Influence of Techno Stress on Teachers' Job Satisfaction in Public Primary Schools in Education District V, Lagos State, Nigeria

Orunbon Nurudeen Olalekan
Department of Educational Management, Lagos State University, Ojo, Nigeria
Email: orunbon.nurudeeno@gmail.com
https://orcid.org/0000-0002-7479-2624

Lawal Rasaki Olanrewaju
Department of Educational Management, Lagos State University of Education, Oto/Ijanikin, Nigeria
Email: raslaw228@gmail.com

&

Bassey Florence Etim
Email: basseyflorence24@gmail.com
Nigerian Army School of Medical Sciences, Festac Town, Lagos, Nigeria

Abstract

The purpose of this study was to ascertain how technostress affected the level of work satisfaction among teachers in public elementary schools in Education District V, Lagos State. To explain how technological stress affects teachers' job satisfaction, a descriptive study approach was used. All public elementary schools in Lagos State's Education District V made up the study's population. On the other hand, the 375 participants in the research were all instructors, making up the sample. Teachers Job Satisfaction Questionnaire (TJSQ) and Technostress Creators Questionnaire (TCQ) were the study tools employed. Using Pearson's Product-Moment Correlation, the four hypotheses developed for this research were examined at the 0.05 level of significance. The findings indicated that there is no meaningful correlation ($r = .097$, $N = 361$, $\rho > 0.05$) between teachers' job satisfaction in public primary schools and the source of techno-stress, (techno-overload). Teachers' job satisfaction in public elementary schools in Education District V of Lagos State, Nigeria, is positively correlated with techno-invasion, ($r = .195$, $N = 361$, $\rho < 0.05$). The study's conclusion is that by encouraging teachers to utilise technology effectively and lowering the weight of technostress, schools may increase teacher work satisfaction and foster a more favourable learning environment for kids. To help teachers feel more satisfied with their jobs and experience less technological stress, schools should think about giving them more tools and technical assistance.

Keywords: **Technostress, Techno-overload, Techno-invasion, satisfaction**

Introduction

In order to create the high-calibre workforce needed for the future, Lagos must make a significant investment in basic education if it is to remain a top African economy and thrive in the twenty-first century. More significantly, Lagos, like other cities, is unwavering in its dedication to fairness, reducing the wealth gap by guaranteeing that everyone has access to high-quality education. We launched a programme in 2019 called Excellence in Child

Education and Learning EKO EXCEL, with assistance from our technical partners New Globe, with the goal of improving every student's learning results in all of our public primary schools. Since the beginning of Lagos State's technology-driven programme to enhance learning outcomes, EKO EXCEL, teaching and learning in public elementary schools have undergone changes. With the same curriculum and lesson notes based on cutting-edge pedagogy delivered through their own personal teacher tablet, EKO EXCEL will support teachers in teaching lessons of world-class quality. Lagos state recognizes that the best possible support for teachers is vital, and that the quality of education cannot exceed the quality of educators (Olujuwon, 2021). A successful education reform initiative, EKO EXCEL has trained, supported, and inspired current government teachers to excel in the classroom. This has resulted in the development of more highly competent instructors. Using technology, EKO EXCEL makes it possible for head teachers and instructors to be more productive. Since the start of Lagos State's technology-driven project to enhance learning outcomes, Excellence in Child Education and Learning (EKO EXCEL), teaching and learning in public elementary schools have altered. In order to teach all topics, evaluate students, and record attendance within a certain amount of time, teachers increasingly utilize tablets preloaded with prepared lesson notes. If they are to live up to their promise, they are asking for an evaluation of a few components of the effort, such as the timeliness and the assessment methodology. Many instructors bemoan the stress that comes with utilizing EKO EXCEL, complaining that they have to work nonstop during school hours since the topics are put on the tablets in real time, and they must be followed sequentially. Instructors have expressed dissatisfaction with the course duration, claiming it is insufficient, and they find it difficult to cover nine topics in a single day.

One of the main sources of techno stress for teachers in the EKO EXCEL programme is the requirement to adapt to new technologies on an ongoing basis. As technology evolves at a rapid pace, teachers may feel overwhelmed by the constant need to learn new tools and applications. This can lead to feelings of inadequacy and anxiety, as teachers may worry about falling behind or not being able to effectively utilize the technology in their classrooms. Another aspect of the EKO EXCEL programme that can contribute to techno stress is the need for continuous training and upskilling. Teachers are required to attend regular workshops and training sessions to enhance their digital literacy skills and keep up with the latest technological advancements. While this is intended to support teachers in their professional development, it can also be demanding and time-consuming. Balancing the

demands of teaching, planning, and attending training sessions can become overwhelming for teachers, leading to increased stress and burnout.

Stress gives birth to techno stress. Stress is regarded as a phenomenon that causes tension and anxiety, which in turn causes emotional and psychological responses. However, when there is a mismatch between the expectations of the job and the resources and talents of the worker to achieve the needs, work-related stress results (Blaug, Kenyon, & Lekhi, 2007). A recent research by Kayastha, Adhikary, and Krishnamurthy (2012) revealed how professionals' occupational stress is impacted by technology in the workplace. These results suggest that professionals are under more stress as a result of the introduction of technology into the workplace, and that this stress has a negative impact on their performance and job satisfaction.

The inability to appropriately embrace or over-identify with computer technology is known as techno stress (Brod, 1984). According to Weil and Rosen (1997), techno stress is not an illness but rather a bad outcome that may directly or indirectly affect a user's physiological, behavioural, and psychological alterations, which might show up as emotional and physical tiredness. Furthermore, according to Wang and Shu (2008), some signs of techno stress include continuous mental exhaustion, pessimism, poor judgement, transient disorientation, warped thoughts, difficulty concentrating, anxiety, sadness, irritability, and impatience. They also suggested that hypertension, migraine headaches, and cardiac arrest might be the health effects of techno stress. Perhaps this explains why technology usage has been referred to as a "double-edged sword" (Pankajakshi & Shailaja, 2012). However, there is no denying that technology offers organizations a number of benefits. Some of which may have contributed to a decrease in the comprehension of employees' experiences of stress by facilitating decision-making, providing access to necessary information, and enabling more flexible work schedules (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008).

ICTs are widely used in many industries, and as a result, most managers want to allow high levels of job efficiency. Within the teaching profession, techno stress is a significant issue. ICTs have been a pedagogical instrument in education since the 2000s (Peeraer & Van Petegem, 2015) and have quickly been included into educational systems due to the capabilities they provide (Trucano, 2005). Teachers are impacted by a number of circumstances, and they play a significant part in the integration process (Roblyer, 2006).

One of these elements is technological stress. Technostress among teachers may be attributed to a variety of factors, including the evolving nature of education as well as the nature of technology itself (technical assistance, incapacity to use, school vision, social pressure, etc.).

Technostress, a typical situation with digital technologies, is particularly felt by teachers throughout the process of integrating new technology (Lei, 2010; Lei & Zhao, 2007; Zhao & Frank, 2003). Furthermore, instructors experience techno-stress due to the ongoing demand from institutions and society to integrate technology into the classroom, as well as a lack of understanding and support (Longman, 2013). It is imperative to examine technostress and how its affect teachers' job satisfaction in public primary schools in Education District V of Lagos State.

Research Hypotheses

The following null hypotheses were tested:

Ho_1: There is no significant relationship between techno-stress creator (techno-overload) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria.

Ho_2: There is no significant relationship between techno-stress creator (techno-invasion) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria, Nigeria.

Literature Review

Concept of Technostress

A very stressful atmosphere is emerging in today's society because information and communication technologies (ICT) are evolving so quickly. This issue mostly impacts work situations where one of the primary responsibilities is using ICT. The ideas of time and location have been eliminated from corporate life by information and communication technologies (ICTs). Labour costs have fallen as output has expanded, and as a result, work productivity has improved. Although these technical advancements helped the workforce in business, they also had some unfavourable effects on the workers (Nelson, 1990; Nelson & Kletke, 1990). The twenty-first-century educational system makes significant use of technology. Technology is helpful, but it also increases the pressure on teachers to include a lot of new tools and programmes into their lesson plans.

Utilizing information and communication technologies (ICTs) has become essential for every person. The majority of early ICT contacts took place inside the organization. However, as ICTs have advanced, interactions increasingly permeate both the personal and corporate domains. People are compelled by these encounters to modify how they utilise ICTs. These adaptations include the use of ICTs in the workplace, the worry about becoming outdated, and the occurrence of technostress. Technostress, which is essentially anxiety, affects a person's body, thoughts, actions, and attitudes when they are required to use technology.

Among the main institutions where ICT resources are heavily used to boost output and knowledge acquisition are primary schools. Even if there is no denying the advantages of ICT adoption and use, it is also true that these developments have brought about a variety of demands and difficulties, including job burnout and technostress, in the workplace.(Kaufman, 2005).

The term "technostress" originated from the improper usage of ICT. According to Ahmet, Erkan, Yusuf, and Arif (2016), technostress is an adaptation-related illness brought on by an incapacity to deal with modern computing technologies in a healthy way. Technostress has been defined by other studies as the user experience of information and communication overload on smart technologies (Ragu-Nathan, Tarafdar, Ragu-Nathan, and Tu, 2008).

In today's world, ICTs are becoming more integrated into both personal and professional lives. Being always accessible and connected—or at least feeling that way—has caused tension. The word "Technostress" was first used by clinical psychologist Craig Brod in 1984 to describe "the inability to cope or deal with ICTs in a healthy manner" (Brod, 1984).

The majority of research on the phenomenon has been conducted in organisational settings, where the challenge is attributed to a failure to adjust to evolving information and communication technologies (ICTs) and the physical, social, and cognitive demands of using them. Individual workers experience weariness, worry, overwork, and discontent as a result of technostress. This will thus have a detrimental impact on production. (Tarafdar et al., 2007) Ayyagari et al. (2011) operationalized attributes of technology, including presenteeism, complexity, utility, and rate of development.

Various research indicates that the degree of perceived technostress varies according to factors including age, gender, and digital proficiency. According to some research, people who are older than those who are younger, women who experience less technostress than men, and those who are more digitally literate than those who struggle with technology are less likely to experience it (Tarafdar et al., 2007: Ragu-Nathan et al., 2008: Tarafdar et al., 2011: Maier, 2014).

Many studies on technostress concentrate on the detrimental effects of the phenomenon (Salanova, Llorens, & Cifre, 2013: Tarafdar, Pullins, & Ragu-Nathan, 2014). But according to other studies, there are advantages to technostress as well that should be taken into account (Sethi et al., 1987: Califf et al., 2020). Technostress has been broken down into the subcategories of techno-eustress and techno-distress, much like earlier studies on general stress, to characterize both the good and bad impacts of the process (Tarafdar, 2017). Califf et al. (2020) built a holistic approach that took into account both positive and negative

consequences rather than only concentrating on negative effects, which further extended the framework around these sub-categories. This viewpoint on techno stress deviates somewhat from earlier research, which supports the idea that, depending on the person's assessment, techno stress may have either beneficial or negative effects (Califf et al., 2020).

"Nathan (2007:6), techno stress creators can be demonstrated into four which are: techno-overload, techno-invasion, techno-complexity, techno-insecurity".

1. **Techno-Overload**: This mostly addresses how the respondents' use of technology led them to work longer hours, quicker, or altered work habits, all of which increased their burden. a circumstance where people who utilize ICT are compelled to labour longer and quicker. "Techno-overload" describes situations in which employees are forced to work quicker and have a heavier burden as a result of using ICTs (Suh & Lee, 2017). trying to get more done in less time and feeling anxious and under pressure. Techno-overload is the result of multitasking, particularly in the banking industry when staff members use many financial applications at once.
2. **Techno-Invasion**: In a similar spirit, this addresses how the technology people use at work has permeated their personal lives, leading ICT users to believe that they are always accessible or "connected," blurring the lines between work and home life. Techno-invasion" describes situations where workers believe they must always be linked and can presumably be reached at any time or place (Tarafdar et al., 2014), particularly in banking where workers' email accounts may be accessed on mobile devices. It also refers to a circumstance when work hours overflow into a person's personal time due to continuous availability, resulting in conflict between work and family (Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2011).

Effects of Techno Stress on Teachers

It is important to note that not all teachers experience techno stress in the same way and to the same degree. However, it's significant for teachers to be aware of the potential effects of techno stress and to take steps to manage it. The effects of techno stress on teachers can vary, but some common effects include:

i. **Increased Workload:** Teachers may feel overwhelmed by the demands of incorporating technology into their lessons and the additional time it takes to prepare and plan for these lessons Calliff& brooks (2020).
ii. **Decreased Job Satisfaction:** Techno stress can lead to feelings of frustration and burnout, which can decrease job satisfaction Aktan & Toraman, (2022).

iii. **Reduced Productivity:** Techno stress can lead to decreased motivation and focus, which can negatively impact a teacher's ability to effectively plan and deliver lessons Ayyagari et al. (2011).

iv. **Isolation:** As teachers spend more time on technology, they may have less time to interact with colleagues and other teachers, which can lead to feelings of isolation Srivastava et al. (2015).

v. **Health Issues:** The physical and mental demands of techno stress can lead to health issues such as headaches, fatigue, and insomnia Zhao et al (2022).

vi. **Impact on Student Learning:** Teachers' techno stress can also negatively impact the quality of the instruction and the students' learning experience Kyriacou (2001).

The Concept of Job Satisfaction

The degree of fulfilment and happiness a person experiences with their work is known as job satisfaction. It is a complicated and multifaceted concept that may be impacted by a range of elements, such as the demands and personality traits of the individual as well as the nature of the job and the workplace. An individual's emotional and psychological condition about their employment may also be referred to as job satisfaction. Spangler, 1997. It is the degree of fulfilment and happiness that a worker feels about their position, duties, workspace, and company. It is crucial to remember that work satisfaction is a subjective and individualized experience, and what makes one worker happy may not have the same impact on another. Organizations, however, may take action to create a happy, encouraging workplace that encourages employee job satisfaction. Therese, Judge, Bono, and Patton (2001). In conclusion, work satisfaction affects an employee's effectiveness on the job, loyalty to the company, and general job satisfaction. It is a crucial component of an individual's total well-being and happiness.

Technostress and Its Effects on Job Satisfaction

Anxiety, tension, strain, sadness, and nervousness are among the health impacts that are linked to high levels of work stress. Long-term persistence of these illnesses may result in heart disease as well as a mix of mental and behavioural instability. “Headache, difficulty sleeping, difficulty concentrating, irritability, upset stomach, and low morale” are among the early indicators of stress. The workforce now face additional strain due to technological advancements. While technology may be a boon to productivity, it is also a key contributor to staff burden increases. Weil and Rosen (1997) describe techno stress as “our reaction to technology and how we are changing due to its influence.” This is how the term came to be. “Techno stress (computer related stress) is a combination of performance anxiety,

information overload, role conflicts, and organizational actors," according to another description provided by Brod (1984). Another way to conceptualize techno stress is as an "offspring of stress." People feel workplace stress, according to Blaug, Kenyon, and Lekhi (2007), when there is an imbalance between the resources and performance expectations of the employee and their ability to satisfy those expectations. Another research revealed that workers' levels of occupational stress had increased as a result of using technology at work. Their findings suggest that the introduction of technology into the workplace has resulted in an increase in the workload for employees (Derks, Bakker, Peters, & van Wingerden, 2016). Computers and mobile phones are the two devices used in the office most often. Techno stress may also be caused by emails and other electronic communications services like pagers, instant messages, and others. This research also notes how people's own time dimensions are disrupted by computers and mobile phones. Extremely competitive people use computers and mobile phones excessively to maintain their performance, which interferes with a healthy work-life balance. Workers are expected to take calls even during their personal time since many employers cover their workers' mobile phone expenses (Bapuji, Crossan, & Beamish, 2016). Since people feel anxious, agitated, and afraid too while using computers for interaction, using them at work causes greater stress than using other tools. This tension stems from feelings of intimidation towards computers, dread of inputting incorrect information, and fear of pushing the wrong key. In the last several decades, technological innovation has advanced quickly, and keeping up with this speed is stressful in and of itself. Tarafdar, Tu, Ragu-Nathan, and Ragu-Nathan (2008).

Communication has advanced due to the shift from industrial companies to sales organizations and ultimately to knowledge-based workplaces. Technology has enhanced communication and performance, but it has also caused people to become overloaded with information. Technostress has an impact on people's mental and physical wellbeing. According to a Joshi (2004) research, people's levels of depression are correlated with how much time they spend online. They clarify that more emotional tension is being caused by the task that technology has brought about. When a healthy person feels physically distressed at work, they may have SBS. SBS, or sick block syndrome, is a phenomenon that lowers productivity and job satisfaction and is positively correlated with work-related stress and burnout.

Methodology

This research was conducted using a correlation design and a descriptive survey. This is to look at the connections between the study's variables. All the teachers employed by Lagos

State's Education District V in public elementary schools make up the study's population. There are 228 public elementary schools in Lagos State District V, which are located in the following zones: Ajeromi-Ifelodun, Amuwo-Odofin, Ojo, and Badagry.

Five teachers were chosen from each of the 76 sampled schools, or 33% of the 228 primary schools in the Education District, using a simple random selection procedure. This resulted in 375 responses for the research.

Data on the impact of techno stress on teachers' work satisfaction was gathered using a self-structured questionnaire. There were two parts in the questionnaire: A and B. While part B discusses the respondent's opinions on the Teachers Job Satisfaction Questionnaire (TJSQ) and Techno stress Creators Questionnaire (TCQ) with relation to public primary schools in Education District V of Lagos State, section A focused on personal information. The Likert scale used in the questionnaire has four points, starting with SA (Strongly Agreed). The following will be assigned a score: SA = 4 points, A = 3 marks, D = 2 marks, and SD = 1 mark for A (Agreed), D (Disagreed), and SD (Strongly Disagreed).

A test instrument's dependability may be defined as the degree to which it consistently yields the same result when given to the group at different times. For the teacher questionnaire, the researcher used the test-retest method. The instrument was ascertained by administering the questionnaire to one hundred and sixty-one respondents within a period of three weeks under test-retest method. The researcher collected a letter of introduction from the department that was used to attest to the study of the researcher. The researcher intends to use 76 schools; therefore, the researcher administered the questionnaire in the randomly selected public primary schools in Education District V in Lagos State to teachers. Effort was being made to ensure the questionnaire was collected from the respondent the same day to ensure a high percentage return. The data collection was analyzed using Pearson Product Moment Correlation Coefficient to test the research hypotheses.

Results

Table 1: Relationship between Techno-stress Creator (Techno-overload) and Teachers' Job Satisfaction in Public Primary Schools

		Techno-overload	Job satisfaction
Techno-overload	Pearson Correlation	1	.097
	Sig. (2-tailed)		.067
	N	361	361
Job satisfaction	Pearson Correlation	.097	1
	Sig. (2-tailed)	.067	
	N	361	361

Table 1 presents the relationship between techno-stress creator (techno-overload) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria. The result also showed that there is a weak positive, and non-significant relationship between techno-stress creator (techno-overload) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria ($r = .097$, $N = 361$, $\rho > 0.05$). The implication is that the relationship that exists between techno-stress creator (techno-overload) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria is not significant. As such, the hypothesis which states that there is no significant relationship between techno-stress creator (techno-overload) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria is hereby not rejected.

Table 2: Relationship between techno-stress creator (techno-invasion) and teachers' job satisfaction in public primary schools

		Techno-invasion	Job satisfaction
Techno-invasion	Pearson Correlation	1	.195**
	Sig. (2-tailed)		.000
	N	361	361
Job satisfaction	Pearson Correlation	.195**	1
	Sig. (2-tailed)	.000	
	N	361	361

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 presents the relationship between techno-stress creator (techno-invasion) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria. The result also showed that there is a weak positive, and significant relationship between techno-stress creator (techno-invasion) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria ($r = .195$, $N = 361$, $\rho < 0.05$). The implication is that the influence of techno-stress creator (techno-invasion) on teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria is significant. Hence, the hypothesis which states that there is no significant relationship between techno-stress creator (techno-invasion) and teachers' job satisfaction in public primary schools in Education District V of Lagos State, Nigeria is hereby rejected.

Discussion

The first hypothesis's outcome indicates that, in public elementary schools in Lagos State's Education District V, there is no discernible correlation between teachers' job satisfaction and the source of techno-stress, or techno-overload. The results of this research point to a scenario

in which the introduction of ICT necessitates labour that is longer, quicker, and more intense than it did prior to its introduction because of its capacity for continuous connection, which prolongs the standard workday. They are reachable from anywhere at any time, and often feel compelled to reply to the point where staying in touch becomes unsettling. People who are exposed to these technologies on a constant basis begin to feel as if their time and space have been invaded and they are never really free from them. As a result, they feel less satisfied with their jobs. When people are compelled to work ever-faster due to the usage of information technology, it is known as technical burglary. Employee technostress was examined by Chen (2015), who demonstrated that only techno-overload had a statistically significant beneficial impact on individual productivity. According to Yim and Han's (2013) research, techno-overload led to a large rise in organisational commitment. This is because workers who produce more work via technology tend to work harder and become more attached to their job.

The outcome of the second hypothesis indicates that, in public elementary schools in Education District V of Lagos State, there is no meaningful correlation between teachers' work happiness and techno-invasion, which creates stress. Techno-invasion is the term used to describe a scenario in which workers are always accessible to their employer, even outside of work hours and location, due to technology (Laptops, Cellphones, high-speed data transfer). Techno-invasion is the challenge of keeping business and personal life apart when employees are constantly logged in via email, phone calls, texts, and other methods. The empirical data on technology-induced stress, or techno-stress, emphasises the drawbacks of technology. According to Tarafdar et al. (2007), there is a negative correlation between technological invasion and productivity. They claim that being "free of technology" and maintaining "continual connectivity" result in lower output. Additionally, they postulate a negative correlation between role stress and ICTs, arguing that “one has to respond to e-mail,” “not connecting actually becomes disquieting,” and “one can extend the workday.” With similar logic, but without stressor reactions, Ragu-Nathan et al. (2008) also demonstrate a direct negative link between techno-stress and work satisfaction.

Conclusion

The study also highlights the need for further research to explore the impact of techno stress on other aspects of teachers' lives, such as their health and well-being. Future studies could also investigate the relationship between techno stress and other factors that impact job satisfaction and performance, such as job demands, work-life balance, and teacher motivation. Overall, the findings of this study demonstrate the need to address the issue of

techno stress among teachers in Lagos state primary schools and beyond. By promoting the effective use of technology and reducing the burden of techno stress, schools can improve teacher job satisfaction and performance and create a more conducive learning environment for students.

Additionally, schools could consider providing better resources and technical support for teachers to reduce techno stress and improve job satisfaction and performance. This could include providing reliable and updated technology and access to technical support, reducing the administrative burden on teachers, and fostering a positive school culture that values teacher well-being. In summary, the study highlights the importance of addressing techno stress in the workplace, particularly among teachers who rely heavily on technology in their work. By taking steps to reduce techno stress and promote job satisfaction and performance, schools can support their teachers and create a positive and effective learning environment for students.

Recommendations

Based on the findings of the study on the influence of techno stress on teachers' job satisfaction and performance in Lagos state primary schools, implementing these recommendations can help to reduce techno stress among teachers, improve their job satisfaction and performance. This will ultimately create a more effective and positive learning environment for students in Lagos state primary schools. The following recommendations are suggested:

1. Provide regular training and support for teachers on the effective use of technology and strategies to manage techno stress. Such training could include time-management strategies, mindfulness practices, and digital detox initiatives.
2. Provide adequate technical support and resources to teachers to reduce techno stress related to technology use. This could include updating technology and providing access to technical support and troubleshooting resources.
3. Reduce the administrative workload on teachers by automating administrative tasks where possible, providing clerical support, and streamlining paperwork.

References

Ahmet, N. C, & Sahin, Y. L. (2011). Technostress levels of social network users based on ICTs in Turkey. *European Journal of Social Sciences 23*(2); 171-182.

Ahmet, N. C., Erkan, E., Sahin, Y. S., & Arif, A. (2016). Investigation of Techno-Stress levels of teachers who were included in technology integration processes. *The Turkish Online Journal of Educational Technology*, 1331-1339.

Aktan, O., & Toraman, C. (2022). The relationship between technostress levels and job satisfaction of teachers within the COVID- 1 9 period. *Education and Information Technologies, 18*(1), 1-25. doi.org/lO.1007/s 10639-02211027-2.among users of information and communication strategies. *International Journal of Psychology, and Information Society*. Hogrefe.

Ayyagari, R., Grover V., & Purvis, R. (2011). Technostress: technological antecedents and implications. *MIS Quarterly, 35*(4), 831-858. doi:10.2307/41409963.

Blaug, R., Kenyon, A., & Lekhi, R. (2007). *Stress at work*: *The work foundation*. LON Press.

Brod, C. (1984). *Technostress: The human cost of the computer revolution.* : Addison-Wesley.

Califf, C. B, & Brooks, S. (2020). An empirical study of techno-stressors, literacy facilitation, burnout, and turnover intention as experienced by K-12 teachers. *Computer & Education*, 157, 1-15.

Califf, C. B., Sarker, S., & Sarker, S. (2020). The bright and dark sides of technostress: A mixed-methods study involving healthcare IT. *MIS Quarterly, 44*(2), 809-856. doi:10.25300/MISQ/2020/14818

Chen, L. (2015). Validating the technostress instrument using a sample of Chinese knowledge workers. *Journal of International Technology and Information Management, 24*(1), 65–81 Retrieved from https://scholarworks.lib.csusb.edu/jitim/vol24/iss1/5.

Cooper, B. (2016). Intersectionality. In L. Disch., & M. Hawkesworth, M(Eds.), *The Oxford Handbook of Feminist Theory.* Oxford University Press.

Enis, L. A. (2005). Much of what I found out about technostress and librarians. *Computers in Librarians, 25*(8), 10–12.

Heinssen, R. K., Glass, C. R., & Knight, L. A. (1987). Assessing computer anxiety: development and validation of the Computer Anxiety Rating Scale. *Computers in Human Behavior, 3*(1), 49–59.

Hsiao, K.-L., Shu, Y., & Huang, T.-C. (2017). Exploring the effect of compulsive social app usage on technostress and academic performance: Perspective from personality traits,. *telematics and informatics*, 679–690. Investigation. *Information Systems Research, 1*(1), 1-10. doi.org/10.1287 /isre.2021.1047.

Kayastha, R., Adhikary, P. R., & Krishnamurthy, V. (2012). Correlates of occupational stress among executives. *IJRRAS*, 12, 101-106.

Kupersmith, J. (2005). Technostress and the reference librarian. *Reference Services Review*, 20: 7-14.

Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review, 53*(1), 27–35.

Lei, J. (2010). Quantity versus quality: A new approach to examine the relationship between technology use and student outcomes. *British Journal of Educational Technology, 41*, 455-472.

Lei, J., & Zhao, Y. (2007). Technology uses and student achievement: A longitudinal study. *Computers &Education, 49*, 284-296.

Longman, S.M.D. (2013). A comparison of the perceptions of technostress experienced by teachers versus technology used by teachers in elementary education in a southeastern school district. Doctoral dissertation. Southeastern Louisiana University.

Maier, C., Laumer, S,, Thatcher, J. B., Wirth, J. &Weitzel, T. (2022). *Trialperiod technostress: A conceptual definition and mixed-illelhocis.*

Marchiori, D. M., Mainardes, E. W., & Rodrigues, R. G. (2018). Do individual characteristics influence the types of technostress reported by workers? *International Journal of Human-Computer Interaction*, *35*(3), 218–230.

Olujuwon, T., Bamiro, N.B., Akudo, K.O.,& Anagun, A.M. (2021). Teachers' characteristics as predictor of the adoption of Eko excel pedagogical innovation in public primary schools in Lagos state, Nigeria. *Ife Journal of Educational Management and Policy Analysis, 2*(1), 14-33.

Pankajakshi, R., &Shailaja, M. L. (2012). The role of information and communication technologies (ICTs) in service sector. *World Journal of Science and Technology, 2*(5), 66-70.

Peeraer, J., & Van Petegem, P. (2015). Integration or transformation? Looking in the future of information and communication technology in education in Vietnam. *Evaluation and Programme Planning,* 48, 47-56.

Ragu-Nathan, T., Tarafdar, M., Ragu-Nathan, B.S., & Tu, Q (2008). The consequences of technostress for end users in organisations: Conceptual development and empirical validation. *Information Systems Research, 19*(4), 417-433. doi.org/10.1287/isre. 1070.0165.

Roblyer, M. D. (2006). *Integrating Educational Technology Into Teaching*. (4th Edition). New Jersey: Merrill Prentice Hall.

Salanova, M., Llorens, S., &Cifre, E. (2013). The dark side of technologies: Technostressamong users of information and communication strategies. *International Journal of Psychology,* 48(3), 422-436. doi:10.1080/00207594.2012.680460.

Sethi, A. S., Caro, D. H. J., & Schuler, R. S. (1987). *Strategic Management of Technostressinan Information Society.* Boston:

Spector, P.E. (1985). Measurement of human service staff satisfaction: Development of the job satisfaction survey. *American Journal of Community Psychology 13*(6); 693-713.

Srivastava, S. C., Chandra, S., & Shirish, A. (2015). Technostress creators and job outcomes: Theorising the moderating influence of personality traits. *Information Systems Journal, 25*(4), 355–401.

Suh, A., & Lee, J. (2017). Understanding teleworkers' technostress and its influence on job satisfaction. *Internet Research, 27*(1), 140-159. doi:10.1108/IntR-06-2015-0181.

Tarafdar, M., Cooper, C. L. & Stich, J. F. (2017). The technostress trifecta techno eustress, techno-distress and design: Theoretical directions and an agenda for research. Information Systems Journal, 29(1), 1-37. doi.org.

Tarafdar, M., Pullins, E. B., & Ragu-Nathan, T. S. (2014). Technostress: negative effect onperformance and possible mitigations. *Information Systems Journal,* 25(2), 103-132. doi:10.1111/isj.12042

Tarafdar, M., Tu, Q., Ragu-Nathan, T. S., & Ragu-Nathan, B. S. (2011). Crossing over the "Dark Side": Examining Creators, Inhibitors and Outcomes of Technostress. *Communications of the ACM,* 54(9), 113-120. doi: 10.1145/1995376.1995403.

Tarafdar, M., Tu, Q., Ragu-Nathan, T.S., & Ragu-Nathan, B.S. (2007). The impact of technostress on role stress and productivity. *Journal of Management Information System, 24*(1), 301-328.*Tech.* 9(4) 257–271.

Trucano, M. (2005). *Knowledge maps: ICT in education*. Washington, DC: Infodev/World Bank.

Wang, B., Deng, K., Wei, W., Zhang, S., Zhou, W., & Yu, S. (2018). Full cycle campus life of college students: A big data case in China. In Du, J. & Kim, C. (Eds.) Proceedings - 2018 IEEE international conference on big data and smart computing (BigComp). 1, 507–512. Washington DC, USA: IEEE Computer Society. doi: 10.1109/BigComp.2018.00083.

Wang, K., Shu, Q., & Tu, Q. (2008). Technostress under different organisational environments: An empirical investigation. *Computers in Human Behavior, 24*(6), 3002–3013. https://doi.org/10.1016/j.chb.2008.05.007.

Weil, M. M. & Rosen, L.D. (1997). *Technostress: Coping with technology @Work @Home @Play*. Wiley.

Zhao, X., Xia, Q., & Huang, W. (2020). Impact of technostress on productivity from the theoretical perspective of appraisal and coping processes. *Information and Management.* https://doi.org/10.1016/j. im.2020.103265.

Zhao, Y., & Frank, K.A. (2003). Factors affecting technology uses in schools: An ecological perspective. *American Educational Research Journal, 40*, 807-84.