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Techno-stress and Teachers' Effectiveness in Private Secondary Schools in Education District V, Lagos State, Nigeria

Rasaki Olanrewaju Lawal[1], Nurudeen Olalekan Orunbon[2*], Kehinde Esther Oyaleke[3]
[1]Department of Educational Management, Lagos State University of Education, Oto/Ijanikin, Nigeria,
[2]Department of Educational Management, Lagos State University, Ojo, Lagos, Nigeria &
[3]Naval Officers' Wives Association Secondary School, Ojo, Lagos Nigeria

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** Corresponding author:*

E-mail: orunbon.nurudeeno@gmail.com

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A B S T R A C T

Techno-stress and teacher effectiveness in private secondary schools in Lagos State's Education District V were the main topics of this research. Four hypotheses were developed in order to provide a more comprehensive perspective of the study project. Simple random sample and a survey descriptive research design were used in the approach. The research included 348 private school teachers in Education District V, Lagos State, Nigeria. A total of 348 questionnaires were administered in the field; of these, 294 were deemed suitable for data analysis. The sample size for this investigation was obtained through stratified and purposive random sampling technique. The Techno-Stress Questionnaire (TSQ) and Teachers Effectiveness Questionnaire (TEQ) were the study tools used. Pearson Product-Moment Correlation inferential statistics were used to analyse the data. The findings obtained from the test of the four hypotheses show that techno-insecurity, techno-complexity, techno-overload and techno-uncertainty have negatively weak and significant relationship with teachers' effectiveness. It was concluded that that Techno-stress creators reduced teachers' effectiveness in private secondary schools in Education District V, Lagos State, therefore, there is a need to allay the fear of using technology among teachers. Therefore, the study recommends that teachers should undergo regular training with the use of technology to enable them to achieve results in less time.

1. Introduction

The education sector has faced several difficulties as a result of the COVID-19 epidemic, especially with regard to the shift to online instruction. It has been especially difficult for Nigeria, a nation where in-person instruction was the norm at all levels, to adjust to virtual learning. Teachers' lack of readiness and digital skills has led to issues like techno-stress, which has a detrimental impact on both their psychological health and their ability to engage students in the classroom. It is not a gainsaying that the COVID-19 pandemic transformed education worldwide,

forcing teachers to adapt to remote and hybrid teaching models rapidly. While technology enabled continuity in education, it also introduced a new challenge, techno-stress. As schools settle into post-pandemic realities, understanding how techno-stress affects teachers' effectiveness is crucial for supporting educators and improving educational outcomes.

Techno-stress can impair teachers' ability to plan, deliver, and assess lessons effectively. When educators are preoccupied with troubleshooting technical issues or struggling to navigate unfamiliar platforms, their focus shifts away from pedagogy. For example, a teacher frustrated with a malfunctioning video conferencing tool might rush through explanations, leading to poorer student comprehension. The 21st century has seen top nations working towards enhancing their effectiveness, most especially in the education sector, which is the lifeline to building the future leaders. Amidst COVID-19, the Lagos State government introduced Eko Excel to ensure the effectiveness of the education sector at all levels (TVC News, 2020). Schools at various levels, irrespective of their nature, whether private or public, have started embracing technology, moving from just classroom learning to online and blended learning.

Information and Communication Technology (ICT) has brought about significant transformation in the education setting, as teachers can deliver lectures without necessarily being present in classes, thereby providing a solution to the problems of place and time. However, despite this change, it still poses a challenge in terms of usage, acceptance, navigation, and effectiveness (Portz *et al*., 2019). Technology rules the world, but developing countries like Nigeria have yet to have the majority of their workforce be experts in it, thereby creating a challenge of techno stress (Agbatogun, 2020).

Techno-stress is defined by Fuglseth and Sørebø (2014) as a mal-adaptation brought on by an inability to cope with the increasing complexity of ICT and evolving requirements associated with ICT usage. ICT, which is the source of it, businesses that impose limits on its use, and colleagues who often influence how individuals use ICT are all linked to technological stress (Tarafdar *et al*., 2020; Avanzi *et al*., 2018). It is tension brought on by an incapacity to handle the demands of corporate computer use. Workers' incapacity to meet needs associated with their usage of ICT is an adaptation issue (Tarafdar *et al*., 2020). Technology-related stress can have a detrimental impact on individuals' creativity and productivity, potentially leading to reduced work satisfaction, suboptimal job performance, and higher rates of turnover (Ayyagari *et al*., 2011; Tarafdar *et al*., 2015).

Techno stress is psychological, emanating from the fear of loss of job, gap in possessing-demand skills, and change (Ahmad, Amin & Ismail, 2012). Ahmad, Amin & Ismail (2012; p7) identify techno-insecurity, techno-complexity, techno-uncertainty, techno-overload as indicators of techno-stress". Psychological stress can result in depression, anxiety, fear, and frustration, which might cause workers to behave in an abnormal way (Rajkumar *et al*., 2015). Fear of job loss (Techno-insecurity) can cause employees to face techno-stress as technology brings about a transformation in knowledge and skills, resulting in a switch from manual methods

to digital methods (Tarafdar *et al*., 2015). ICT users who experience techno-insecurity fear that they may lose their jobs due to new technology or to others who are more proficient in ICT than they are (Tarafdar *et al*., 2020).

Techno-complexity refers to a state in which individuals who use computers perceive themselves as lacking the necessary abilities due to the challenges associated with their use (Fuglseth & Sørebø, 2014). They therefore find it difficult to devote time and energy to learning about and comprehending the many ICT characteristics. Techno-complexity arises as a result of the fear of the skill gap, which can be challenging to bridge. Workers born in the 21st century are born into the technological age, thereby not finding it difficult to cope with it compared to an employee born in the 80s, who is used to crude tools and equipment. The fear of this transformation of skill is what is termed techno-complexity, which encompasses how to cope with computer usage, how to teach using video conferencing platforms, and what the outcomes of errors might be, among other techno-complexity-related questions that cause psychological distress.

Techno-uncertainty is a state in which people who use ICT experience hesitation and unease due to the constant changes and need for upgrades. (Fuglseth & Sørebø, 2014). Techno-uncertainty arises from the need for continuous learning, unlearning, and relearning, as a stop can render a worker obsolete and, at that point, such a worker may lose their job. Techno-uncertainty arises as a result of the fear of what the change might be like, whether I will be able to cope with it, and how I can transform in response to it. These are prominent questions that are generated and re-generated as a result of instability in technology.

Teachers' effectiveness, on the other hand, has to do with their ability to achieve results. This has to do with how well students can understand the message being passed by the teacher during the teaching and learning process. Teachers' effectiveness can be measured through student performance (Fauzi & Johan, 2024). Student performance is the ability to have high grade after being thought in class. Teacher effectiveness was defined as an instructor's ability to deploy strategies, tactics, connections with learners, and a specific combination of dispositions to improve the performance of students (Omodan, 2016). This relates to a teacher's capacity to impart knowledge to students in a manner that ensures their understanding.

Researchers' interest in comprehending the negative aspects of technology usage has grown, despite the undeniable advantages and affordability of modern technologies for the educational process. For instance, it has been discovered that new technologies like social media and Cellphones blur the lines between end users' personal and professional lives, causing their social and professional lives to become more intertwined (Salazar-Concha *et al*., 2021). Although prior research has demonstrated the integration of technology in higher education across a range of domains, relatively few studies have examined necessitate deployment of technology and stress related to technology in secondary school and higher educational institutions institutional contexts (Nepo, 2017; Wood *et al*., 2018). Because ICT devices and applications are constantly evolving, users need to devote

more time and effort to learning how new technologies work and how to use them, according to the findings of previous research conducted in a variety of settings (Maier *et al*., 2015; Joo *et al*., 2016; Qi, 2019; Tarafdar *et al*., 2011). Additionally, it has been shown that the stress caused by the usage of new technology has a detrimental effect on instructors' intentions to accept and include ICT in the classroom (Baabdullah *et al*., 2022; Joo *et al*., 2016; Khlaif *et al*., 2023). However, little study has been done on the factors that affect teachers' technological stress and how to effectively reduce it (Salo *et al*., 2022).

It is important to note that, countries with advanced ICT infrastructure have robust academic contributions on techno-stress, underscoring its impact on school efficiency and teachers' well-being. However, Nigeria, despite its growing ICT adoption, shows limited published research in this area. This leads to the shortage of local studies on the existence of techno-stress. In fact, before the pandemic, techno-stress was a relatively niche topic in Nigerian academia, overshadowed by broader discussions about digital literacy and infrastructural challenges. However, COVID-19's disruption of traditional learning modalities thrust techno-stress into the spotlight.

Lagos State Education District V is one of the administrative educational zones established by the Lagos State Ministry of Education to streamline and enhance the management, supervision, and development of education within its jurisdiction. This district plays a crucial role in the overall educational landscape of Lagos State, Nigeria's most populous and economically vibrant region. Lagos State is divided into several educational districts to facilitate effective governance and delivery of educational services. District V encompasses a specific cluster of local government areas (Ajeromi-Ifelodun, Amuwo-Odofin, Badagry and Ojo) within the state, serving as an administrative hub for schools ranging from primary to secondary levels, both public and private schools. The exact boundaries can be subject to periodic adjustments by the Ministry of Education to reflect demographic changes and administrative efficiency.

One of the primary functions of Education District V is the supervision of schools under its jurisdiction. This includes routine inspections to ensure compliance with educational standards, monitoring teaching quality, assessing school infrastructure, and verifying the implementation of the state's curriculum. Most studies on techno-stress have concentrated more on the public primary and secondary schools as well as the tertiary institutions Therefore, not many studies seem to have been directed at techno-stress and teachers' effectiveness in private schools in Lagos State, Nigeria. Regardless of findings and the notion that techno-stress and its creators has found an essential place in recent stress studies, such trends have not spread into the private secondary schools sector.This gap presents a critical issue, as ineffective management of technostress could reduce teachers' ability to deliver lessons effectively, engage students, and meet educational outcomes. The problem this study seeks to address is the extent to which technostress can affect the teachers' effectiveness in performing their Socratic engagement with the students in private secondary schools in Lagos State Education District V.

Based on the above stated problem it is imperative on the study to examine the influence of technostress on teachers' effectiveness in private secondary schools in Lagos State Education District V, Nigeria.

Research Hypotheses

H_{01}: There is no significant relationship between techno-insecurity and teachers' effectiveness in private secondary schools in Education District V, Lagos State.
H_{02}: There is no significant relationship between techno-complexity and teachers' effectiveness in private secondary schools in Education District V, Lagos State.
H_{03}: There is no significant relationship between techno-uncertainty and teachers' effectiveness in private secondary schools in Education District V, Lagos State.
H_{04}: There is no significant relationship between techno-overload and teachers' effectiveness in private secondary schools in Education District V, Lagos State.

1. Literature Review

Theoretical Anchorage

Theory of Reasoned Action and Technostress

In the contemporary digital era, technology's rapid advancement has transformed how individuals interact, work, and live. While technology offers myriad benefits, it also introduces challenges such as technostress—the stress experienced due to the use of information and communication technologies (ICTs). Understanding the dynamics of technostress is essential for improving user well-being and productivity. One useful framework to analyse behaviour related to technostress is the Theory of Reasoned Action (TRA). This article explores the intersection of the Theory of Reasoned Action and technostress, discussing how TRA can help explain behavioural responses to technology-induced stress (Sapry & Ahmad, 2024).

The Theory of Reasoned Action was developed by Martin Fishbein and Icek Ajzen in the 1970s, the Theory of Reasoned Action is a psychological model that predicts behavioural intentions and actual behaviour based on two core components:

1. Attitude toward the behaviour: The individual's positive or negative evaluation of performing the behavior.

2. Subjective norms: The perceived social pressure to perform or not perform the behaviour.

According to TRA, behavioural intention is the immediate antecedent to behavior, shaped by attitudes and subjective norms. For example, if a person believes that engaging in a behaviour will lead to favourable outcomes and perceives social endorsement, they are more likely to intend to perform that behavior. When experiencing technostress, an individual's attitude toward using technology can shift. For example, a worker overwhelmed by constant emails may develop a negative attitude toward email use. According to TRA, this negative attitude reduces the intention to engage with such technology, potentially leading to avoidance behaviors (e.g., ignoring emails), which might affect productivity.

Conversely, if a person believes that mastering technology can reduce stress or improve efficiency, their attitude may remain positive, encouraging proactive engagement. Social environment and cultural expectations heavily influence technology use. In some organisations, there is an unspoken norm to respond instantly to digital communication, which can exacerbate technostress. If an individual perceives social pressure to stay constantly connected, their intention to disengage or set boundaries may be low, even if they experience stress.

Techno-Stress

According to Brod (2019), techno-stress is an adaptive condition of coping-ability that was brought about by hopeful technological development. Techno-stress is the term for a condition of adaptation that results from a person's incapacity to cope with the advancement or modification of technology for communication and information in an ever-changing manner (Christian *et al*., 2021). According to Maxwell (2021), techno-stress is the result of inadequate technological coping, which raises stress levels. Subsequently, Weil and Rosen (1997) broadened the concept to include negative psychological effects of technology as well as attitudes and ideas. When a person is required to embrace and adapt technology in the workplace, it may cause Techno-stress, which is a generalized sensation of worry and negatively influence thoughts, behaviors, attitudes, and body (Tagurum *et al*., 2017). According to Hung *et al*., (2015), workers deal with it as an information technology management issue at work. Accordingly, Techno-stress is the worry that people with technology phobias exhibit about using technology because of the time and effort and skills needed to integrate it effectively (Saka *et al*., 2020). According to Shenk (2019), techno-stress—one of the rising problems associated with information glut—has a negative effect on people's attitudes and behavioural responses that are either directly or indirectly caused by technology and data-smog. According to him, social and emotional problems are the outcome of information overload rather than information shortage. Although many advocated for the direct or indirect use of technology-related information (IT) causes techno-stress, many others discovered that the predictable use of computer integrated management systems causes techno-stress as well (Liu & Wang, 2020; Doronina, 2015; Desai & Richards, 1998; Raitoharju, 2015). Techno-stress was the cause of these negative effects of data pollution and technology inflow, according to Tarafdar *et al*. (2007) and RaguNathan *et al*., (2008). Four creators — techno-insecurity, techno-complexity, techno-uncertainty, and techno-overload—among the five creators of techno-stress established by Tarafdar *et al*. (2007) appropriately describe the educational situation.

Techno-Stress Creators

This study is only limited to four techno-stress creators, that is, techno-insecurity, techno-complexity, techno-uncertainty, and techno-overload. The techno-invasion is not part of this study because, the use of phones by teachers need not necessarily contribute to techno-invasion or diminish their effectiveness. When phone usage is managed properly this does not inherently lead to techno-invasion affecting teachers' effectiveness. When teachers adopt clear boundaries—such as designated

times for checking messages or using phones only during work hours—phones do not intrude on personal time or mental space. Many educators successfully use phones for lesson planning, student engagement, and professional development without experiencing techno-invasion.

Techno-insecurity

Techno-insecurity is the term used to describe circumstances in which educators experience job insecurity due to apprehension that they may be supplanted by new educational technology or by individuals with greater ICT proficiency. Technology (ICT) people feel frightened in this scenario. They believed that technology or someone with more technological aptitude than them will replace them in their jobs. End users are concerned about losing their employment due to cyber insecurity if they are unable to satisfy the requirements for education and work-process adaptations connected with new and emerging ICT. Unease with technology causes people to negatively assess computer proficiency and system usability, which makes them unhappy with the applications they use (Ragu-Nathan *et al*., 2008). Workers fear that when new ICT is deployed, they may lose their jobs or be replaced by others who have better and more up-to-date technological capabilities (techno-insecurity). The increasing levels of techno-insecurity among information technology users are the cause of the rising unhappiness in the workplace (Oncioiu, 2013). A job is a source of security, social contact, and self-efficacy; if they are unable to meet their learning needs and adapt to new work practices using new technologies, they may eventually lose faith in their careers (Rasool, *et al*., 2022).

Techno-complexity

Techno-complexity describes situations when the complicated nature of ICT renders teaching more challenging and necessitates that instructors continuously pick up and refresh skills to deal with problems related to rapidly evolving or complex technology (Li & Wang, 2021).Teachers are under needless strain because of complexity and limited time (Luchtvaartfeiten.nl, 2015). Teachers are forced to acquire and comprehend a variety of IT aspects and are forced to believe that their abilities are insufficient (Tarafdar *et al*., 2015). Similarly, Fauscette and Perry (2014) proposed that increased technical complexity presents a variety of difficulties, such as increased workload, increased operating expenses, decreased productivity, and a worsened competitive edge. One inevitable expense of deploying new technology is frequently sophistication.

Techno-Uncertainty

Techno-uncertainty is a term used to characterize circumstances in which educators are uneasy about using ICT in the classroom, leading to unclear expectations and job needs (Li & Wang, 2021). Even when a technological breakthrough results in a positive transformation, it still has a tendency to create uncertainty and unpredictability (Monat *et al*., 1972; Mantler *et al*., 2015; Rafferty & Griffin, 2006). Because of the frequent changes, the user is forced to be emotionally uneasy and doubtful and continuously educate themselves about the newest IT capabilities

(Tarafdar *et al*., 2015). Rosenberg (2019) contended that technological change is marked by a significant degree of uncertainty, even though it is a key driver of sustainable economic development. The economic and societal implications of a new technology that makes it easier to utilize copyrighted information are unclear, and a number of uncertainties and difficult interpretation problems arise (Depoorter, 2018). However, techno-uncertainty is better than ignorance as it has value for further investigation (Floridi, 2014), which keeps learning ongoing and requires instructors to remain alert.

Techno-overload

Teachers are under pressure to perform more quickly than they can handle due to the stress caused by ICT (Wang & Li, 2019). Techno-overload characterizes situations where educators are compelled to work longer and quicker hours as a result of higher workloads brought on by ICT usage (Li & Wang, 2021). Technological advancements cause "work intensification," which raises the demands placed on people by their jobs with regard to with every task's mental exertion and number of non-routine tasks per hour (Green & McIntosh, 2001; Burchell *et al*., 2021). Techno-stress describes situations in which employees are forced by IT to work more quickly and effectively (Tarafdar *et al*., 2015). According to Bowles *et al*. (2020), teaching is one of the most stressful occupations since it shapes the next generation of teachers and citizens worldwide. Beyond this, more information causes workers to become overworked and perform worse. Similarly, Shaw (2015) contends that while contemporary technology is supposed to increase worker productivity, in practice it leaves workers feeling so overwhelmed and overworked that completing tasks becomes difficult.

Teachers Effectiveness

The capacity of a teacher to function well while dealing with children in the classroom is known as teacher effectiveness (Sehjal, 2021). A qualified educator is one who makes the required changes to the learners' activities based on the goals and demands of his lesson. It implies that the effective transfer of information in the educational environment that results in good learning outcomes determines the students' success. An excellent teacher is one whose pupils attain high standards in their subjects. The assessment of a teacher's effectiveness encompasses several dimensions, since it evaluates various aspects of teaching, including topic mastery, effective communication, class planning, presentation, and interpersonal interactions (Sehjal, 2021). A teacher's ability to achieve success depends on their degree of skill, efficiency, devotion, and perfectionism (Sehjal, 2021).

A successful teacher has the right qualities and behaviors to ensure that their lessons produce the intended results (Sehjal, 2021). Stated differently, an effective educator is someone who can achieve the intended result by using their present abilities. Effective teachers, according to Glass (2021), employ a range of tools to organize and plan lessons, formatively monitor students' progress, adhere to instructions when needed, and assess the progress of learners through a variety of channels that recognize diversity for the advancement of civic engagement and education. These

tools are used in conjunction with other educators, staff members, parents, and other education practitioners to ensure the academic success of the students. Observe that teachers are effective on their job when they are satisfied and committed to their job. Therefore, job satisfaction and commitment are indicators to measure effectiveness of employee on their job especially in the context of techno-stress.

Techno-Stress and Teachers Effectiveness

ICT are altering educational organisational structures and transforming teaching and learning (Jena, 2015; Ortagus *et al*., 2018). Without a doubt, ICT offers education previously unheard-of advantages, such expanding and democratizing students' access to high-quality learning materials and giving them a convenient, customized learning environment (Li & Wang, 2021). But the use of ICT in the classroom also means that teachers have to deal with increased workloads, unclear roles, altered work schedules, the need to continuously update their knowledge and abilities, and increased expectations for output and performance (Jena, 2015; Tarafdar *et al*., 2011). The continual influx of knowledge from different computer networks as well as calls for action on ICT use to school organizations and learners provide them with ongoing issues. (Salo *et al*., 2019).

Additionally, as a result of ICT usage, new teaching and learning methods like game-based instruction, mobile instruction, and flipped classrooms are always developing. However, compared to conventional learning and teaching, ICT-enhanced learning and teaching is more complex (Hatlevik & Hatlevik, 2018; Shedletsky & Aitken, 2021). Teachers need to grasp new methodology and create new educational and instruction tools in addition to becoming ICT literate. Alongside the changing learning and teaching styles, their responsibilities in students' education also need to change, and employment criteria sometimes become unclear (Li & Wang, 2021). Teachers may therefore experience tension, anxiety, and overload (Skaalvik & Skaalvik, 2017). Their job performance and organisational dedication may suffer as a result (Al-Fudail & Mellar, 2008; Brooks & Calif, 2017; Jena, 2015).

Information and Communication Technology Use in Educational Institutions

Information and communication technology, or ICT, is without a doubt a tool that may be used for teaching and learning as well as for any other element of human endeavour. Since technology is helping to develop education in the twenty-first century, it is obvious that the demands of a contemporary classroom vary greatly from those of a traditional classroom. But as the world quickly shifted to digital media and information, its role in education is growing and will continue to do so in the twenty-first century (Youssef & Dahamani, 2008). It has also brought about major tides of industry shifts, which are also evident in the education sector. Teachers' use of ICT was facilitated by the rapid growth of information and communication technologies. Information and communication technology is also used in education to improve the three main components of university learning—creativity, interaction, and knowledge exchange. Through State governments secondary schools have made significant investments in information and

communication technology (ICT) during the last 20 years. ICT has significantly changed how schools are organised and how they teach and learn (Orunbon, *et al*., 2025).

Information is a very important resource that provides competitive advantage, economic possibilities, legal, fiscal, and risk management options to organisations, including secondary schools, worldwide. Information and communication technology, or ICT, refers to the utilisation of computing devices and other tools for handling data and other organisational activities. According to Ugwoke et al., (2015), ICT offers new abilities that have enhanced new methods of information dissemination within as well as outside the organisation and resulted in significant organisational changes. People who use ICT in the workplace cultivate a curious, crucial and imaginative disposition in order to capitalise on the opportunities brought about by the rapid growth of information, understanding, and technology. One aspect of the digital transformation of educational management and the effectiveness of teachers in the twenty-first century is the use of ICT in the classroom. The main justification for incorporating ICT into school administration is the devices' capacity to automate processes and achieve efficacy and efficiency in the areas of community interactions, personnel, learner, and facility management, instructional monitoring, and school business operations. Devices that leverage information and communication technology are thus essential to contemporary organisations' efficacy and efficiency, and they are the catalyst for empowerment and development. Internet, websites, software (Microsoft Word, Excel, Access, Education Management Information System), and hardware (phones, printers, scanners, photocopiers, digital media projectors, overhead displays, computers, laptops, tablets, DVD players, smart boards) are among the ICT tools that are available for educational administration and teachers' efficacy, according to Higgins (2010). Communication, word processing, spreadsheets, databases, presentations, e-mail, and the internet may all be done using these devices. Nevertheless, how these technologies are employed for teaching and learning tasks in schools depends on their availability, capability, intended application, and level of utilisation.

In education, the phrase "information, communication, and technology" (ICT) refers to the incorporation of computer-based communication into the standard classroom teaching procedure. The educational system has been enhanced by the development of learning technologies in the twenty-first century. This is because technology can provide a proactive, accessible, innovative, and all-encompassing instructional and educational environment. Students' interest in new products and technology is growing as a result of the enormous opportunity for technological advancement in the educational field. Students are embracing "self-learning" via e-learning teaching techniques, which are a crucial means for interaction between students and instructors. ICT can help teachers and students acquire more about their topics. Since students are used to technology and learn best in a technologically advanced setting, the challenge of incorporating information and communication technologies in schools especially in the classroom is vital.

2. Methodology

Research Design

Correlational and descriptive survey research designs were adopted in this study. This is because the study examined the nature of relationship between Techno-stress and teachers' effectiveness and a description of existing situation regarding Techno-stress and teachers' effectiveness in private secondary schools in Lagos State Education District V. The study also described the interplay between the variables.

Population

All of the instructors at Lagos State Education District V's accredited private secondary schools make up the study's population. According to the Field survey conducted in 2023, there are 751 teachers in Education District V, Lagos State. And out of 751 teachers, only 348 teachers are certified by the Teachers Registration Council of Nigeria (TRCN), and this form the population of the study. Research in education often requires selecting a specific geographical or administrative unit to focus on, and Lagos State Education District V stands out as a compelling choice for several reasons. Lagos State District V encompasses a range of urban and semi-urban communities, reflecting the socio-economic diversity characteristic of Lagos State as a whole. This district includes numerous public and private schools, serving a large population of students from varied backgrounds, making it a microcosm of the broader state's educational landscape. It is notable for its heterogeneous population, incorporating students from diverse ethnic, religious, and socio-economic backgrounds. This diversity allows researchers to study how educational policies and practices impact different groups, making findings more inclusive and representative.

Private schools in Education District V were chosen for this study because the Education District is home to a variety of private schools that cater to diverse socio-economic groups. These schools often strive to provide quality education by adopting modern technologies such as digital classrooms, and e-learning platforms. Despite their efforts to modernise, the transition to tech-heavy environments has not been seamless, leading to significant techno-stress. One primary cause is the rapid pace at which educational technologies evolve. Teachers often find it difficult to keep up with constant updates and new tools. Many educators in private schools are not adequately trained, leading to anxiety and frustration when technology fails to function as expected. It important to note that technology can blur the boundaries between work and personal time. Teachers are often expected to prepare digital content, communicate with students through online platforms, and manage virtual classrooms outside regular hours. This increased workload contributes to techno-stress.

Sample and Sampling Technique

Respondents were drawn from the participating private schools in Education District V using a stratified random selection approach. Once again, instructors accredited by the Teachers Registration Council of Nigeria (TRCN) and who teach and guide students from JSS III to SS III were chosen from each school using a purposive sample approach. Teachers who had remained or had been teaching in their different schools for five years were chosen as research participants, making it purposeful. The flowchart of the sampling is shown in Fig 1:

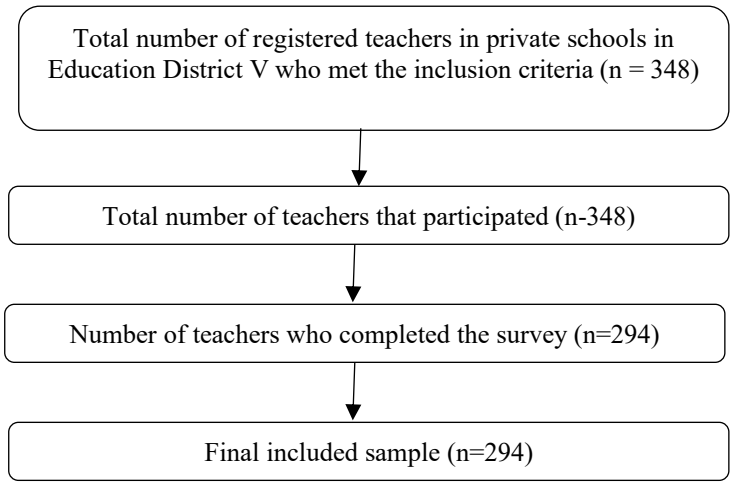

Figure 1. Researcher's Flowchart of Sampling

Instrument

The research instrument used in this study is the Techno-stress and Teachers Effectiveness Questionnaire (TSTEQ), a self-structured questionnaire created by the researcher in collaboration with measurement and assessment specialists. The questionnaire consists of 12 questions for the Teachers' Effectiveness Questionnaire, 22 items for the Techno-stress Questionnaire, and items developed and information collected from the respondents. The questionnaire is divided into two sections (A and B). Section A of the questionnaire contains the personal data of the respondents. The twenty (20) questions in section B are arranged using a four-point Likert rating system. Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1) are the ratings assigned to the items.

The test-retest reliability technique was used at two-week intervals to assess the consistency and reliability of the instrument. For the first time, twenty participants were given the questionnaire. The same subjects were given the same questionnaire two weeks later. To determine the consistency of the instrument, the obtained data were submitted to Pearson's moment correlation coefficient. The Cronbach's alpha for each variable is shown below:

Table 1. The Cronbach's alpha

Variables	Cronbach alpha
Techno-insecurity	0.79
Techno-complexity	0.83
Techno-uncertainty	0.71
Techno-overload	0.89
Teachers effectiveness	0.81

Data Collection

The data was collected through the questionnaire. The researcher and one research assistant visited all the sampled schools. The questionnaires were administered to the respondents. The research assistant was trained on the study objectives and effective data collection methods over a period of two weeks before administering the questionnaires. To a large extent, all instruments were administered and collected on the same day to facilitate the recording of a high number of returns. The collection spans four weeks.

Data Analysis

The research hypotheses were formulated and tested using Pearson moment correlation, aided by the Statistical Package for the Social Sciences (SPSS). Correlation measures the degree to which two variables move about each other. Correlation analysis helps in testing hypotheses about relationships between variables. It is to identify whether and how strongly variables are related. At its core, correlation quantifies the strength and direction of a linear relationship between two continuous variables as this study showcased the relationship between Techno-stress and teachers' effectiveness. All the formulated hypotheses were tested at 5% significant level.

3. Results

Table 1. Correlation Showing Relationship between Techno-Insecurity and Teachers' Effectiveness in Private Secondary Schools in Education District V, Lagos State

		Techno-Insecurity	**Teachers' Effectiveness**
Techno-Insecurity	Pearson Correlation	1.000	-0.279**
	Sig. (2-tailed)		0.000
	N	294	294
	Mean	23.6973	
	Std. Dev.	4.78837	
Teachers' Effectiveness	Pearson Correlation	-0.279**	1.000
	Sig. (2-tailed)	0.000	
	N	294	294
	Mean	51.3401	
	Std. Dev.	5.00716	

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

Table 1 revealed that there is a negatively weak and significant relationship between techno-insecurity and teachers' effectiveness in private secondary schools in Education District V, Lagos State, Nigeria (r =-0.249, ρ<0.05). The implication is that there is no relationship between techno-insecurity and teachers' effectiveness in private secondary schools in Education District V, Lagos State. Hence, the null hypothesis one that states that there is no relationship between techno-insecurity and teachers' effectiveness in private secondary schools in Education District V, Lagos State is hereby rejected.

Table 2. Correlation Showing Relationship between Techno-Complexity and Teachers' Effectiveness in Private Secondary Schools in Education District V, Lagos State

		Techno-Complexity	Teachers' Effectiveness
Techno-Complexity	Pearson Correlation	1.000	-0.235**
	Sig. (2-tailed)		0.000
	N	294	294
	Mean	18.4490	
	Std. Dev.	3.43776	
Teachers' Effectiveness	Pearson Correlation	-0.235**	1.000
	Sig. (2-tailed)	0.000	
	N	294	294
	Mean	51.3401	
	Std. Dev.	5.00716	

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

Table 2 revealed that there is a negatively weak and significant relationship between techno-complexity and teachers' effectiveness in private secondary schools in Education District V, Lagos State, Nigeria (r =-0.235, ρ<0.05). The implication is that there is no relationship between techno-complexity and teachers' effectiveness in private secondary schools in Education District V, Lagos State.

Therefore, the null hypothesis two that states that there is no relationship between techno-complexity and teachers' effectiveness in private secondary schools in Education District V, Lagos State is hereby rejected.

Table 3. Correlation Showing Relationship between Techno-Uncertainty and Teachers' Effectiveness in Private Secondary Schools in Education District V, Lagos State

		Techno-Uncertainty	Teachers' Effectiveness
Techno-Uncertainty	Pearson Correlation	1.000	-0.118*
	Sig. (2-tailed)		0.044
	N	294	294
	Mean	22.8163	
	Std. Dev.	3.82826	
Teachers' Effectiveness	Pearson Correlation	-0.118*	1.000
	Sig. (2-tailed)	0.044	
	N	294	294
	Mean	51.3401	
	Std. Dev.	5.00716	

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

Table 3 revealed that there is a negatively weak and significant relationship between techno-uncertainty and teachers' effectiveness in private secondary schools in Education District V, Lagos, Nigeria (r =-0.118, ρ<0.05). The inference is that there is no relationship between techno-uncertainty and teachers' effectiveness in private secondary schools in Education District V, Lagos State. Therefore, the null hypothesis three that states that there is no relationship between techno-uncertainty and teachers' effectiveness in private secondary schools in Education District V, Lagos State is hereby rejected.

Table 4. Correlation Showing Relationship between Techno-Overload and Teachers' Effectiveness in Private Secondary Schools in Education District V, Lagos State

		Techno-Overload	**Teachers' Effectiveness**
Techno-Overload	Pearson Correlation	1.000	-0.220**
	Sig. (2-tailed)		0.000
	N	294	294
	Mean	19.2585	
	Std. Dev.	4.38597	
Teachers' Effectiveness	Pearson Correlation	-0.220**	1
	Sig. (2-tailed)	0.000	
	N	294	294
	Mean	51.3401	
	Std. Dev.	5.00716	

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

Table 4 revealed that there is a negatively weak and significant relationship between techno-overload and teachers' effectiveness in private secondary schools in Education District V, Lagos, Nigeria (r =-0.220, ρ<0.05). The interpretation is that there is no relationship between techno-overload and teachers' effectiveness in private secondary schools in Education District V, Lagos State.
So, the null hypothesis four that states that there is no relationship between techno-overload and teachers' effectiveness in private secondary schools in Education District V, Lagos is hereby rejected.

Discussion

The finding of the first hypothesis shows that there is a negatively weak and significant relationship between techno-insecurity and teachers' effectiveness and this finding is in line with the finding of Li and Wang (2021) who are of the view that techno-insecurity has a significant negative influence on their work performance. Fauzi & Johan (2024) support the argument stating that techno-creators (techno-insecurity) significantly impacted teachers' job effectiveness. They went on to say that among the three characteristics of techno-stress that were chosen, techno-complexity had the greatest influence on teachers' work effectiveness, which was followed by techno-insecurity and techno-uncertainty. Furthermore, their research found no difference in the effects of techno-insecurity on upper secondary school instructors based on gender. Techno-insecurity refers to teachers' fear or anxiety about using new technology, which can reduce their

confidence and productivity. It means that many teachers struggle with adapting to modern educational tools, impacting their teaching quality. Factors such as lack of training, support, and resources contribute to this insecurity (Orunbon, *et al*., 2024). The results of the second hypothesis indicate that techno-complexity and teachers' effectiveness have a negatively weak and significantly related. These findings are consistent with those of Fauzi & Johan (2024), who found that teachers' job effectiveness was significantly impacted by techno-complexity. The finding that techno-uncertainty and techno-insecurity had a positive and significant influence on teachers' commitment is refuted by Hassan *et al*.,'s (2019) argument, which also claims that two elements of techno-stress creators—techno-overload, and techno-complexity—did not predict teachers' effectiveness in the workplace. Marchiori *et al*., (2018) similarly found a negative outcome, claiming that users of technology were less successful due to techno-complexity. This shows that while technology can enhance teaching, many teachers struggle with its complexity. These difficulties include understanding new software, managing digital tools, and integrating technology into lessons. Such challenges can reduce teachers' confidence and overall effectiveness (Orunbon *et al*., 2024).

According to the third research hypothesis, there is a significant but weak negative correlation between teachers' effectiveness and techno-uncertainty. These results are consistent with those of Fauzi & Johan (2024), who found that teachers' job effectiveness was significantly impacted by techno-uncertainty. The final hypothesis's results demonstrate a negatively weak and significant relationship between instructors' effectiveness and their technological overload, which is in contrary with Li and Wang's (2020) conclusion that technological overload increases productivity. They went on to say that this could be the case since using technology speeds up work completion, allowing for the completion of several activities in a given amount of time. Moore (2000) went on to say that the main factor causing technology workers' weariness and decreasing their productivity was techno-overload. The claim that there is a link between information overload, or techno-overload, and technological stress is supported by Ayyagari (2011). He went on to say that individuals might get anxious and tense due to lengthy, strict work hours, the necessity to put in additional hours, technology overload, or task overload. Techno-overload occurs when teachers face an overwhelming amount of information and tasks due to technology use, leading to stress and reduced performance. It means, therefore, that while technology can enhance teaching, excessive reliance on it can cause burnout, distraction, and decreased productivity among teachers (Orunbon *et al*., 2025).

4. Conclusion

This research looks at how teachers' effectiveness is affected by technological stress in private secondary schools in Lagos State, Education District V. The term "techno-stress" describes the tension brought on by using technology, particularly when educators find it difficult to adjust to newly introduced digital resources and channels. The research highlights that many teachers face numerous challenges, including frequent technological changes, inadequate training, and an increased

workload from managing both traditional teaching methods and digital tools. These challenges often lead to anxiety, fatigue, and reduced job satisfaction, which negatively impact their teaching performance.

The study shows that Techno-stress can lower teachers' ability to deliver lessons effectively, manage classrooms, and engage students. It also points out that the adverse effects of Techno-stress could reduce overall school performance if not addressed. The results showed that instructors' effectiveness was significantly impacted by the techno-stressors of techno-insecurity, techno-complexity, techno-uncertainty, and techno-overload. It has been observed that teachers' perceptions of techno-stress may stem from their inability to utilise the technology or, more likely, from the fact that most of them failed to see how the technology may improve the overall standard of their work. Given that the research found that techno-stressors decreased instructors' efficacy at private secondary schools in Education District V, Lagos State, some people could still adhere to conventional teaching and learning methods. To improve teacher effectiveness as Nigeria navigates the post-COVID-19 educational environment, it is imperative to address techno-stress. According to research, while technology has grown essential in the classroom, the problems that come with it, such as techno-stress, may impair teachers' effectiveness and students' engagement. In order to create a more sustainable educational system, future research should concentrate on long-term techniques that assist instructors in managing techno-stress.

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