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ABSTRACT

The study examined the influence of “gender and teaching experience” on techno-stress among senior secondary school teachers. Further it is also aimed to study the degree of influence of online teaching learning shift on techno-stress among senior secondary teachers. The present study used the “mixed method research design”, adopting mixed methods to examine data from a particular research study yields converging evidences, increases the consistency of outcomes (Creswell, 2014). Sample of 300 senior secondary school teachers were enlisted through “stratified random sampling” technique, furthermore 20 telephonic interviews were also conducted on the basis of extremely high scores among the initial sample. Teachers’ Technostress level determination scale by, Coklar, A. N., Efilti, E., & Sahin, L. (2017) was used to extract the required data. Besides that, Semi-structured and in-depth interview were used to collect the qualitative data. Results indicated significant difference on the gender and experience level on techno-stress. Female teachers were found more prone to techno-stress as compared to male teachers, also more experienced teachers were found to have higher levels of techno-stress as compared to less experience teachers. The results further revealed that sudden online teaching learning shift has caused higher degrees of techno-stress among senior secondary school teachers.

Key Words: Techno-stress, Covid-19, OTL, Gender, Teaching Experience.
INTRODUCTION

Regardless of whether or not teachers were prepared, the COVID-19 contagion and the application of social estrangement norms resulted in a quick move to Online Teaching and Learning for most academic institutions around the globe (UNESCO IESALC, 2020). As a result, teachers, who play a key role in online education and students' learning activities, as well as the organizational setting, are all disrupted (Sailer et al., 2021). This shift necessitated considerable behavioural changes in teaching methods, particularly in view of the transitioning to complete online instruction in a short amount of time. These behavioural changes are influenced by a variety of factors, including personal, organisational, and cultural factors (Kukulska-Hulme, 2012). During this time, teachers faced several challenges. (Damsa & Langford, 2021.) Mostly concerned with the need to re-design teaching techniques for their students, as well as disappointment, fear, and bewilderment, time management and student retention concerns, an increase in exam/quiz cheating, and challenges maintaining a decent work-life balance (Ahmed & Ikram Khan, 2020). So it is critical to investigate the links between these characteristics and teacher preparedness for online teaching and learning in order to have a better understanding of teachers' readiness for online tutoring (Hung, 2016). In this context COVID-19 can be seen as a stress test for instructors as well as an enhancer for OTL (“online teaching and learning”). As a response, some teachers faltered and experienced challenges, as well as increased degrees of stress, whilst others regarded this rapid shift as a fantastic opportunity, adapted well, and helped their children enjoy learning activities (Bhat et al., 2020; Ortiz, 2020).

Brod initially introduced the concept of Techno-stress in his book “Technostress: The human cost of computer revolution” defined it as “inability to adapt or cope with new computer technologies in a healthy manner (Brod, 1984)”. It is a psycho-physiological syndrome that is characterised by elevated degrees of stress hormones as well as mental syndromes such as poor memory, reduced concentration and annoyance (Arnetz, & Wiholm, 1997). Techno-stressors are cited as the main stressors in today's workplace (APA, 2017; Tarafdar, Cooper & Stich. 2019). It has been associated with diminished job satisfaction, weak performance, and work-strain (see, Tarafdar, M, et.al, 2011). Users can experience techno-stress in a number of different ways prior, between, and after adopting technology (Salo, Pirkkalainen, & Koskelainen, 2019).

THEORETICAL BACKGROUND

The rapid proliferation of ICTs has resulted in generating stress among the users. The type of stress, which is linked to a person's incapacity to cope with computer technology, is known as technostress, and was first addressed by Brod (1984). Grounded on the P-E (“Person-Environment”) fit theory, Edwards and Cooper's (1988) fit model of stress highlighted that a gap resulting from how an individual perceive a situation can trigger stress. As a result, Fox, Dwyer, & Ganster (1993) categorized stress's effects into psychological and physical states. They highlighted that how an individual's cognitive framework interprets or embraces environmental needs, such as dissatisfaction and resistance to learning, is a reflection of their
psychological state of stress. Further Tarafdar et al. (2007) proposed five sources that generates technostress: viz, “techno-overload, techno-invasion, techno-complexity, techno-insecurity and technuncertainty” generated from a person's perspective on using ICT in his or her professional activities. Later on Al-Fudail and Mellar (2008) created a model of “teacher-technology interaction” to explain how instructors feel technostress, whenever there is a disparity between teachers' potential and institutional technology support (e.g., “training and technical support”).

RATIONALE OF THE STUDY: WHY TALK ABOUT TECHNO-STRESS?

The “covid-19 pandemic” has forced the closure of educational institutions, thereby affecting 900 million students globally (UNESCO, 2020). UNESCO also reported that around 91% of total global student activity has been disrupted. As the Covid 19 pandemic spreads, teachers were pressurized to use ICT regardless of the fact that they were ready or not. As a result, this rapid transformation of all teaching offers a chance to examine how effectively teachers were prepared for online teaching and learning (Brooks & Grajek, 2020). In this manner National Education Policy 2020, rightly stated that…

“New circumstances and realities require new initiatives. The recent rise in epidemics and pandemics necessitates that we are ready with alternative modes of quality education whenever and wherever traditional and in-person modes of education are not possible”.

Despite having several positive links between teacher’s technology use and students learning outcomes such as learners engagement in experiential and interactive learning, boosting self-learning and creating pleasurable learning environment (Herold, 2016), many unplanned negative effects are also divulged that may influence the wellbeing of teachers (Al-Fudail & Mellar, 2008) such as techno-stress, information surfeit, mental exhaustion and nervousness and harmfully leads to less productivity among the work-force. Technology-based stress has become a prominent agenda item in many fields such as ergonomics, computer science, corporate life, and education (Fuglseth & Sorebo, 2014; Tarafdar et al., 2011). In fact, teaching process, like other professions, is also influenced and reshaped by technological advances and the digitalisation process. This fact is much more apparent during the covid-19 pandemic. To this end, Teachers must possess technical expertise and the technological sources to embrace the pedagogical applications of ICT (Espino-Díaz, L et al; 2020). So, in today's "Digital Realm," understanding technostress is critical for implementing preventative programmes both in and outside of the workplace. Therefore, technostress as a result of digital teaching-learning has become a matured field that is being spun out to be researched during Covid-19 times.

LITERATURE REVIEW AND HYPOTHESIS FORMATION

Previous study conducted in the context of techno-stress mostly focused on teachers' technological experiences. In order to conduct future study on the use of ICT in the teaching – learning process, characteristics related to technostress must be considered. In this manner an
attempt has been made to find out the relevant literature in relation with the techno-stress of teachers and to frame out the hypothesis accordingly.

a) **Gender:** Studies suggesting that demographic characteristics, such as gender, influence technostress (e.g. Coklar, A. N., et al., 2016, Marchiori et al., 2019; Coklar & Sahin, 2011, Ragu-Nathan et al. 2008). Studies like Shepherd (2004) and Tarafdar et al. (2011) also stated that gender had a considerable impact on techno-stress. Estrada-Muñoz, C., et al (2021), & Syvänen et al. (2016) revealed that techno-fatigue, techno-anxiety and stress factors are higher among female teachers. Penado.A.et.al. (2021) also showed that Female teachers were adversely affected by the negative effects of technology. While some authors like (Goddard, 2011; Gokbulut, 2021, Wang, Shu & Tu, 2008,) argued that gender does not have any significant influence on technostress. Coklar & Bozygit, (2021) also revealed that gender is not an important variable for technostress. Bode, (2017), Indicated, the fact that the use of digital technology, which previously required more technical skills requires less technical skills with the opportunities such as social media, internet tools, mobile technologies, has paved the way for females to be more competent than males in using technology in certain subjects and reduced the gender effect in the digital divide .Similarly, Arif, Walayat and Atiq (2011) stated that women in most developed and developing countries now have access to more technology and they now have significant gains.

b) **Length of Services/Teaching Experience:** Studies also suggests that techno-stress is influenced by length of services (e.g. Coklar, A, N, et al. 2016). Penado.A.et.al. (2021) revealed the instructors who were mostly influenced by the negative effects of technology were older teachers, with more years of experience and those who hold a higher rank, because they often struggle to keep up with the developing technology and the pedagogical innovations that come with it. (Tarus et al., 2015; Voet & De Wever, 2017). Syvänen et al. (2016), revealed that more experienced teachers, were more stressed. While as Longman (2013) examined the levels of techno-stress in teachers with fewer than 10 years of experience and those with more than 10 years of experience, and found that the length of service had no effect on techno-stress. Tarafdar et al. (2011) argued that young folks were more tech-savvy, but experienced staff reported lower degrees of techno-stress, because they possess better skills to cope with stress.

c) **Online Teaching Learning Shift:** Studies also suggested that the online shift of teaching and learning during the covid-19 triggers techno-stress among the teachers. (Panisoara et al.2020) indicated that “burnout and technostress” have a detrimental impact on the intention to continue online teaching during COVID-19 pandemic. Demjaha et al. (2015) indicated that, among the main stress-causing elements in teachers, are the change in terms and conditions related to work without proper consultation, inadequate resources to execute the work, and inadequate training. Penado Abilleira M, et al (2021), also revealed that, teachers from face-to-face mode are likely to have a higher level of technostress during Covid-19, than those who do their teaching functions online on a regular basis. Therefore, from the above mentioned literature review we hypothesised that, i) Techno-stress is influenced by gender ii) Techno-stress is influenced by teaching experience and iii) Online teaching-learning shift causes techno-stress among senior secondary school teachers.
METHOD

Research Design

The present study used the “mixed method research design”, adopting mixed methods to examine data from a particular research study yields converging evidences, increases the consistency of outcomes (Creswell, 2014). “Mixed method approach” is vital in educational research (Yin, 2006). It amalgamates the strengths of diverse research methods to proliferate data accuracy, enables the creation of a more comprehensive picture of a new phenomenon (Creswell, 2014).

Instrumentation / tools used: i) Teachers' Technostress level determination scale by, Coklar, A. N., Efifi, E., & Sahin, L. (2017) was used to extract the required data. The scale is consisted of 28 items with 5 dimensions viz, i) “Learning-Teaching Process Oriented”, ii) “Profession Oriented”, iii) “Technical Issue Oriented”, iv) “Personal Oriented”, and v) “Social Oriented” and ii) Semi-structured and in-depth interview also used to extract the qualitative data.

Sample: 300 senior secondary school teachers were selected through “stratified random sampling” technique, furthermore 20 telephonic interviews were also conducted on the basis of extremely high scores among the initial sample.

Procedure

Teachers' Technostress level determination scale was employed to extract the required data. Keeping in view the COVID-19 contagion and the social distancing norms. The questionnaire was distributed with the help of Google form. The respondents were communicated before the link was sent.

OBJECTIVES AND RESEARCH QUESTIONS

i) To find and compare techno-stress among senior secondary school teachers on the basis of gender.

ii) To find and compare techno-stress among senior secondary school teacher on the basis of teaching experience.

iii) To what extent does online teaching learning shift (OTL shift) influences techno-stress among the secondary school teachers?

HYPOTHESES

i) H1. There is significant mean difference between male and female senior secondary school teacher on techno-stress.

ii) H1. There is significant mean difference between more experienced teachers and less experienced teachers on techno-stress”.

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DATA ANALYSIS AND INTERPRETATION

The collected data was analysed by using SPSS.25. And any significant mean difference on the basis of gender and teaching experience was estimated with the help of test of significance (t-test).

a) Prevalence Analysis

Prevalence of Techno-Stress Among Senior Secondary School Teachers

<table>
<thead>
<tr>
<th>Levels</th>
<th>overall sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level</td>
<td>18.33%</td>
</tr>
<tr>
<td>Moderate level</td>
<td>52.34%</td>
</tr>
<tr>
<td>Low level</td>
<td>29.33%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

The results acquired in the Coklar, Efilti, Sahin (2017) technostress questionnaire disclosed a moderate level of technostress among the senior secondary school teachers. Majority of the teachers were located at moderate level i.e. 52.34%, while as 18.33% and 29.33% teachers were found at high and low level of techno-stress scale respectively.

b) Comparative Analysis

i) Test of significance on the basis of gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S. D</th>
<th>t-value</th>
<th>Sig.level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>150</td>
<td>93.40</td>
<td>4.091</td>
<td>6.04</td>
<td>0.01</td>
</tr>
<tr>
<td>Female</td>
<td>150</td>
<td>95.51</td>
<td>4.083</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A perusal of the table 1.1 indicated that the computed t-value (6.04) came out to be significant at 0.01 level of significance. Which means that there is a significant mean difference between male and female senior secondary school teachers on techno-stress. As indicated by the mean scores female teachers were found to have higher levels of techno-stress as compared to male teachers. Hence the hypothesis number 1", which is stated as “There is significant mean difference between male and female senior secondary school teacher on techno-stress” stands accepted. The results were further elaborated with the help of a figure.
Fig.01

Measured on a 28 point Likert type techno-stress scale (The higher one scores, the higher is the techno-stress level), it is indicated that the mean score among the male group is less than the female group. It reveals that techno-stress is generally observed high among female teachers.

ii) Test of significance on the basis of teaching experience

Table 1.2

<table>
<thead>
<tr>
<th>Teaching experience</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t-value</th>
<th>Sig.level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 15 years</td>
<td>150</td>
<td>96.5</td>
<td>5.032</td>
<td>5.49</td>
<td>0.01</td>
</tr>
<tr>
<td>More than 15 Years</td>
<td>150</td>
<td>99.4</td>
<td>4.089</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A perusal of the table 1.2 indicated that the computed t-value (5.49) came out to be significant at 0.01 level of significance. Which means that there is a significant mean difference between less and more experienced teachers. More experienced teachers were found more prone to techno-stress as compared to less experienced teachers. Therefore, hypothesis number 2nd, which is stated as “There is significant mean difference between more experienced teachers and less experienced teachers on techno-stress” has been accepted. The results were further elaborated with the help of a figure.

Fig: .02
Measured on a 28 point Likert type techno-stress scale (The higher one scores, the higher is the techno-stress level), it is indicated that the mean score among more experienced teachers is greater than the mean scores of less experience teachers. It indicates that techno-stress is observed high among more experience teachers.

QUALITATIVE ANALYSIS

Findings

The data for the present objective was collected with the help of indepth interviews. Those teachers were taken into consideration for the interview, who were found to have higher degrees of techno-stress. The questions were open ended with plenty of scope for both interviewee and interviewer in order to delve deeper into the facets vital for techno-stress among the teachers. The analysis yields that the unplanned online teaching and learning shift has caused a lot of techno-stress among the teachers during the covid-19. One of the teachers conveyed that,

“A sudden shift of entire teaching-learning system has caused a lot of technostress among the teachers, and it is possible that not all teachers are capable of utilising technological tools in their teaching and learning processes. If they are unaware of or unable to use ICT tools, it causes teachers to be stressed when using ICT tools”.

It was also found that some teachers (usually more experienced teachers) were totally frustrated due to sudden shift of teaching –learning system. It was reported that inadequate knowledge and abilities about the appropriate use of ICT in education has caused hesitation among those teachers to teach online effectively, and might also induce techno-stress. Many teachers have been reluctant to adopt technology and are enduring stress as a result of doing so. Another teacher reported that

“Due to technophobia, frustration, anxiety, bewilderment, and stress were obvious during the OTL shift”.

Some of the teachers were of the opinion that due to the unprepared shift to online teaching, the problem of having to deal with more chores and doing them faster, i.e., work-overload and time constraints have caused stress among the teachers. As reported by another teacher…

“The constant need to acquire new technical skills, has pushed teachers under a lot of techno-stress”.

So it has been observed that teachers were challenged with the unexpected difficulty of only teaching online. They faced numerous challenges in doing so, most of which were around the necessity to re-design instructional methods for their learners. It was also revealed that some teachers were feeling exhausted while using ICT tools, and it was evident that some teachers were showing reactions like behavioural strain as well. Without any doubt, OTL shift has had a negative impact on both the desired learning outcomes and the interactive aspect of the education system.
DISCUSSION

The present study is comparative in nature, intended to study the effect of gender and teaching experience on “techno-stress” among senior secondary school teachers. Moreover, the research study was also intended to examine the impact of online teaching learning shift on techno-stress during the covid-19 period. Coming to the results of comparative analysis, it has been indicated that there exists a significant mean difference between the male and female secondary school teachers on techno-stress. Female teachers were found to have higher levels of techno-stress as compared to male teachers. The results are also supported by Tarafdar et al. (2011) they stated that gender had a considerable impact on techno-stress. Penado.A.et.al. (2021) also showed that female teachers were adversely affected by the negative effects of technology. The results of test of significance based on teaching experience revealed that more experience teachers were found to have higher levels of techno-stress as compared to less experience teachers. The results are in consonance with the results presented by Syvänen et al. (2021), they reported that more experienced teachers, were more stressed. Penado.A.et.al. (2021) revealed the instructors who were mostly influenced by the negative effects of technology were older teachers, with more years of experience and those who hold a higher rank. The results from the qualitative analysis revealed that the sudden online teaching learning shift has strongly influenced techno-stress among senior secondary teachers. Factor like techno-phobia, less ICT competence among teachers and increased work-load were found to have steered techno-stress among the senior secondary school teachers.

CONCLUSION

Teaching is generally accepted as a high-stress job. In recent years, new methods of teaching and learning have emerged, and the present pandemic is hastening this development. The major concern is that the online learning quality relies on the degree of digital advancement, admittance and effectiveness of teachers, how well the content is planned and curated. Instructors from face-to-face institutions, had to make the most modifications during their confinement by adopting technological platforms and resources that were not available previously in their prior teaching context. According to the results of the study female and more experienced teachers were found more prone to techno-stress. So therefore efforts to minimize the stress linked with the use of technology in education must be implemented and it is imperative to address the technological shift in education with confidence while seeking to avoid the hazards that come with it.

REFERENCE


National Education Policy (2020) retrieved from: NEP_Final_English_0.pdf (education.gov.in)


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