WFC	0.297	0.41		
FWC	0.273	0.532	0.59	
Technostress	0.393	0.359	0.425	0.24

Note: All the coefficients are significant at p< 0.001 level

Table 3 presents the results of correlation tests among the variables. From the results it is obvious that there are positive relationships among each variable with all variables. But the cross-correlation ranges from 0.273 to 0.632 indicates that the relationship among variables are weak to moderate at p<0.001 significant level.

Inner/ Structural model Validation

Proposed hypothetical model was prepared repeatedly so as to avoid issues associated with statistical identification (Hair et al., 2006). The results of Structural Equation Model (SEM) analysis are presented in figure 2.

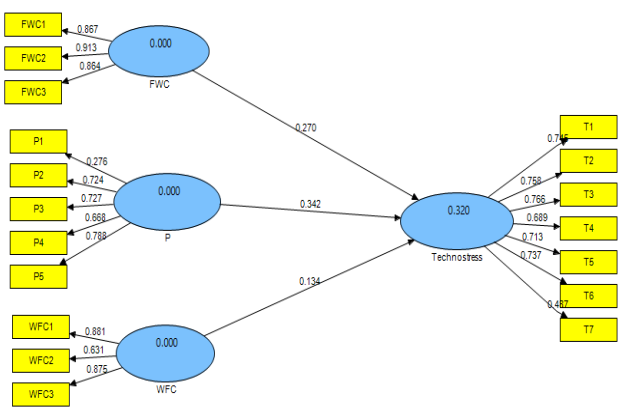


Figure 3: Results of PLS Algorithm

The β coefficient values has been depicted below the arrows and they refer to the unstandardized regression path coefficients having statistically significant effects. From the figure it is obvious that the R^2 coefficients of permeability and FWC are greater than .15 (good amount of variance is explained by the hypothesized variables) and that of WFC is less than 0.15. Yet the coefficients obtained from bootstrapping test results which are depicted above the arrows of figure 2 are above 2.0 showing that all three dependent variables impose a significant impact on Technostress.

Table 4 shows the regression results, path coefficients and hypothesis verification of the proposed model. The R value (0.52) shows that the relation between the dependent and the independent variables are moderate and positive and the R^2 value shows that only 27% of the variation in dependent variable is explained the independent variables.

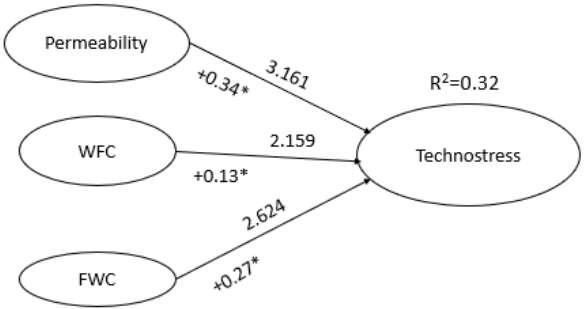


Figure 2: SEM model and estimated parameters

Table 4: Path Coefficients and Hypothesis Verification

No	Path/	Path	T	Result
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	Hypothesis	coefficient	Value	
H ₁	Permeability → Technostress	0.34	3.161	Accepted
H ₂	WFC → Technostress	0.13	2.159	Accepted
H ₃	FWC → Technostress	0.27	2.624	Accepted

Note: FWC= Family-to-Work Conflict and WFC= work-to-Family Conflict

Also, from the significant value corresponding to the work-to-family conflict, the null hypothesis is accepted and for other predictors, alternate hypotheses are accepted and the null hypothesis is rejected. i.e. Permeability and Family-to-Work conflict have significant impact on variation in Technostress and Work-to-Family Conflicts do not have any significant impact on the variation in Technostress.

Model Fit of the Structural Model

Table 5: Model Fit and Quality Indices

Index	Model Result	Model Fit Criteria
Average path coefficient (APC)	0.25, $p < 0.001$	$p < 0.001$
Average adjusted R-squared (AARS)	0.42, $p < 0.001$	$p < 0.001$
R-squared contribution ratio (RSCR)	1.00	$\geq .9$, ideally = 1
Nonlinear bivariate causality direction ratio (NLBCDR)	1.00	$\geq .7$

Table 5 reports the values of all indices—average path coefficient (APC), average adjusted R-squared (AARS), R-squared contribution ratio (RSCR), and nonlinear bivariate causality direction ratio (NLBCDR)—obtained are within the fit criteria mentioned in the third column. Hence, the model fit is achieved for the present study.

Discussions

The study discusses the blurring boundary between work and family with the upsurge of the Covid19 situation, and the efforts taken by organizations to support and nurture talent in their institutions go a long way in survival and growth of a firm. The results from this study reveal the fact that permeability between the home to family

boundary and family to home boundary have a greater impact on the techno stress. The higher the intrusion of work to family or family into work space, the higher the technostress. This was also reiterated in the many discussions we had with employees during the interview process. The forthcoming implications therefore suggest some individual measures that employees can adopt to make their contribution to institution more productive and also includes some institution level measures to ease the difficulty that employees are facing at the moment. With respect to individuals – it is important that the faculty members accept and acknowledge that the situation calls for a leap change in the teaching learning environment and the change is likely to become more permanent in the coming years. For most employees the initial response however will be frustration and they generally get into the behaviour of cribbing and crying about the long hours of work and the demanding system. A change in the mindset can help individuals and faculty members to focus on the adapting to the current situation with a more positive approach. Unlike other professions teaching is a profession, that requires meticulous efforts from the faculty at the time of delivery to the students. A total lack of teacher – learner connect in a online mode is a very big drawback. The joy of teaching, the humor in classroom, the firing discussions in classroom, the peer learning and sharing that happens in a everyday live classroom are definitely lost in online classes. Therefore, when the complete environment changes, it is also difficult for faculty to adopt to the new working style, especially when they have not been used to it. One impetus that can help improve their work is to learn and adapt to new upcoming technologies. There are many good faculty development programs that are organized and that enable faculty to keep themselves abreast with the changing teaching and learning landscape.

As one research study reveals the psychological impact and stress is highest for women as they have to shuffle between the never-ending roles as home front and also balance their work roles. They may find it tough to integrate work and home life together. There is a need for clearly delineating their work space in their home work setup. This can give them a feeling of stepping into and out of their work space. By setting up a

time zone for office and home time and not accommodating office requests beyond the time limits can to a great extent reduce the spillage of work into family life. Conscious and mindfulness when using gadgets and the time spent using the different Information and communication tools and techniques can give quality time for other aspects of life.

Institutions can provide programs on wellbeing, tools and techniques in teaching and learning to equip their teachers to perform better. A clear Institutional policy relating to the hours of work and break timing and flexible hours can help in creating a more comfortable work space at home. The timing for departmental meeting and institution meetings, generally are extended during the day or on weekends, further reducing the quality hours to be spent with family. One standard response from the institution side for such extended meeting hours is that the commuting and transport hours are low or almost nil for employees which can be used for meetings. Departmental heads and division heads can be empathetic towards their team and can help create a more engaged faculty team. To be able to, even understand the technology related problems that faculty are grappling with, the problem of attention span of students, the problem of keep students engaged have had their own toll on the work life of educators. As the uncertainties increase in the work environment, the more the organisation support to cope with them, makes or breaks the bond between the employee and the institute in today's scenario. Most institutions do not even provide the required equipment and accessories to support the higher ed teachers.

Conclusion

The study focuses only on the technostress of Indian educators of the higher education sectors in the context of WFH amidst Pandemic. The study focuses on the well-being of educators of higher-ed in the current pandemic scenario. With many states' educational institutions have to remain locked till March, 2021, the technostress among educators has to be reduced with the support of the management and help to be extended to educators to combat the shortcomings from a regular class. The study confirms a set of hypotheses and finds a relationship between

variables and the findings prove that the dependent variables permeability, work to family conflict, family to work conflict has an impact on technostress.

Limitations and Future Studies

The research work can be extended to other stakeholders in the education sector covering a wider range of participants across different geographies. The results indicate that there could be a possibility of other extraneous variables impacting the technostress like perceived organisation support and options for flexibility. Many Tier 1 institutions have started adopting the best practices in managing online education. Attempts to study the same employee friendly option can throw more light on the existing situation of teachers. Adaptability and ease of use was experience amidst young teachers, during the interview stages. Coping by young vs senior educators also may provide evidence for further studies in these lines.

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