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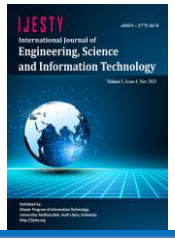

Proposed Model for Navigating Digital Learning and Examining the Stress of EdTech

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Abstract

The swift integration of information and communication technology (ICT) in education has introduced various tools for teaching, giving rise to concerns about technological stress (technostress) among teachers. While prior research has acknowledged the potential correlation between ICT and stress, a comprehensive investigation into the specific stressors affecting teachers is lacking. This exploratory research aimed to put forth the intricate relationship between educational technologies (EdTech) usage and stress among teaching professionals, shedding light on factors influencing technostress and its impact on teachers' individual lives. The comprehension of the wider ramifications associated with the integration of technologies in the field of education. The proposed model determines various stress reasons caused by digital learning platforms, which can help with the remedy measures based on the model findings. The methodology was explicit, multifaceted, and quantitative. Data from 152 teaching professionals were rigorously analyzed, with demographic questionnaire frequencies calculated using SPSS version 22.0 and hypotheses assessed using SmartPLS version 4.0. A Cronbach's alpha of 0.915 indicated that the questionnaire's queries exhibited high reliability. The findings revealed a robust correlation between stressors and their substantial effect on teachers' overall well-being, job satisfaction, and commitment to their respective organizations, emphasizing the significance of addressing technostress in the education sector.

Keywords: *ICT, Technostress, Stressors, Exhaustion, Organisational Commitment, Job Satisfaction.*

1. Introduction

Technostress is a phenomenon of the current day that is raising concerns in a variety of professions throughout the world. The effects of technological stress on teachers navigating technology in their classrooms. It is critical to comprehend how EdTech impacts teachers' psychological well-being as it becomes a fundamental component of educational institutions. This research can aid in upgrading learning settings in the digital era that are more sustainable.

Technology has emerged, frequently incorporated into all sectors due to the rapid growth of technical gadgets [1], particularly in information technology (IT). Even if IT proves advantageous and required, it has also caused additional problems for instructors who are referred to as technostressed. Technostress in the workplace is acknowledged to be a factor in the recurrence of health and quality-of-life difficulties, which can have far-reaching effects.

The widespread adoption of ICT has led to significant and beneficial improvements in the educational system, making information accessible from everywhere [2]. Digital curricula transform the practice of traditional education and improve outcomes across a range of fields [3]. The COVID-19 pandemic-related circumstances drove the exponential growth in the relevance of ICT tools, and concerns about technostress arose as a significant cause of concern.

Multimedia classrooms and digital textbooks are considered fundamental abilities for teaching in this digital era. Teachers' stress levels are significantly impacted by these EdTech. Instructors frequently feel quite stressed and anxious while utilising EdTech in the classroom. Figure 1 provides a thorough understanding of the ways that instructional technologies, such as ICT, influence instructors. It shows how these technologies affect professional development, workload, and teaching techniques. Teachers can have physical, social, and psychological issues because of adopting new teaching strategies and feeling more pressure to learn technical skills. Burnout, tiredness, and a lack of dedication to one's profession are signs of stress and worry. It is imperative to have a deeper comprehension of and act against the effects of EdTech on the mental and general well-being of teachers.

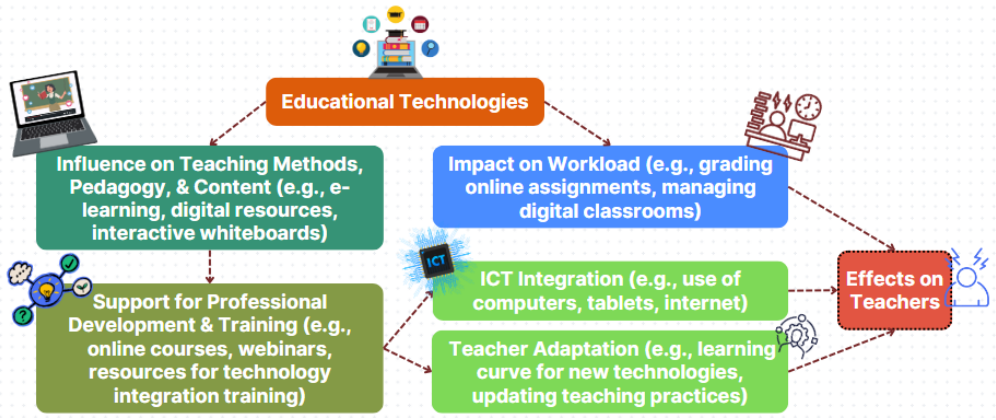

Fig 1. EdTech Effects on Teachers.

Clinical psychologist Craig Brod came up with what he termed "technostress" in 1984 [4]. He defined it as a contemporary ailment brought on by an incapacity to manage ICTs in an upright manner. A paradigm for measuring technostress was outlined [5] that was developed by factor analysis of a survey of 1013 professional ICT users, which revealed 13 crucial components that account for 59.13% of the variation. Instructors feel a moderate degree of technological stress [6], with variances in sub-scales but no appreciable differences depending on one's gender or the duration of the service, except for an average number of hours spent on the internet.

To comprehend how technostress can alter throughout career stages, statistics on instructors' experience levels are crucial. When incorporating EdTech into their lesson plans, teachers with different degrees of expertise can face distinct possibilities and challenges. The sampled teachers had an extensive spectrum of experiences, including both ICT training and a lack thereof, in this research as illustrated in Fig. 2.

Approximately 15.8% of the participants have less than 5 years of teaching experience, representing those who are relatively new to the profession. In the 6-10 years of experience category, which makes up 19.7% of the total sample, we find teachers who have reached a mid-level of experience in their careers. Those with 11-15 years of experience constitute about 25% of the sample, reflecting a substantial amount of teaching experience. The most experienced group, including teachers with over fifteen years of teaching expertise, accounts for nearly 39.5% of the total sample, signifying a wealth of expertise. With each group perhaps encountering unique possibilities and obstacles in integrating technology into their teaching practices, these disparate degrees of expertise are crucial to understanding how technostress appears differently across different phases of a teaching career.

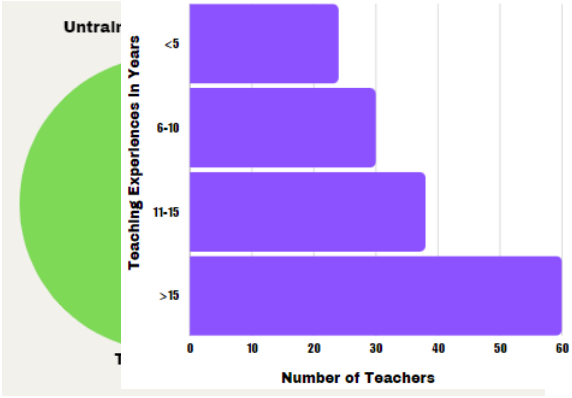

Fig 2. Teachers varied in their Teaching and ICT Experiences.

1. The proposed model provides an intricate comprehension of the stresses confronting teachers by examining the specific factors (Work Overload, Work-Home Conflict, Invasion of Privacy, Role of Ambiguity, Exhaustion, Job Satisfaction and Organisational Commitment), considering EdTech inclusion into academic settings.
2. The effects of teachers' broad use of EdTech resources are addressed in their private and professional lives, focusing on the technical demands.
3. It considers varied degrees of teachers' expertise when investigating how technostress appears across the career phases, as evidenced by the broad spectrum of teaching experiences, which ranges from less than five years to more than fifteen years.
4. Computer self-efficacy can be a mitigator of technostress, emphasising professional development to bolster teachers' digital resilience.
5. It comes up with holistic approaches that can elevate a resilient educational atmosphere.

Section 2 lays the groundwork for the construction of the research model and hypotheses and provides insightful information about the intricate interactions between technical difficulties and teachers' well-being. Section 3 outlines the research methodology and demographic profile, while Section 4 assesses the validity of proposed models and explores the measurement and structural aspects,

validating hypotheses, with a focus on technostress causes. Section 5 discusses instructors' technostress challenges, offering professional development and work-life balance for a positive technological experience. Section 6 underscores the need to research psychological effects and advocates for training and resilience-building in technology-rich instructional settings. Section 7 brings up key insights into cultivating cognizant learning spaces worldwide. Section 8 articulates how the use of EdTech causes tech-nostress in teachers, which is correlated with increased workloads, lower job satisfaction, a disturbed work-life balance, and perhaps deleterious impacts on individuals' lives.

2. Literature Review

Stress is characterised as a state of mental strain and tenseness that can affect all individuals throughout the span of their lifetime. An adverse consequence of engaging with technology is called technostress, and the dread of utilising ICTs causes animosity, anxiety, and strain. The way ICT is used to enhance the teaching and learning process evolved from the first decade of the seventies with the advent of internet technologies. Technology enabling collaboration among learners has diversified from enabling learners to grow individually. The adoption of cutting-edge EdTech and techniques in collaborative environments stimulates the advancement and dissemination of pertinent material, fosters socioemotional contact, monitors, and supports ongoing engagement, and provides feedback to those involved in the most effective conceivable way. Figure 3 illustrates the literature taxonomy.

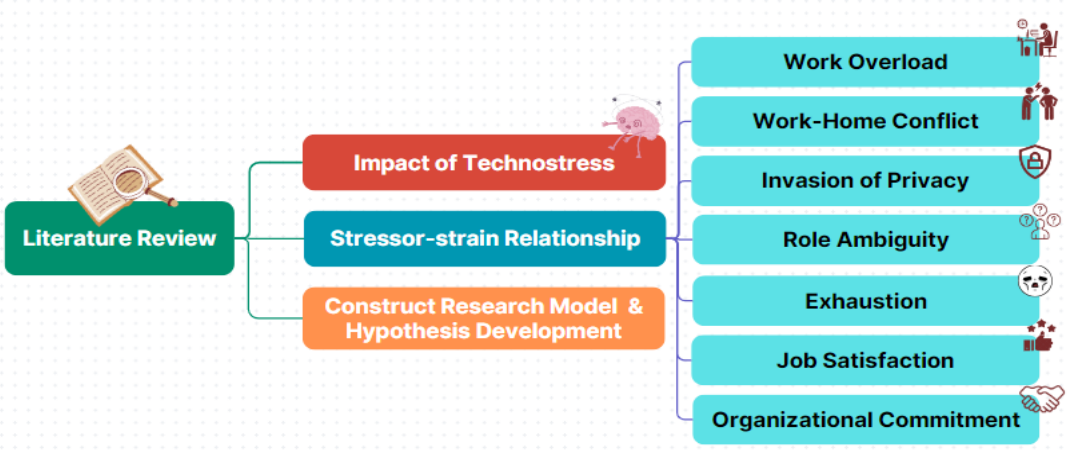

Fig 3. Literature Taxonomy.

2.1. Impact of Technostress

Even though the area of ICT has made amazing strides and greatly benefited human civilisation, mounting evidence points to the "Dark Side" of ICT for everyone [7, 8]. When a person perceives that expectations made by their surroundings are greater than their capacity to meet those expectations, stress results in endangering their health. Stressors are the stimuli that someone encounters, and strain is the psychological reaction to the stressors. Terms interpreted concerning stress are highlighted in Table 1.

Research findings identified a profound connection between technological stress and behavioural intention regarding the Internet for education [9]. Technology can threaten our prescribed standards and behavioural patterns that help us adapt to our surroundings, which would cause negative emotional responses like feeling anxiety and fear [10]. Technostress analysis demonstrates that technological characteristics lead individuals to become aware of stresses, which prompts them to react to such stressors cognitively or behaviourally. From a methodological perspective, perceptual data and information systems (IS) techniques are used to quantify the influence of stresses on psychological and behavioural reactions.

Table 1. Terms Related to Stress.

Term	Interpretation
Stress	It is the body's response to perceived challenges or threats. It leads to physical and emotional tension.
Stressors	These are specific events or situations that trigger stress. It can be either external (e.g., demanding job) or internal (e.g., personal worries).
Strain	It is the emotional and physical discomfort or pressure experienced because of stress. It often manifests in symptoms like fatigue and anxiety.
Distress	It is detrimental to stress, causing anxiety, unease, and suffering with adverse effects. It has an impact on mental and physical health.
Work-related stress	It arises from job demands and pressures. It is potentially caused by factors like high workloads and interpersonal conflicts at the workplace.
Technostress	It occurs when individuals feel overwhelmed, anxious, or incapable of complying with all the technical demands. The intricacies of technology emerge in both personal and professional spheres, impacting several facets of their daily regimens and posing obstacles that need flexibility and continuous education.

A substantial and adverse relationship between technostress and teachers' compliance to utilise web-based resources came to light in specific investigations [11]. Employees engaging in personal internet activities during work hours negatively impact productivity and cause psychological effects [12]. Excessive use of social network services (SNS) can result in exhaustion (EX) and frustration, potentially causing users to consider discontinuing their SNS use [13]. Technostress factors reduce job satisfaction, which in turn reduces

organisational and continuation commitment, whereas technostress inhibitors raise both operational and continual dedication and job satisfaction [14]. Compared to male instructors, female teachers had a reduced frequency of technological Ex and stress [15].
It should come as no surprise that the technological integration of workplace environments has been linked to elevated employee stress levels [16]. Certain researchers also stated that stress is rising because of the additional workload [17, 18], suggesting that there can be an assortment of adverse consequences. A few studies have proposed strategies to lessen technostress, such as providing adequate technical support and training [19]. Open-source instructional resources and peer support for utilising new technologies both aided teachers in dealing with their technological strain [20, 21]. Technostress includes increased anxiety, reduced job satisfaction, impaired work performance, and various health issues, such as eyestrain and sleep disturbances. The severity and specific consequences of technostress can vary depending on the extent of technology use, the individual's ability to manage it, and the level of support and resources available.

2.2. Stressor-Strain Relationship

It refers to the cause-and-effect connection between the stressors (factors that induce stress related to technology) and the strains (the resulting physical or psychological outcomes) experienced by individuals. The usage of ICT can be problematic for individuals since it can lead to a variety of pressures, such as job instability, role ambiguity, and exhaustion [22, 23]. Table 2 lists a few stressors' names and their explanation. The stressors include factors like excessive workload due to technology, constant connectivity expectations, or the pressure to adapt to new digital tools. The strains encompass the tangible effects of these stressors on the teachers, such as reduced job satisfaction, burnout, anxiety, or even physical health issues like eyestrain.

Table 2. Names of Stressors with Definitions.

Stressors	Explication
Work Overload (WO)	It refers to a situation in which an individual has an excessive amount of work or tasks to handle within a limited timeframe. It is often results in stress and decreased performance.
Role Ambiguity (RA)	It occurs when an employee is uncertain about their job responsibilities. It leads to confusion and stress due to unclear expectations.
Work-Home Conflict (WHC)	It is also known as work-life conflict, which happens when the demands of one's job clash with their personal life. It creates tension and difficulties in balancing work and home responsibilities.
Invasion of Privacy (IP)	It involves an unwarranted intrusion into an individual's personal space, information, or boundaries, often in a workplace context. It causes discomfort and stress.
Job Insecurity (JI)	This is the fear or uncertainty about the stability and longevity of one's employment. It can lead to stress and anxiety about one's financial and career future.
Job Satisfaction (JS)	Employees' general level of fulfilment with their occupations is referred to as job satisfaction. It includes considering several aspects such as the influence on individual lives, compliance with company policies, and interactions with administrators and other personnel.
Organisational Commitment (OC)	It expresses how engaged and committed a group of people are to their organisations. It considers the particular roles they perform.

Technostress, defined by its creators and inhibitors, impacts JS, OC, and employee outcomes [24, 25]. It involves stressors like constant connectivity and information overload, and factors like knowledge sharing and technical support that can either exacerbate or mitigate its effects on employees and organisations.

2.3. Work Overload

Workload and work overload have distinct meanings depending on how much time or capacity somebody perceives they must meet these expectations. Workload and employee performance were shown to be significantly correlated, with technostress serving as an intervening component in the connection [26]. Techno-fatigue appears to be correlated more closely with organisational factors [27] like workload and the number of activities required than with individual factors like one's gender, age, or experiences. The impact of WO on EX was completely influenced by extended working hours [9], with autonomy playing a moderating role in the long-term effects of work overload on EX.

2.4. Work-Home Conflict

An individual's learning and mastering demonstrates that emerging technologies can be advantageous in minimising concerns connected to techno-complexity, techno-insecurity, and techno-invasion if it does not end up in im-proper utilization and concerns with work-home conflicts. The impact of regular favourable and adverse impacts on relationship happiness were both stated to be considerably strengthened by work-home coordination [28]. The homework integration's moderating impact on the relationship between technological stress and workplace stress [29]. Teachers dealing with technology-related challenges or demands spill over into their personal lives, causing tension and difficulties in managing their work and home responsibilities, ultimately affecting their overall well-being and work-life balance.

2.5. Invasion of Privacy

When personal information is exposed due to the usage of ICT at work, it is deemed to be an IP. Users are becoming more concerned about privacy because of how heavily reliant ICT sleek jobs and daily routines are. People's perceptions of privacy invasion are aided by technology's invasive aspects. University professors who teach online feel as though their privacy has been violated, which raises privacy issues. Recent studies have shown that protecting instructors' privacy is a key concern when it comes to online instruction [30, 31]. In this perspective, instructors might consider a privacy invasion as threatening.

2.6. Role Ambiguity

When roles and inhibits lack clarity [32], RA is a pertinent problem since it causes employee discomfort. The lack of structure and order for what is expected of educational institutions has a significant influence on teacher's lives. Employees are under pressure when their roles are ambiguous because they lack the information needed to accomplish their jobs appropriately [33], resulting in an environment where anxiety is constant. Role ambiguity and role conflict are frequently considered stressors in job environments[56-57].

2.7. Exhaustion

The usual state of exhaustion, also referred to as weariness, can be brought on by changes in regularity, issues with a person's life, or disturbed sleep patterns. Work exhaustion is a condition of both physical and mental depletion brought on by extended exposure to stresses at work, and it can be induced by job-related stress. Technostress affects workers' health while employed by depleting their physical and emotional resources (i.e. job weariness) [34]. This unforeseen impact could be mitigated by a perceived understanding of variety at employment.

2.8. Job Satisfaction

The existence of ICT affects teachers' working circumstances. Aspects of the teaching occupation are potential causes of stress and emotional harm [35]. The usage of ICT can be advantageous for users. However, it can also have detrimental effects on teacher well-being, efficiency, and JS. Teachers encountered extensive EdTech usage in digital learning, which has a severe influence on their academic achievement and standard of living [36]. Additionally, their responsibilities escalated, so they were required to work considerably harder to adapt to modern technology amid the COVID-19 pandemic. Teachers' technostress and work satisfaction are likely to be severely impacted by the social, pedagogical, and technological challenges they encounter during the distance learning process.

2.9. Organisational Commitment

The working environment in recent times is highly dynamic and has changed quickly due to technological advancements. Perhaps more than any other factor, organisations require candidates with an OC in addition to a strong set of hard and soft abilities, even in the face of significant changes in the workplace and technological breakthroughs. OC from employees is essential and desired to guarantee efficient workflow and the long-term viability of the operation.

Techno-overload and techno-uncertainty positively affected OC [37]. Job discontent is correlated with increased degrees of digital work acceleration [38]. Technology stress is inversely correlated with instructors' perceptions of their computer-using efficacy [39]. IT expertise significantly influences OC, and OC significantly influences teacher performance [40]. The association between work-family associations and OC is partially mediated by work-related stress [41]. Perceived OC is extremely and adversely impacted by technological stress [42].

2.10. Construct Research Model and Hypothesis Development

Developing a model with the required stressors is challenging. The influence of stressors on satisfaction with one's job and OC is recognised based on the assessment of several studies on technostress. Additionally, it came to light that stress can pull in technologically induced stressors. The current research concentrates mainly on the effects of technostress, fatigue, and stressors on teachers. The proposed model depicted in Fig. 4 connects the effects of technostress, exhaustion, and stressors. Consequently, the following hypotheses are put forth in Table 3.

Table 3. Research Hypothesis Development.

H1a	Perceived work overload has a positive and significant relationship with exhaustion.
H1b	Perceived work-home conflict has a positive and significant relationship with exhaustion.
H1c	Perceived invasion of privacy has a positive and significant relationship with exhaustion.
H1d	Perceived role ambiguity has a positive and significant relationship with exhaustion.
H2	Exhaustion has a positive and significant relationship with job satisfaction.
H3	Exhaustion has a positive and significant relationship with organisational commitment.

ICT users report experiencing WHC, IP, WO, RA, and JI as techno stressors [33]. A variety of technological stressors became apparent without considering the users' employment, such as WHC, IP, and RA [43].

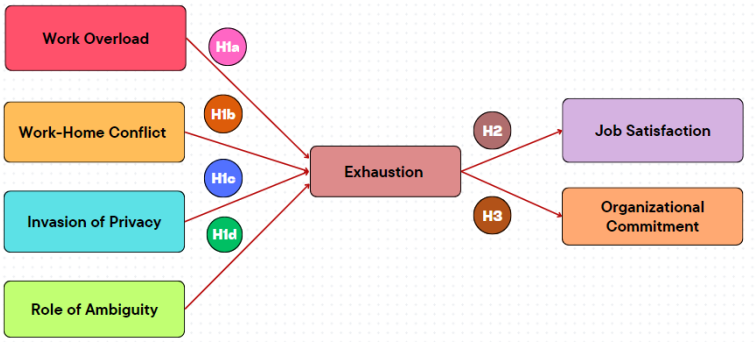

Fig 4. Proposed Model.

JS and OC dependent variables. Stressors WO, WHC, IP, and RA are all independent variables. EX is dependent on these independent variables, and dependent variables are dependent on EX. However, the relevance of technostress in the educational sector cannot be neglected, following the literature at present.

3. Methods

Numerical data collection and analysis are crucial components of quantitative research that are needed to validate assumptions and identify outcomes related to research concerns. Data was collected through questionnaires using closed-ended questions and standardised measures. This allows for comparisons, correlations, and the identification of patterns and trends. The hypotheses and theories are investigated to determine if there are statistically significant relationships between variables.

3.1. Survey Questionnaire Development

The formal questionnaire list was developed, and the adapted questionnaire resources are stated in Table 4. 18 questions were asked to evaluate the hypothesis. All evaluations were made using a Likert scale, which ranges from 1 (strongly disagree) to 7 (strongly agree). The Neutral option was given to make the replies a bit more flexible.

Table 4. Questionnaires Adaptation

Antecedents	Adapted from	Year
Work Overload	[44]	2022
Work-Home Conflict	[34]	2023
Invasion of Privacy	[34]	2023
Role Ambiguity	[45]	2023
Exhaustion	[44]	2022
Job Satisfaction	[36]	2022
Organization Commitment	[46]	2015

3.2. Data Collection Procedure

A total of 200 closed-ended surveys were distributed to the teachers at multiple institutions of educational excellence, and 152 of them were returned filled out and suitable for data analysis and interpretation. The actual response rate is 76%. Two components comprise the questionnaire. The first half concentrated on items to gauge the components of the research model, while the second segment retrieved demographic information.

3.3. Demographic Profile

Table 5 presents demographic information about the respondents that was obtained using descriptive analysis. Male respondents made up 77% of the total, while female respondents made up 23% of the total, as depicted in Fig. 5. The observed disparity in gender, wherein there is a greater percentage of male teachers than females, is indicative of the existing demographic dispersion in the academic sectors. This inclination reflects a larger trend in several academic institutions where men get involved predominantly, which influences the gender composition of the participant pool.

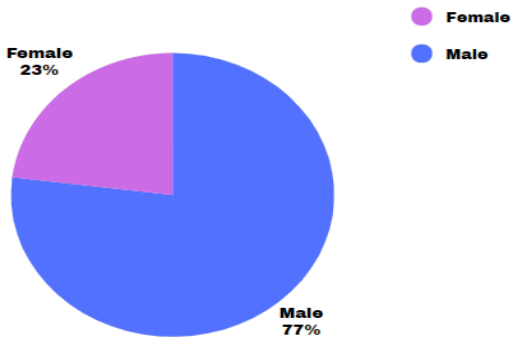

Fig 5. Responded Population Gender Percentages.

The majority of instructors have been in the profession for more than 15 years, and 96% of their subject areas are the arts. A significant 54.6% of instructors report spending 1 to 5 hours a day on ICT or IS. Most professionals have ICT training.

Table 5. Demographic Information

Category		Frequency	Percentage
Gender	Male	117	77
	Female	35	23
Experience	Less than 5 years	24	15.8
	6-10 years	30	19.7

	11-15 years	38	25
	Greater than 15 years	60	39.5
Education	HSC	8	5.2
	Bachelor	91	59.9
	Postgraduate	53	34.9
Teaching Area	Arts	96	63.2
	Science	40	27
	Commerce	16	10.5
Spent per Day with IT/IS	Less than 1 hour	35	23
	1-5 hours	83	54.6
	6 to 10 hours	34	22.4
ICT Training	Yes	146	96.1
	No	6	3.9

3.4. Results

The frequency of the demographic questionnaire was analysed using Statistical Package for Social Sciences (SPSS) version 22.0, and the hypotheses (relationship between the variables) were tested using Smart Partial Least Squares (SmartPLS) version 4.0.

3.4.1. Average Variance Extracted

Average variance extracted (AVE) is a metric used to assess convergent validity. It quantifies the proportion of the variance in the observed indicators that is explained by the underlying construct. AVE values greater than 0.5 are typically considered acceptable, indicating that a substantial amount of the variance in the items is due to the construct they are meant to measure.

3.4.2. Convergent Reliability and Discriminant Validity

Convergent Reliability (CR) is another measure of internal consistency and reliability. It assesses the extent to which the items in a construct are consistent and reliable measures of that construct. A CR value greater than 0.7 is typically considered good. Discriminate Validity (DV) is typically evaluated within the context of a measurement model, which includes multiple constructs and their corresponding indicators or items.

3.4.3. Measurement Model

We evaluated the measurement model, which considered CR, AVE, and DV. The AVE for all aspects and the CR of each scale were used to evaluate convergent validity [47]. Table 6 demonstrates that the constructs exhibit good internal consistency (as indicated by CR values above 0.7) and strong convergent validity (as indicated by AVE values above 0.5). These results suggest that the measurement model used is reliable and that the items effectively measure the intended constructs.

Table 6. Convergent Reliability and Average Variance Extracted

	Convergent Reliability	**Average Variance Extracted**
EX	0.888	0.622
IP	0.846	0.581
JS	0.854	0.663
OC	0.800	0.571
RA	0.794	0.581
WHC	0.823	0.610
WO	0.841	0.639

The degree to which items are differentiated among constructs or measure distinct concepts (after assessing the CR and DV). HTMT (Heterotrait-Monotrait) is a statistical measure that compares the correlations between items that measure different constructs (heterotrait) with the correlations between items measuring the same construct (monotrait). As shown in Table 7, HTMT ratios for all construct pairs were less than the threshold level (0.85), and there was no value of 1 in any of the constructs' confidence intervals. This is a positive outcome and demonstrates that the measures used here are distinct from each other, supporting the conclusion of good DV.

Table 7. Latent Variable Correlations (Discriminate Validity

	EX	**IP**	**JS**	**OC**	**RA**	**WHC**	**WO**
EX	**0.789**						
IP	0.492	**0.763**					
JS	0.557	0.215	**0.814**				
OC	0.578	0.282	0.679	**0.756**			
RA	0.300	0.392	0.327	0.254	**0.762**		
WHC	0.640	0.361	0.508	0.469	0.438	**0.781**	
WO	0.522	0.323	0.498	0.506	0.540	0.679	**0.799**

The diagonal interpreted the square root of AVE, while the remaining records indicate a squared correlation. The DV (the degree to which items differentiate among constructs) was evaluated by following the criterion of regression coefficients between constructs and the AVE square root for that construct. All values on the diagonals are higher than the equivalent amounts in the row and column, indicating that the findings are discriminant.

3.4.3.1. Structural Model

Table 8 and Fig. 6 depict the results of a structural model analysis. The hugeness of the speculation is estimated by the importance level of every way coefficient. The relationship between EX on JS and OC has a significant positive impact. We got Ex (β= 0.557, p < 0.01) on JS and EX (β= 0.578, p < 0.01) on OC. This supports our H2 and H3. We also found IP (β= 0.317, p < 0.01), RA (β= 0.119, p < 0.01), WHC (β= 0.462, p < 0.01), and WO (β= 0.170, p < 0.01) have a significant positive impact on EX.

Table 8. Structural Model Result

	Relationship	Path Coefficient	T Value	Remark
H2	**EX -> JS**	0.557	9.882	Supported
H3	**EX -> OC**	0.578	11.049	Supported
H1c	**IP -> EX**	0.317	4.210	Supported
H1d	**RA -> EX**	-0.119	1.688	Somewhat Supported
H1b	**WHC -> EX**	0.462	5.286	Supported
H1a	**WO -> EX**	0.170	1.846	Supported

An indicator of the direction and intensity of the association among the variables is the path coefficient. A connection is deemed to be positive when there is a positive coefficient (as one variable evolves, the other likewise elevates) or negative when there is a negative coefficient (as one variable goes up, the other drops below). The magnitude of the coefficient provides information about the strength of the relationship. For example, in H2, the path coefficient is 0.557, indicating a positive relationship between EX and JS. A statistical metric used to evaluate the path coefficient's significance is the T value. A greater degree of statistical significance is indicated by a higher T value. Each path coefficient's T value appears in Table 8.

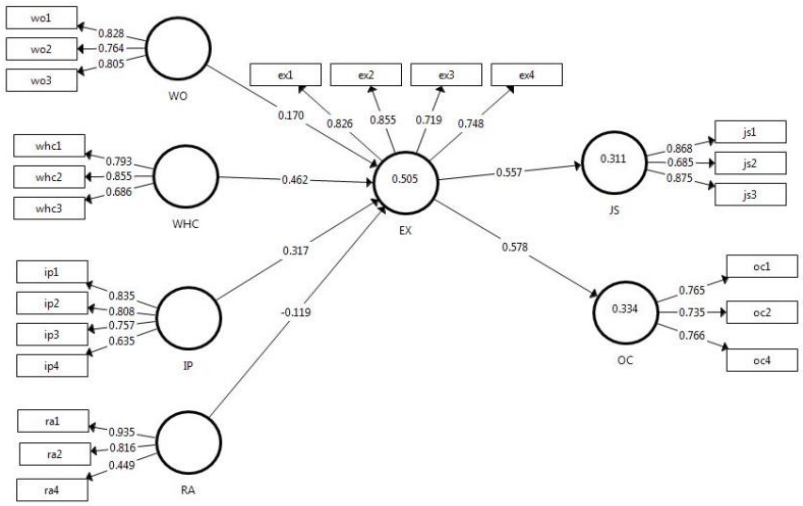

Fig 6. Structural Model.

3.4.3.2. Result Analysis

H2 indicates that EX and JS have a significant relationship, and the path coefficient is 0.557 with a relatively high T value of 9.882. There is evidence supporting this correlation, indicating that increasing EX is correlated with rising JS. H3 indicates that EX and OC have a positive association; the path coefficient is 0.578, and the high T value is 11.049. There are findings to corroborate this relationship, indicating a positive correlation between EX and OC. H1c points to a positive correlation between IP and EX with a path coefficient of 0.317 and a T value of 4.210. The correlation has been supported, suggesting that IP has positive effects on EX. H1d points to a negative correlation between RA and EX with a path coefficient of -0.119 and a T value of 1.688. Although there is a negative correlation, this relationship is somewhat supported, indicating that RA has a detrimental impact on EX. H1b refers to a positive correlation between WHC and EX with a T value of 5.286 and a path coefficient of 0.462. This correlation is supported, meaning that WHC has a positive impact on EX. H1a, which has a T value of 1.846 and a path coefficient of 0.170, indicates a positive association between WO and EX. The correlation has been demonstrated, suggesting that WO has a positive influence on EX. The findings of the structural model analysis validate the connections between the variables as presented in Table 8 and indicate the hypotheses that were demonstrated.

3.4.3.3. Technostress Causes

Here are some major potential causes of technostress specifically for teachers dealing with EdTech:

1. Effects on Pedagogy, Content, and Teaching Approaches: E-learning platforms, digital materials, interactive whiteboards, and other tools and resources are instances of Edtech. These can have an impact on the content that teachers teach, the methodologies they use, and how they deliver lessons.
2. Adaptability: This aspect emphasises how teachers acclimatise to new educational tools. Teachers may feel overwhelmed by the quick advances in technology. Anxiety and tension can be brought on by the requirement to upskill continuously and adjust to new software or gadgets. It entails overcoming obstacles like the learning curve brought on by new technologies and modernising instructional strategies to keep up with emerging trends in technology.

3. Work Overload: When teachers use EdTech in the classroom, they must set aside more time to learn cutting-edge instruments, design digital curricula, and manage online resources. Teachers are prone to feeling overworked due to coordinating these additional technical activities with their regular teaching responsibilities. Technostress can arise if teachers believe that using technology interferes with their ability to do their jobs [48]. Their job satisfaction can decline, and they can experience stress if they feel that technology is making their employment less interesting, adding to their burden, or lowering the quality of education they offer. Understanding the causes of technostress is a crucial step in finding solutions to alleviate the negative impacts of technology on teachers' well-being.

4.4. Discussion

The findings exhibited that the variables investigated have significant relationships with the adjacent ones. Indeed, EX significantly positively impacted both JS and OC, supporting hypotheses H2 and H3. Meanwhile, aspects including WO, WHC, and IP indicated a significant positive influence on EX, confirming the proposed hypotheses and highlighting the crucial part these variables serve in causing technostress in teachers. RA has a modest adverse effect on EX is notable as it implies an intricate relationship that needs further examination. The CR and AVE values demonstrate the measurement model's validity and reliability. The relevance of mitigating technostress in the education sector has been emphasised given this firm analytical basis, which concentrates on the aspects that have been identified as contributing to the betterment of teachers' job engagement and general well-being.

These research findings not only highlight the challenges but also provide a basis for crafting strategies to lessen the detrimental effects of technostress. These strategies can encompass professional development, effective time management, leadership support, and, crucially, addressing concerns related to WHC and RA. Ensuring a positive technological experience for teachers is vital for fostering a conducive educational environment and sustaining the commitment of teachers to their students' growth and development. Teachers who are incapable of assisting pupils in developing competence in a subject in which they lack mastery get demotivated by a lack of digital expertise. A rise in technical sophistication made things more difficult for elderly and experienced professionals [49]. An enhanced comprehension of technostress is provided, including its fundamental causes, facets, and manifestations to add to the pool of knowledge on the subject within the larger context of collaborative education.

In the current environment of community-oriented instruction, the usage of the latest ICT equipment has evolved into one that is increasingly crucial. Collaboration between students and teachers in the classroom is efficiently and successfully facilitated using ICT-empowered collaborative tools. The inability to grab the attention of students in today's community-oriented learning environment would result in a degradation of both financial and socio-viability, responsibility, and fulfilment for both academics and students. The findings indicate that to lower the effects of technostress, strategies should be developed to address the teacher's affectability in a community-oriented instructional environment using special ICT-enabled shared devices.

Married women, especially those with less experience, are more susceptible to technostress, which can have a significant detrimental impact on their family life and way of life, without indicating a disparity in educational accomplishment [50]. Additionally, it was discovered that the emergence of technostress was influenced by people's differing levels of computer self-efficacy. Teachers' job satisfaction can potentially be elevated, and their tech-nostress can be decreased by adequate training and organisational assistance [51, 52].

Prior to implementing new tools and processes in the shared learning environment, higher administration should provide in-depth planning and creative assistance. The administration needs to take the initiative on how to provide the necessary framework to support collaborative learning and teaching. Stress management techniques are essential to counter the incomprehensible.

4.5. Implications and Future Research

Initially, it is essential to research efficient ways to pull in the psychological and behavioural compromise that technostress causes among teachers. There is no denying that EdTech links us on a personal and professional level. However, our stress levels can increase when we use technology more frequently. This research has demonstrated how increased technology use can contribute to problems with stress. It is also obvious that some IT characteristics influence how we live our daily lives. Poor performance at work hurts the company because of technological stress. Following that, teachers should use IS more frequently and handle pressures psychologically and behaviorally. To lessen technological stress, people must cope with efficient time management strategies.

The research effort was carried out in specific educational and technological contexts, which may have limited the universality of the model provided, despite its ability to provide comprehensive insights into the intricate impacts of technostress on teachers. Its application across several institutional, cultural, and educational contexts where the extent, perception, and navigation of technostress vary greatly is one of its prospective drawbacks. It emphasises the significance of contextual adjustments to validate while strengthening the model's viability for employing it in a variety of settings.

Future research can be concentrated on examining strategies to build teachers' resilience to technostress. Explore how training and professional development can enhance their ability to adapt and thrive in a technology-intensive teaching environment. We can continue to deepen our understanding of technostress among teachers and work towards more effective approaches to support their well-being and the quality of education they provide.

4.6. Research Recommendations

To ease technostress among teachers and employees in any organisation is crucial for their well-being and productivity. A few potential mitigation strategies are the following:

1. Comprehensive Training Programs: Provide comprehensive training on the use of technology and digital tools. This includes not only technical skills but also strategies for managing digital workload and ensuring privacy and security. Organise regular workshops and professional development sessions to keep teachers informed about the latest technological advancements, teaching methodologies, and best practices for technology integration.
2. Technical Support and Help Desk: Organisational support plays a crucial role in reducing the negative impacts of stress resulting from frequent use of these technological advances [53-55], which in turn assists personnel in realising the advantages and novel prospects these tools can provide. Offer readily available technical support and a help desk for teachers to quickly address and resolve IT-related issues. It can reduce frustration and stress when problems arise.

3. Collaborative Workspaces: Promote and support work-life balance by encouraging teachers to set boundaries on their availability outside of working hours. It can help to lessen work-home conflict. Teachers should work together to collaborate on efficient methods, overcome challenges, and leverage one another's technological expertise.
4. Data Security Measures: Implement strong data security measures to alleviate concerns about data breaches and privacy invasions. Teachers should have confidence in the security of their digital interactions.

It is essential to recognise that technostress is an ongoing concern in the rapidly evolving digital landscape, and mitigation strategies should adapt to emerging challenges and opportunities. Educational institutions can create a more positive and productive technological environment for teachers by addressing technostress systematically and providing the necessary support and resources.

5. Conclusion

The research findings underlined the vitality of dealing with technostress in the education sector by revealing a strong association between stressors and their significant effect on teachers' general well-being, work satisfaction, and dedication to their particular organizations. All path coefficients are determined to be positively influential and significant in relationships. The impact of technostress on teachers includes increased work pressure, decreased JS, compromised work-life balance, and potential negative effects on overall well-being and teaching effectiveness. It investigates how technostress affects teachers' professional and personal lives in the context of EdTech. It is evident that the adoption of EdTech, while beneficial, can be demanding on teachers.
The proposed model meticulously examines the precise dimensions of technostress and its impact on teachers, illuminating the intricate relationship between technological demands, work-life balance, privacy concerns, and role ambiguities. The findings provide useful insights for educational institutions and administrators to cater to a supportive and technologically harmonious teaching environment for teachers globally, as technology becomes more integral to education. It underscores the substantial impact of technostress on the teaching community.

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