CYBER FATIGUE IN THE CLASSROOM: UNRAVELLING THE COMPLEX WEB OF TECHNOSTRESS AMONG EFL TEACHERS

Afif Ikhwanul Muslimin[1]
Nur Mukminatien[2]
Francisca Maria Ivone[3]
Universitas Islam Negeri Mataram[1]
Universitas Negeri Malang [1,2,3]
afifikhwanulm@uinmataram.ac.id [1]
nur.mukminatien.fs@um.ac.id [2]
francisca.maria.fs@um.ac.id [3]

Abstract

The rapid technological change has affected education globally, ushering in both positive and negative consequences for teachers. This study focuses on the phenomenon of cyber fatigue among teachers, particularly in teaching English as a foreign language (EFL). Hence, it aims to comprehensively investigate the factors contributing to technostress, its effects on the teachers' performance, and the strategies employed to cope with it, while also explores the relationships among these variables. A mixed-method approach, encompassing quantitative data collection through an online survey and qualitative insights gathered through interviews, was employed. The study involved 34 Indonesian EFL teachers spanning various educational levels. Findings revealed that the absence of a technology-based Teacher Professional Development (TPD) program, coupled with the rapid evolution of technology, heightened anxiety among EFL teachers and significantly impacted their teaching performance. However, the resilience and determination of these educators drove them to employ various coping mechanisms, which helped alleviate technostress to varying degrees. Interestingly, the study discovered that not all variables exhibited positive correlations. Specifically, coping strategies did not appear to be correlated with the factors triggering technostress or its effects, suggesting a complex and nuanced relationship in the realm of technostress management among teachers.

Keywords: *coping strategy, EFL teachers, technostress factors, technostress effect, TPACK*

Introduction

In recent years, the rapid development of technology has profoundly impacted various aspects of our lives, including education (Wolff, 2021). Technology advancements have revolutionized how we communicate, access information, and interact with the world. English as a Foreign Language (EFL) teaching, in particular, has witnessed significant changes due to technology integration in the

classroom (Huang, 2022). The EFL teaching domain has seen a surge in the availability and sophistication of digital tools, online platforms, and multimedia resources. Mobile applications, language learning software, virtual reality (VR), and artificial intelligence (AI) are recent technological developments that have reshaped EFL instruction. These innovations provide opportunities for more interactive, personalized, and engaging learning experiences, enabling learners to practice language skills in authentic contexts and explore diverse cultures (Haleem, Javaid, Qadri, et al., 2022).

Moreover, technology has had a transformative impact on EFL teaching methodologies. It has facilitated access to authentic language materials, allowed for real-time communication and collaboration, and enhanced the development of language skills through gamification and interactive multimedia (Shadiev & Wang, 2022). Language learning applications and online platforms allow learners to practice anytime, anywhere, and at their own pace (Haleem, Javaid, Qadri, et al., 2022; Muslimin & Cahyono, 2023). Additionally, technology-supported assessment tools enable more accurate and efficient evaluation of student's language proficiency, enabling teachers to tailor their instruction to meet individual needs (Muslimin et al., 2023).

While technology offers immense potential for improving EFL teaching and learning, it also presents challenges and complexities for educators. EFL teachers often grapple with technostress, a term that encompasses the psychological strain caused by the increasing demands and pressures associated with technology integration (Nang et al., 2022). Insufficient training, information overload, constant updates, new tools, and the fear of technology replacing traditional teaching methods can all contribute to the emergence of technostress among EFL teachers (Khlaif et al., 2022).

Technostress can significantly impact EFL teachers' instructional practices and overall well-being (Gugushvili et al., 2020; Jameel Abo Mokh et al., 2021). The psychological burden associated with navigating unfamiliar technologies and the pressure to keep up with rapid advancements can lead to decreased confidence, feelings of inadequacy, and heightened job dissatisfaction among EFL teachers (Khlaif et al., 2022; Muslimin et al., 2023; Nang et al., 2022). This, in turn, can

impact their effectiveness in the classroom, hinder student-teacher relationships, and impede the delivery of quality EFL education.

Recognizing the detrimental effects of technostress, EFL teachers have developed coping strategies to manage and mitigate the challenges they face effectively (Nang et al., 2022). These strategies may include seeking professional development opportunities to enhance technological skills, establishing support networks with colleagues to share experiences and solutions (Gozali et al., 2023; Muslimin et al., 2023), engaging in self-reflection and self-care practices, and adopting a growth mindset towards technology integration (Schmidt et al., 2021). By actively addressing and managing technostress, EFL teachers can regain a sense of control, boost their confidence, and create a positive teaching environment that maximizes the benefits of technology while minimizing its negative impacts.

This study on technostress is unique compared to previous research. Different from Khlaif et al.'s (2022) study that focused primarily on identifying factors contributing to technostress among EFL teachers without extensively examining effects and coping strategies, the current research provides a more comprehensive investigation. Additionally, it goes beyond Schmidt et al.'s (2021) mixed-methods study that explored the nature and effects of technostress on job performance and well-being but needed an in-depth exploration of coping strategies. Moreover, the current study extends the knowledge base by exploring coping strategies adopted by EFL teachers to manage technostress, which was not extensively explored in Efilti and Çoklar's (2019) study. Overall, this research offers valuable insights into the challenges faced by EFL teachers in integrating technology, providing practical guidance to enhance their well-being and instructional practices. Therefore, this study was carried out to address the following research questions:

1. What are the factors that trigger EFL teachers' technostress?
2. What are the effects of technostress on EFL teachers' performance?
3. What are the strategies conducted by EFL teachers to cope with their technostress?

4. What are the relationships among EFL teachers' technostress triggering factors, technostress effects, and technostress coping strategies?

Literature Review

Technostress

Technostress is a type of stress that arises from using digital technologies to complete a specific task. While most research on technostress has focused on the business and health sectors, there has been less emphasis on its impact on education. According to Tarafdar et al. (2015), there are five main causes of technostress. The first is techno-overload, which occurs when employees are required to use a new technology that requires additional training and results in increased workloads. The second is techno-invasion, which refers to the blurring of boundaries between personal and professional life due to longer work hours and increased connectivity, particularly when new technology is forced upon employees. The third is techno-complexity, which arises from a lack of skills and knowledge to use new technology, requiring significant time and effort to learn. The fourth is techno-insecurity, which stems from employees' fears of being replaced by someone who already knows how to use the new technology, leading to feelings of job insecurity. Finally, techno-uncertainty refers to the uncertainty surrounding the process of learning and adapting to new or updated technology. (Kim & Lee, 2021; Cezar & Macada, 2021)

Technostress studies

Technostress in the context of English as a Foreign Language (EFL) teaching refers to the discomfort and negative emotions experienced by EFL lecturers due to the challenges of integrating technology into their teaching practices. Studies have shown that EFL lecturers may face technostress when trying to enhance their Digital Literacy Competence (DLC) based on frameworks like TPACK-SAMR (Muslimin et al., 2023). However, despite the shift to open distance learning during the Covid-19 pandemic, English language lecturers with strong Technological Pedagogical Content Knowledge competency found technostress

manageable and not affecting their work performance (Aziz et al., 2022). Additionally, research on High School teachers highlighted physical and psychological discomforts caused by technostress, such as headaches, anxiety, and lack of concentration, along with preventive measures like relaxation techniques (González-Amarilla & Perez-Vargas, 2019). Furthermore, a study on English teachers revealed that technostress levels can impact their workload, web 2.0 tools usage, and overall TPACK (Technological Pedagogical Content Knowledge) perceptions (Hunutlu, Ş., & Küçük, S., 2022).

Technostress significantly impacts EFL teachers' professionalism. Studies reveal that technostress levels among teachers can vary, with some experiencing moderate levels while others face very high technostress (Muslimin et al., 2023). The correlation between EFL lecturers' digital literacy competence (DLC) and technostress is negative, indicating that higher DLC levels can help minimize technostress (Vito, 2023). Additionally, the integration of digital technologies, especially during remote learning and work-from-home policy due to COVID-19, can lead to disappointment, frustration, and lowered efficiency in professional performance, ultimately contributing to burnout among teachers (Farmania, 2022; Hendartono & Widilestari, 2022). Setyadi et al. (2019) mention that in East Kalimantan Province, Indonesia (ranked 3rd of 34 provinces on the Human Development Index or IPM) academic staff's technostress negatively influences their teaching performance. This result triggers initiative and curiosity to investigate the EFL teachers' technostress triggering factors, impacts, and how they cope with them.

Research Method

Design and participants

This study adopted a mixed-method research design to provide a comprehensive understanding of the impact of technostress on EFL teachers (Schoonenboom & Johnson, 2017). The qualitative component involves in-depth interviews, while the quantitative component utilizes surveys. This combination allows for triangulation of data, enhancing the validity and reliability of the study's findings. The participants of this study were 34 EFL teachers from a diverse range

of educational institutions in Indonesia. The demographic data of the participants are presented in Table 1.

Table 1. Participants Demographic

Teaching Level	Teaching Experience	Education Level	Total of Participants
University	More than 11 years	Master	5
	8-11 years	Master	6
	4-7 years	Master	3
	0-3 years	Master	4
Senior High School	8-11 years	Master and Bachelor	6
	4-7 years	Master and Bachelor	3
Junior High School	8-11 years	Master and Bachelor	4
	4-7 years	Master and Bachelor	1
	0-3 years	Master and Bachelor	2
	Total		34

Data collection

This study gathered both quantitative and qualitative data. The quantitative data was collected by administering a technostress questionnaire developed based on some studies' (Efilti & Çoklar, 2019; Khlaif et al., 2022; Schmidt et al., 2021) findings. The questionnaire assessed participants' experiences of technostress (the factors) (6 items), its effects on their well-being and teaching performance (6 items), and the coping strategies they employ (6 items). The survey utilized the Likert scale (1=strongly disagree - 5=strongly agree) and multiple-choice questions to gather quantitative data efficiently. The survey was distributed electronically (applying Google Forms) to EFL teachers' WhatsApp group with more than 100 members and teachers' Google group with hundreds of members. However, only 34 participants were willing to join this research (see Table 1).

The participants were invited to join semi-structured interviews to better understand the quantitative data (Daniel, 2016).. The interviews were guided by a set of open-ended questions allowing participants to elaborate on technostress triggering factors, the impact resulting from technostress, and the coping strategies.

Regarding the procedure to recruit the potential participants, they were invited to join semi-structured interviews through a multi-step procedure. Initially, potential interviewees were identified based on their involvement in English as a Foreign Language (EFL) teaching within the target demographic. Contact was established via email, where the purpose and scope of the research were outlined,

along with an invitation to participate in the interviews. The email included detailed information about the interview process, including its voluntary nature, confidentiality assurances, and an overview of the topics to be discussed. Additionally, participants were given the opportunity to schedule the interviews at their convenience. Despite outreach efforts to a wider pool of potential participants, only three individuals responded positively and agreed to participate in the study.

Data analysis

The data analysis was conducted based on the data types. The quantitative data were analyzed using appropriate statistical techniques using the SPSS 23 version. Descriptive statistics, such as frequencies and percentages, were employed to summarize the participants' responses. Additionally, inferential statistical methods, such as correlation analysis, were utilized to examine the relationships between technostress, well-being, teaching performance, and coping strategies. Then, the data obtained from the interviews were analyzed using thematic analysis. Initially, the transcripts were read and coded to identify recurring themes and patterns related to technostress factors, effects, and coping strategies. These codes were grouped into categories, and overarching themes were developed to understand the qualitative data comprehensively.

Findings

The findings obtained from the quantitative data analysis were based on the 34 participants' responses in an online survey by filling out the technostress questionnaire. The participants' responses were calculated to find the average scores of each questionnaire item. Therefore, the highest score that appeared from the analysis was five and the lowest was 1 point.

The technostress triggering factors

The first research objective was to know the factors that trigger EFL teachers' technostress. After the technostress questionnaire's administration, the survey results are depicted in Figure 1.

Figure 1. The technostress triggering factors

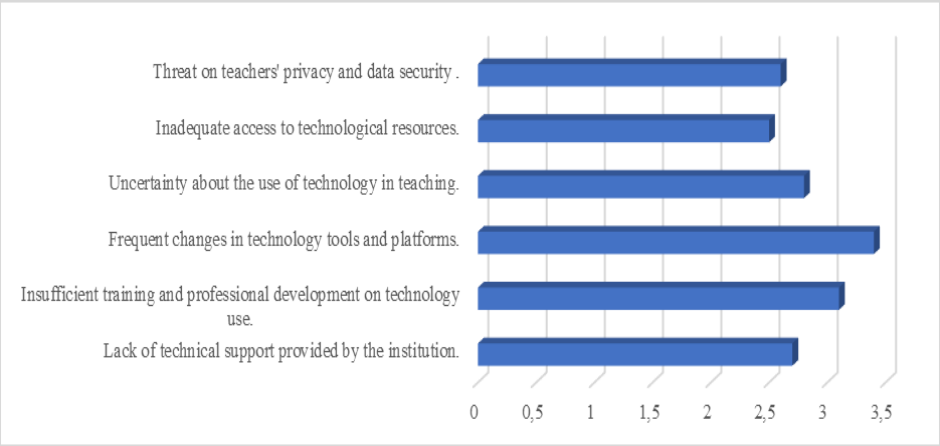

Figure 1 shows the factors that trigger EFL teachers to experience technostress. The data indicated that most participants agreed 'Frequent changes in technology tools and platforms' (3.4 average points) and 'Insufficient training and professional development on technology use' (3.1 average points) factors were crucial to trigger their technostress. The three participants' responses in the interview supported these quantitative data findings.

> Research Participant 1:
> "The factors that trigger my technostress include the constant pressure to learn and adapt to new technologies. The expectation to effectively integrate technology into my teaching practices without proper training adds to my technostress levels. Furthermore, technology will not harm us since we do not share our private things such as passwords and emails that are connected to our bank accounts."

> Research Participant 2:
> "The main factor that triggers my technostress is the lack of adequate training in using technology, especially for specific teaching tasks, such as online assessments or virtual collaboration. The fast-paced nature of technological advancements and the pressure to keep up with them also contribute to my technostress."

> Research Participant 3:
> "Several factors contribute to my technostress as an EFL teacher. Firstly, the complexity and constant updates of various digital tools and applications are significant triggers. Secondly, the expectation to integrate technology

> seamlessly into my teaching, despite limited time and resources, adds to my technostress. Lastly, the lack of technical support and training opportunities exacerbates my technostress, as it makes it difficult to effectively use technology in my teaching practice."

Again, the participant's responses in the interview emphasized that the 'Frequent changes in technology tools and platforms' and 'Insufficient training and professional development on technology use' became the most influential factor in triggering EFL teachers' technostress.

The effects of technostress on EFL teachers' performance

The second objective was to know the effect of the technostress on the EFL teachers' performance, i.e., their teaching performance and well-being. The results of the questionnaire administration are seen in Figure 2.

Figure 2. The effects of technostress on EFL teachers' performance

Figure 2 unveils the truth that technostress could leverage the participants' anxiety or stress level (3.5 average points) and negatively affect their teaching performance (3.3 average points). In addition, to check this quantitative data, the interview results obtained are presented as follows:

> Research Participant 1:
>
> "The effects of technostress on my performance as an EFL teacher are noticeable. It often leads to increased anxiety and frustration when dealing with technology-related tasks, which can negatively impact my ability to deliver lessons and engage with students effectively."
>
> Research Participant 2:

> "Technostress has several effects on my performance as an EFL teacher. It hampers my productivity by causing delays in completing tasks that involve technology. It also affects my concentration and focus, decreasing lesson planning and instructional delivery efficiency. Moreover, technostress can contribute to feelings of burnout and teaching dissatisfaction."

> Research Participant 3:
> "The effects of technostress on my performance are pretty significant. It often leads to increased errors or mistakes in utilizing technology, affecting the quality of my teaching materials or web-based interactions with students. Technostress also harms my confidence to innovate with technology, as it hinders my ability to explore new digital tools or teaching approaches."

The participant's responses in the interview support the common effects of technostress on EFL teaching performance including psychological strain, reduced productivity, increased errors, and diminished confidence in utilizing technology for teaching purposes.

The EFL teachers' technostress coping strategies

The third research objective was to know the EFL teachers' strategies to cope with their technostress. The participants recalled their experience of reducing their technostress and reflected on it by choosing the most suitable choices in the online survey. Then the results of the survey are presented in Figure 3.

Figure 3. The EFL teachers' technostress coping strategies

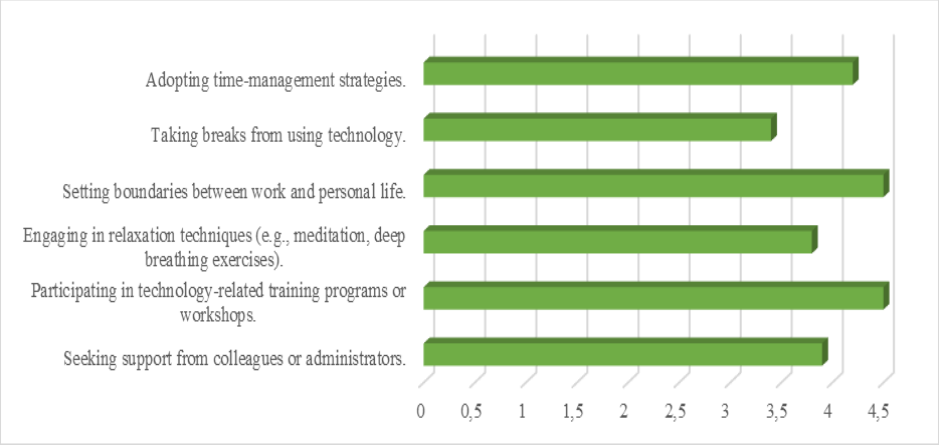

Figure 3 shows that the participants chose all stated strategies in the online survey to cope with their technostress. All items' average scores were above 2.5 ('neutral' Likert-scale category). However, most participants strongly agreed that

'Participating in technology-related training programs or workshops' and 'Setting boundaries between work and personal life' were the best coping strategies for their technostress.

Moreover, the responses of the three participants in the interview were consistent with the overall quantitative responses of all participants in the questionnaire. The participants employed various coping strategies, including prioritizing self-care and work-life balance, managing time effectively, practicing mindfulness, seeking support from colleagues, exercising to relieve stress, and setting clear boundaries for technology use. These strategies are detailed in the interview transcription as follows:

Research Participant 1:

> "To cope with technostress, I prioritize self-care and work-life balance. Setting boundaries for technology use outside of work and engaging in relaxation activities helps me recharge. Seeking professional development opportunities boosts my confidence, and connecting with colleagues in online communities provides support."

Research Participant 2:

> "I manage technostress through time management, mindfulness, and seeking support from colleagues. Participating in training programs enhances my competence. Breaking down tasks and using problem-solving approaches helps me handle technostress effectively."

Research Participant 3:

> "I cope with technostress by exercising, practicing stress-reducing activities, and setting technology boundaries. Seeking peer support and joining professional networks offer valuable advice. Continuous skill development through online courses empowers me to handle technology challenges."

The relationships of factors, effects, and coping strategies of the EFL teachers' technostress

The correlational analysis among variables in this research was preceded by a descriptive analysis of the variables using the SPSS 23 version. The results of this analysis are portrayed in Table 2.

Table 2. The descriptive analysis results

	N	Min	Max	Mean	Std. Deviation
Factor	34	100.00	500.00	286.7647	109.19681
Effect	34	100.00	500.00	307.3529	134.31552
Coping Strategies	34	333.00	500.00	399.5000	66.41205
Valid N (listwise)	34				

Table 2 shows that the participants' choices spread in all choices (from 'strongly disagree' to 'strongly agree') in the questionnaire for Factor and Effect variables items. However, the participants showed only positive responses for the Coping Strategies variable. The minimum score of the survey proves it was 333 (3.3 in Likert-scale points), meaning that all mentioned strategies were considered beneficial and worth applying by all participants. So, Table 2 depicts different patterns of score correlations among variables. However, further correlational analysis using the SPSS 23 version was done to see the analysis of the variables' correlations.

Table 3. The correlations between variables in the research

		Factor	Effect	Coping Strategies
Factor	Pearson Correlation	1	.481	-.319
	Sig. (2-tailed)		.004	.066
	N	34	34	34
Effect	Pearson Correlation	.481	1	.131
	Sig. (2-tailed)	.004		.459
	N	34	34	34
Coping	Pearson Correlation	-.319	.131	1
Strategies	Sig. (2-tailed)	.066	.459	
	N	34	34	34

Table 3 shows that the technostress triggering factor positively correlated with the technostress effect. It is shown by sig. score of .004 or lower than 0.05. However, their correlation strength was still at a moderate level (between 0.40-0.60 Person correlation scores) (Schober & Boer, 2018). On the other hand, the EFL teachers'

technostress coping strategies did not correlate to the technostress triggering factor and the effects, as shown by sig. score was higher than 0.05.

Discussion

According to the findings, it was known that both quantitative and qualitative data stated that 'Frequent changes in technology tools and platforms' and 'Insufficient training and professional development on technology use' became the most influential factor in triggering EFL teachers' technostress. Then, the participants admitted that the other triggering factors did not promote their technostress. These findings portrayed a partials correlation to some previous studies (Efilti & Çoklar, 2019; Jameel Abo Mokh et al., 2021; Khlaif et al., 2022; Nang et al., 2022; Schmidt et al., 2021).

Khlaif et al. (2022) and Schmidt et al. (2021) state that techno complexity, resulting from rapid technology development and lack of teachers' training, could escalate technostress. Jameel Abo Mokh et al. (2021) said technology complexity seriously promoted technostress. However, their study also showed that privacy issues also became their participants' concern while the present study's participants admitted that the technology, they knew did not threaten privacy and data security. According to them, they employed technology only for teaching and did not share any confidential data that attracted security threats as mentioned in participants' 1 excerpt. Nang et al. (2022) and study also agreed with the 'Insufficient training and professional development on technology use' factor to trigger EFL teachers' technostress. Nevertheless, the 'Inadequate access to technological resources' factor significantly influenced many teachers' technostress during their teaching in crisis time (Covid-19 pandemic) (Livana & Basthomi, 2020); this factor did not contribute to technostress emergence in this research. The participants in the present study explained that their institutions suddenly provided all technology resources to support the teaching and learning process, especially to scaffold challenges during the crisis time (Covid-19 pandemic) (Graham et al., 2023). It helps EFL teachers easily reach any technology to support their teaching (Haleem, Javaid, Asim, et al., 2022). Then, instead of agreeing with this research findings, Efilti and Çoklar's (2019) study also raised the social interaction factor that triggered

technostress. Their participants hardly communicate formally and informally with the students through technology. Finally, reviewing these partially correlated findings, the primary EFL teachers' technostress triggering factors could be seen in all related studies. However, they were shared in different research settings and periods.

The research participants' responses showed that they experienced technostress which affected their performance. These research findings highlighted the effect of technostress being more impacted, creating higher anxiety and reducing the participants' teaching performance, especially in establishing suitable innovative technology to support teaching (Afrilyasanti & Basthomi, 2022). So, the emergence of technostress affects both EFL teachers' psychological readiness for teaching (Efilti & Çoklar, 2019) and their teaching performance, including preparing the lesson, in-class performance, and developing practical technology-based teaching evaluation (Muslimin et al., 2023). These findings were supported by some previous studies (Khlaif et al., 2022; Muslimin et al., 2023; Nang et al., 2022). Moreover, based on Nang et al.'s (2022) study, the EFL teachers' technostress worsens their physical condition during their working time. They experienced severe back pain and headaches when they found themselves experiencing technostress. Hence, mitigating the possible technostress effects emergence is required to leverage the EFL teachers' professionalism and enhance teaching outcomes (Muslimin et al., 2023).

Encountering technostress, the research participants showed coping strategies for developing self-efficacy (Schmidt et al., 2021; Sriwidharmanely et al., 2022). They performed some strategies such as seeking support from colleagues or administrators (Nang et al., 2022), participating in technology-related training programs or workshops (Muslimin et al., 2023), engaging in relaxation techniques (e.g., meditation and deep breathing exercises), setting boundaries between work and personal life, taking breaks from using technology, and adopting time-management strategies (see Figure 3) (Nazari et al., 2023). Relating to the main factors of the EFL teachers' technostress, these research participants implemented the correct strategy by joining Teachers' Professional Development (TPD) programs related to technology to support EFL teaching (Gondwe, 2021; Widiati et

al., 2018). These programs can help teachers unravel technology complexity, familiarize them with the latest and advanced technology for teaching, and aid them in mingling technology in teaching in lesson planning (Muslimin et al., 2023). The participants admitted that sometimes they did not rely on their institution's formally organized TPD program but were also motivated to leverage their professionalism through self-directed progression. In addition, the participant's choice of coping strategy by setting boundaries between working and personal life can reduce their anxiety and potentially severe physical pains. Furthermore, their new psychological condition due to applying that strategy can prepare them to plan better teaching performance (Sriwidharmanely et al., 2022).

By correlating these research variables (the factors, effects, and coping strategies), the technostress factors had a moderate correlation to the technostress effects. It means that the technostress triggering factors were assumed to affect the EFL teachers' performance directly. The frequent changes in technology impacted teachers' anxiety to begin learning the new technology (Henderson & Corry, 2021). They are afraid if the technology that is currently learned will be outdated at the time, they will have mastered it. The lack of a TPD program to equip technology for EFL teaching also raised the effect of dissatisfying the teaching performance (Gondwe, 2021) as they could not design better lesson planning, more effective teaching performance, and more efficient learning evaluation. Nevertheless, the participants' coping strategies were not correlated to the technostress factors and effects. Due to the nature of human self-determinations, they will always find coping strategies if they meet any life challenges, including during the EFL teaching (Seymour, 2016). Since all of the stated strategies in the survey and interview were positively effective in reducing technostress with whatever the factors and effects encountered, the participants applied all of them. So, this research strengthens the notion that EFL teachers possess adaptive skills toward challenges to meet their desirable teaching outcomes (Dong & Xu, 2022). However, further investigations on similar topics need to be conducted to some distinct research findings discussed previously.

Conclusion

The present study investigated the EFL teachers' technostress triggering factors, effects, and coping strategies and found their relationships. The lack of a technology-based TPD program and rapid technology development promoted EFL teachers' anxiety and negatively affected their teaching performance. Nevertheless, the EFL teachers' initiative to find solutions brought them to apply all coping strategies that helped them to reduce the technostress. Then, the positive correlations did not appear in all these research variables since the coping strategies showed no correlations to the technostress triggering factors and effects. Furthermore, this study has theoretical and practical implications. Theoretically, this research advances the understanding of technostress through the extension of technostress research in the EFL setting. It informs the policymakers to maximize their EFL teaching outcomes through appropriate policies. Practically, the readers can adopt successful coping strategies to minimize their technostress, adapt similar research procedures and topics, and trigger collaborative networks for establishing positive programs promoting EFL teachers' tech-savvy. Nevertheless, further investigations of similar research topics in different settings and with more participants may scaffold this research limitation.

References

Afrilyasanti, R., &Basthomi, Y. (2022). The implications of instructors' digital literacy skills for their attitudes to teach critical media literacy in EFL classrooms. International Journal of Media and Information Literacy, 7(2), 283-292.

Aziz, A. A., Said, N., Pudin, C. S. J., & Kamlun, K. (2022). Technostress in engaging open and distance learning: Exploring Malaysian English language lecturers' lived experiences. International Journal of Education, Psychology and Counseling, 7(48), 308–317. https://doi.org/10.35631/ijepc.748023

Cezar, B. G., &Maçada, A. C. G. (2021). Data literacy and the cognitive challenges of a data-rich business environment: an analysis of perceived data overload, technostress and their relationship to individual performance. Aslib Journal

of Information Management.https://doi.org/10.1108/ajim-01-2021-0015.

Daniel, E. (2016). The Usefulness of Qualitative and Quantitative Approaches and Methods in Researching Problem-Solving Ability in Science Education Curriculum. 7(15), 91–100.

Dong, Y., & Xu, J. (2022). The Role of EFL Teachers' Optimism and Commitment in Their Work Engagement: A Theoretical Review. Frontiers in Psychology, 12(February), 1–5. https://doi.org/10.3389/fpsyg.2021.830402

Efilti, E., & Çoklar, A. N. (2019). Teachers ' Technostress Levels as an Indicator of Their Psychological Capital Levels. 7(2), 413–421. https://doi.org/10.13189/ujer.2019.070214

Farmania, A., Elsah, R. D., & Fortunisa, A. (2022). The phenomenon of technostress during the covid-19 pandemic due to work from home in Indonesia. Sustainability 2022, 14(14), 8669; https://doi.org/10.3390/su14148669

Gondwe, F. (2021). Technology professional development for teacher educators: A literature review and proposal for further research. In SN Social Sciences (Vol. 1, Issue 8). Springer International Publishing. https://doi.org/10.1007/s43545-021-00184-9

González-Amarilla, S. B., & Perez-Vargas, S. F. (2019). Tecnoestrés docente: El lado opuesto de la utilización de las nuevas tecnologías por los Docentes del Nivel Medio. Revista Científica Estudios E Investigaciones, 8(1), 21-30. https://doi.org/10.26885/rcei.8.1.21

Gozali, I., Lie, A., &Tamah, S. M. (2023). Examining language teachers' change in TPACK-HOTS self-perception during the COVID-19 pandemic in Indonesia. CALL-EJ, 24(1), 280-304. http://callej.org/journal/24-1/Gozali-Lie-Tamah2023.pdf

Graham, C., Borup, J., Tuiloma, S., Martínez Arias, A., Parra Caicedo, D., Larson, R. (2023). Institutional support for Academic Engagement in online and blended learning environments: Exploring affective, behavioral, and cognitive dimensions. Online Learning, 27(3), 4-40. https://doi.org/10.24059/olj.v27i3.4001

Gugushvili, N., Täht, K., Rozgonjuk, D., Raudlam, M., Ruiter, R., & Verduyn, P.

(2020). Two dimensions of problematic smartphone use mediate the relationship between fear of missing out and emotional well-being. Cyberpsychology, 14(2). https://doi.org/10.5817/CP2020-2-3

Haleem, A., Javaid, M., Asim, M., & Suman, R. (2022). Understanding the role of digital technologies in education : A review. Sustainable Operations and Computers, 3(February), 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. Sustainable Operations and Computers, 3(May), 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Henderson, J., & Corry, M. (2021). Teacher anxiety and technology change: a review of the literature. Technology, Pedagogy and Education, 30(4), 573–587. https://doi.org/10.1080/1475939X.2021.1931426

Hendartono, A., & Widilestari, C. (2022). Model hubungan technostress terhadap emotional exhaustion pada mahasiswa perguruan tinggi maritim selama pembelajaran online. Jurnal Saintek Maritim, 23(1), 1-14.

Hunutlu, Ş., & Küçük, S. (2022). Examining EFL teachers' TPACK perceptions, web 2.0 tools usage, workload, and technostress levels. International Journal of Computer-Assisted Language Learning and Teaching, 12(1), 1–19. https://doi.org/10.4018/ijcallt.315306

Huang, J. (2022). The Role of English as a Foreign Language Teachers ' Mindfulness and Compassion in Fostering Students ' Foreign Language Enjoyment. 13(May). https://doi.org/10.3389/fpsyg.2022.899298

Jameel Abo Mokh, A., Jameel Shayeb, S., Badah, A., Asim Ismail, I., Ahmed, Y., K. A. Dawoud, L., & Essam Ayoub, H. (2021). Levels of Technostress Resulting from Online Learning among Language Teachers in Palestine during Covid-19 Pandemic. American Journal of Educational Research, 9(5), 243–254. https://doi.org/10.12691/education-9-5-1

Khlaif, Z. N., Sanmugam, M., Joma, A. I., Odeh, A., & Barham, K. (2022). Factors Influencing Teacher's Technostress Experienced in Using Emerging Technology: A Qualitative Study. In Technology, Knowledge and Learning (Vol. 28, Issue 2). Springer Netherlands. https://doi.org/10.1007/s10758-022-

09607-9

Kim, D. G., Lee, C. W. (2021). Exploring the roles of self-efficacy and technical support in the relationship between techno-stress and counter-productivity. Sustainability, 13(8), 4349.

Livana, M., & Basthomi, Y. (2020). Penyebab stres mahasiswa selama pandemi COVID-19. Jurnal Ilmu Keperawatan Jiwa, 3(2), 203-208.

Muslimin, A. I., & Cahyono, B. Y. (2023). Online learning readiness, motivation, and English learning achievement in higher education. MEXTESOL, 47(3), 1-14. https://www.mextesol.net/journal/index.php?page=journal&id_article=46454

Muslimin, A. I., Mukminatien, N., & Ivone, F. M. (2023). TPACK-SAMR digital literacy competence, technostress, and teaching performance: Correlational study among EFL lecturers. Contemporary Educational Technology, 15(2), ep409. https://doi.org/10.30935/cedtech/12921

Nang, A. F. M., Maat, S. M., & Mahmud, M. S. (2022). Teacher Technostress and Coping Mechanisms During COVID-19 Pandemic: A Systematic Review. Pegem Egitim ve Ogretim Dergisi, 12(2), 200–212. https://doi.org/10.47750/pegegog.12.02.20

Nazari, F., Ghanizadeh, A., & Mirzaee, S. (2023). EFL teachers ' coping strategies amidst the Covid - 19 virtual education and their association with work engagement and teacher apprehension. Educational Research for Policy and Practice, 22(1), 1–22. https://doi.org/10.1007/s10671-022-09317-0

Schmidt, M., Frank, L., & Gimpel, H. (2021). How Adolescents Cope with Technostress : A Mixed-Methods Approach How Adolescents Cope with Technostress : A Mixed-Methods Approach. International Journal of Electronic Commerce, 25(2), 154–180. https://doi.org/10.1080/10864415.2021.1887696

Schober, P., & Boer, C. (2018). Correlation Coefficients: Appropriate Use and Interpretation. August. https://doi.org/10.1213/ANE.0000000000002864

Schoonenboom, J., & Johnson, R. B. (2017). How to Construct a Mixed Methods Research Design. 107–131. https://doi.org/10.1007/s11577-017-0454-1

Setyadi, H. J., Taruk, M., & Pakpahan, H. S. (2019). Analisis dampak penggunaan teknologi (technostress) kepada dosen dan staff karyawan yang berpengaruh terhadap kinerja di dalam organisasi (Studi kasus : perguruan tinggi di Kalimantan Timur). Informatika Mulawarman, 14(1), 1-14.

Seymour, V. (2016). The human-nature relationship and its impact on health: A critical review. Frontiers in Public Health, 4(NOV), 1–12. https://doi.org/10.3389/FPUBH.2016.00260

Shadiev, R., & Wang, X. (2022). A Review of Research on Technology-Supported Language Learning and 21st Century Skills. 13(July), 1–19. https://doi.org/10.3389/fpsyg.2022.897689

Sriwidharmanely, S., Sumiyana, S., Mustakini, J. H., & Nahartyo, E. (2022). Encouraging positive emotions to cope with technostress's adverse effects: insights into the broaden-and-build theory. Behaviour and Information Technology, 41(10), 2187–2200. https://doi.org/10.1080/0144929X.2021.1955008

Tarafdar, M., Pullins, E. B., & Ragu-Nathan, T. S. (2015). Technostress: Negative effect on performance and possible mitigations. Information Systems Journal, 25(2), 103–132.

Vitto, A. J. R. (2023). Technostress to the work efficacy and performance of teachers in Lumban district. International Journal of Research Publications, 124(1), 23-34. https://doi.org/10.47119/ijrp1001241520234858

Widiati, U., Suryati, N., & Hayati, N. (2018). Unraveling the challenges of Indonesian novice teachers of English. Indonesian Journal of Applied Linguistics, 7(3), 621-629. https://doi.org/10.17509/ijal.v7i3.9824

Wolff, J. (2021). How Is Technology Changing the World, and How Should the World Change Technology? Global Perspectives, 2(1), 1–5. https://doi.org/10.1525/gp.2021.27353