

# Technostress Among College Students in the Post-Pandemic Era

Chinmay Jain

Mindanao State University – Buug Campus, Datu Panas, Buug, Zamboanga Sibugay, Philippines  
chinmay@msubuug.edu.ph

**Abstract:** *This study explored the Technostress among College Students in The New Normal during the school year 2020-2021. Eleven participants were the selected BSED students who experienced online delivery of instruction. A case study was utilized based on the interpretivist paradigm. The study intended to know the forms, causes, effects on academic performance, and coping strategies of technostress. Multiple data sources were collected, such as the TSC Questionnaire that measured the level of students' technostress and Interview Guide Questions answered by participants. To triangulate participants' responses, four subject teachers were also interviewed. Findings notably identify two forms of technostress experienced by the participants, such as emotional discomfort and body pains caused by various challenges of distance learning. Alongside these forms of technostress are remarkable coping strategies that somehow help students manage various discomforts and difficulties as means of survival. As part of the implication, the participants' coping strategies were composed of three stages: acknowledging the technostress, evaluating coping skills, and mitigating the technostress by applying available resources. Based on the findings, an implication for managing technostress was then provided.*

**Keywords:** Technostress; Online Learning; Academic Performance; New Normal

## 1. Introduction

The nation is grappling with the latest problem, which is the COVID - 19 pandemics. Everyone's encouraged for a shift to be made in Education by revitalizing and reimagining concepts to address the mooring of the 21st-century generation. Still, it is not easy to alter something that has been practiced for a considerable length of time unless events compel us (Kamalludeen, 2020). Most governments have chosen to employ quarantine protocols and temporarily shut down their educational institutions to curb the spread of COVID-19. As a result, more than a billion students worldwide have been affected. More than 28 million Filipino students across academic levels are among this number who have to remain at home and comply with the Philippine government's quarantine measures (UNESCO, 2020).

To adapt to the demand of learners, in particular of the 3.5 million tertiary students enrolled in approximately 2,400 HEIs, some of the country's HEIs have, considering the closure, adopted constructive policies for the continuity of education (Joaquin, Biana, & Dacela, 2020). Such policies include updated modes of online learning aimed at promoting activities for student learning. Online learning may be in terms of synchronous, real-time lectures and time-based evaluations of results, or asynchronous, delayed-time events, such as pre-recorded video lectures and time-independent assessments (Oztok, Zingaro, Brett, & Hewitt, 2013).

DLSU has resorted to online interactive learning, mixing synchronous and asynchronous practices. There are flexible choices for students who do not engage in online learning to meet the academic year's course requirements (De La Salle University, 2020). ADMU suspended synchronous online classes, but asynchronous online learning continued to "all students can learn at their own pace" (Villarin, 2020). Like DLSU, UST has decided to continue synchronous and

asynchronous online classes and a versatile grouping of student outputs and evaluations (University of Santo Tomas, 2020).

Arguably, amid the pandemic, the pivot of the HEIs to updated online learning modes aims to understand the government's stance to continue learning. "As Leonor Briones, secretary of the Philippine Department of Education (DepEd), joked, "Education must continue even within times of crisis, whether it may be a disaster, catastrophe, emergency, quarantine, or even war (Department of Education, 2020). On the other hand, the Philippines Higher Education Commission (CHED) has advised HEIs to continue to "deploy available flexible learning and other alternative delivery modes instead of on-campus learning" (Commission on Higher Education, 2020).

Many school systems have relied on distance learning and educational technology to an incredible level in response to the COVID-19 pandemic. As universities remain closed due to the Covid-19 pandemic, the long hours students spend on computers and smartphones for online classes are beginning to worry parents as symptoms of headaches, eye issues, and stress emerge (Cao et al., 2020).

The educational system should be versatile. As a researcher and an educator, the opportunity for progress is practical. Continuity in teaching and studying at school is a significant concern during the COVID-19 pandemic. The current scenario has highlighted gaps in the education system that are heavily dependent on students' and teachers' presence in the same place at the same time. Due to social distancing norms and national lockdowns, the Covid-19 pandemic has contributed to an imminent increase in the use of emerging technologies. People and organizations have had to adapt to new working and living ways (De', Pandey, & Pal, 2020).

There are countless explanations about why technology is a crucial learning factor in schools. Technology is all over the world, whether we like it or not. For our students to succeed

in education, they need to learn technology (Wantulok, 2015).

This study proposed some coping strategies on technostress to help manage them and prevent bigger problem. Moreover, the findings of this study may aid stakeholders in establishing ways to fix present inadequacies in the HEI's program for treating technologically related stress in the country as a result of the conduct of online learning in new normal education.

## 2. Statement of the Problem

The primary aim of this study was to examine the technostress among BSED students in the new normal in one of the higher institutions under the Zamboanga Sibugay province during the first semester of S.Y. 2020-2021.

The study sought answer to the central question: What are the techno stresses of the students in the new normal education?

It specifically answered the following sub-questions:

- 1) What are the forms of technostress experienced by college students in the conduct of online learning?
- 2) What are the causes of technostress?
- 3) How does technostress affect their college performance?
- 4) How do they cope with technostress?
- 5) Based on the findings, what implications can be drawn?

## 3. Significance of the Study

The findings of this study have led to propose some coping strategies on technostress to help manage them and prevent a bigger problem. The following are the individuals who will benefit from the study:

**Administrators.** The study would help administrators to recognize specific supports that may be provided to students. It would be helpful in identifying programs for technostress awareness and coping strategies.

**Teachers.** Through the obtained experiences from the research participants' teachers could propose coping strategies on technostress and make best practices in delivering instruction with the use of online platforms.

**Guidance Advocate.** Guidance counselors may recommend coping mechanisms for technostress and use technostress instruments to identify high-risk students based on the experiences of study participants. Counselors may offer advice on reducing technostress and improving students' academic performance to equip students with the knowledge and skills to cope with stress and opportunities to engage in stress-relieving activities.

**Other Researchers.** The study would help other researchers gauge the variety of experiences of students' technostress. It also contributes to understanding technostress among students in the new normal. The findings added knowledge and value to the body of research. Overall, the study reveals critical results of understanding the consequences of using technology and stress-related issues.

## 4. Related Literature and Studies

### 4.1 Online-Learning Platforms in Higher Education

Nowadays, the higher education system is constantly changing, and universities must keep up with students' needs, expectations, and standards. As a result, information technology and online-learning platforms are seen as essential aspects of universities' operations, with these organizations increasingly investing in online systems and devices (Popovici & Mironov, 2015). However, in this technological age, one of the most significant challenges facing universities is integrating innovative online-learning platforms to enhance teaching and learning (Fischer, Heise, Heinz, Moebius, & Koehler, 2014).

Online learning can improve the educational process due to its complex characteristics and various features. However, teachers and students must positively incorporate collaboration and performance into the teaching and learning process to positively impact cooperation and understanding. Three factors, according to Tham and Werner (2005), assess the efficacy of online learning: students who might feel alienated due to the absence of a physical colleague, an institution which refers to teachers knowing how to use resources to improve learning, how to communicate with students and build a comfortable learning atmosphere, and how to get students closer and catch their attention creatively (Tham & Werner, 2005).

Online learning supports various models of various technology applications. Asynchronous networking tools (e.g., e-mail, threaded discussion boards, newsgroups) uses by one class of online learning models to allow users to participate at their convenience. Synchronous technologies (e.g., webcasting, chat rooms, audio/video desktop technology) uses for approximate face-to-face training approaches, such as the delivery of seminars and student groups' meetings. One model or the other appeared to be introduced by earlier online programs (Brown & Ryoo, 2008).

The broader category of distance learning, which incorporates earlier innovations such as correspondence courses, educational television, and video conferencing, overlaps with online learning. Earlier distance learning research found that these technologies were not substantially different from traditional classroom learning in terms of efficiency (Shachar & Neumann, 2010). Policymakers claimed that if online learning in terms of student performance is not worse than conventional instruction, then online education programs justify cost-effectiveness or the need to provide access to students in areas where face-to-face instruction is not feasible. However, in light of today's online learning applications, which can take advantage of a wide variety of web services, including multimedia and web-based applications and emerging collaboration technologies, the topic of the relative effectiveness of online and face-to-face teaching needs to be revisited (Phan, 2018). These online learning modes are a long way from the television and video conferencing broadcasts that dominated previous generations of distance learning. Also, interest is growing in hybrid methods that combine in-class and online activities. Policymakers and practitioners want to learn about

the feasibility of web-based, interactive approaches to online learning and need to know about the circumstances under which online learning is successful (Means, Toyama, Murphy, Bakia, & Jones, 2010).

Distance education can be a lonely experience in many ways. Students are left to motivate themselves and struggle through challenges and obstacles with less guidance and encouragement from peers and teachers, creating a sense of isolation. There is an obvious need to understand what factors influence motivation in distance education when the student is left to self-motivate and propel his or her studies forward. The importance of motivation in online learning has been established (Lim, 2004).

Self-directed e-learning (SDEL) is known as electronic learning environments. No peers or teachers are present daily; according to previous research, the primary causes of learner attrition in an online environment are a lack of time and encouragement (Kim & Frick, 2011).

#### 4.2 Higher Education and Technology Adoption

ICT advancements and rising popularity have increased ICT adoption by higher education institutions (HEIs). Technology is increasingly being used to automate instructional processes and improve teaching and learning. Because of government incentives and to fulfill students' expectations, the use of Technology Enhanced Learning (TEL) has grown in academia (Dunn & Kennedy, 2019).

Higher education is embracing information technology to provide 24/7 educational access opportunities for students. Part of this adoption is motivated by students' perceived need to have access to educational material at anytime, anywhere. In today's electronic era, technology-related stress is still prevalent. This form of stress adds additional levels to working in the online educational environment (Booker, Rebman, Jr, & Kitchens, 2014).

Students in higher education have developed adverse cognitive and psychological reactions and attitudes due to information, communication, and technology (ICT) (Anderson et al., 2014). Salanova et al. (2013) observe that when people use computers, they experience apprehension, nervousness, and discomfort. Some people, for example, are afraid of pressing the wrong key and losing data, or they are hesitant because they are concerned that the actions, they take on a device will return incorrect data (Hackbarth, Grover & Mun, 2003).

Research has established an important term related to stress used in various fields such as education, health, and social sciences (Fink, 2017). Fink defines stress as "the sense of danger with the associated fear, emotional tension, and transitional difficulty discomfort." Recent definitions of stress were the most recognizable components; stress represents an individual's perception and a response encouraged by anxieties or pressure. Baqtayan (2015) defines psychological stress as "an unpleasant cycle of emotional and physiological stimulation that individuals experience in situations that they perceive to be hazardous or dangerous for their well-being." The causes of stress range

from environmental factors to biology, with effects that are as detrimental as physical and mental health problems.

#### 4.3 Technostress and Technostress Creators

According to Brod (1984), the adverse effects of technostress are feelings of anxiety, reluctance, and fear towards computers. Technostress manifests in the form of a person experiencing nightmares, headaches, irritability when using a computer, or absolute refusal to use technology. Students are perceptible to the same adverse effects.

"The negative psychological connection between people and the implementation of new technologies" is defined as technostress (Agboola & Olasanmi, 2016). One of the critical indicators of technostress is the inability of many users to adapt or adequately cope with ICT in an appropriate and healthy manner. Students will, therefore, discover that they do not have sufficient time to improve creative thought and critical thinking abilities. In consequence, technostress can result from this overexposure to technology (Agboola & Olasanmi, 2016). Brod (1984), a clinical psychologist, describes technostress notion as the contemporary negativity of adaptation induced by an inability to deal healthily with emerging computing technology.

Psychological stress can physically manifest itself. There are also a variety of technostress symptoms. The anxiety expressed by techno stress sufferers: insomnia, loss of temper, irritability, irritation, and, if not dealt with, can increase judgment errors and poor job results. "Techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty are five conditions known as" techno stress creators (Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007).

The scale of Techno stress Creators was modified to calculate the techno stress's degree. In this tool, the constructs used to assess techno stress have been found to closely mimic stressors used in measuring occupational stress. This scale comprises of 23 items grouped into five techno stress-generating factors: (a) Techno-overload: measures the agreement of the respondents if the technology used has changed their work rate, work patterns, and workload; (b) Techno-invasion: measures the understanding of the respondents on how the technology used has invaded their personal lives; (c) Techno-uncertainty: tests the agreement of the respondents as to whether constant improvements in the technology used in their workplace have occurred; (d) techno-complexity: measures the understanding of respondents as to the complexity of the technology used and the adequacy of their current technical skills and knowledge; and (e) techno-insecurity: measures the agreement of respondents as to whether the technology used compromises their job security (Tarafdar et al., 2007).

Therefore, these elements are the signs of technostress within personal space and could significantly affect their well-being, concentration, and success in task execution (Tarafdar et al., 2011). Addressing these issues might shift individual bias by putting personal goals into line and contributing to a more centered and self-assured person. Privilege should be to assess, recognize, and solve these

problems so that a person avoids being disillusioned, demotivated, and lacking a satisfactory drive to achieve their target.

#### 4.4 Causes of Technostress

People who use technology at work in the twenty-first century are more likely to experience technostress. People are sitting next to computer monitors for more extended periods, causing physical pressure. People spend hours per day at work in the twenty-first century because their survival and job satisfaction depend. These requests, however, are becoming increasingly harmful to their welfare. It is essential in today's technological world to provide people with a suitable and healthy physical environment. People are emotionally impacted by technostress in their workplaces, and too much exposure to computer monitors is linked to emotional stress (Ennis, 2005).

Technostress harms worker satisfaction, organizational engagement, and productivity. It's essential to check on the level of technostress affecting professionals regularly, particularly physical and emotional effects. Managers should hold technology-based training sessions for their staff to help them become more comfortable with technology and mindful of its negative consequences. Employees must maintain their technical skills by updating them regularly. To optimize device usability and provide a degree of comfort to employees, institutions, businesses, and agencies must employ IT, specialists and troubleshooters. The causes of technostress include the rapid pace of technological change, lack of proper training, an increased workload, lack of standardization within technologies, and the reliability of hardware and software (Ennis, 2005).

#### 4.5 Effects of Technostress

The symptoms of technostress manifest psychologically through unpleasant emotions, undesirable self-image, undesirable views about work or supplementary machine operators, and in some cases, even psychosomatic sicknesses (Corradini, Marano & Nardelli, 2015). The social and emotional intelligence of technology users is often influenced by technical stress. (Brooks, 2015).

The lack of programming skills and experience, according to a study by Bloom (1985), is the most significant force that triggers computer-related technostress. According to a study by Bloom (1985), the lack of programming skills and experience is the most significant force that triggers computer-related technostress.

Two factors that cause technostress were defined by the researchers: environmental factors and social factors. Many types of research analyzing technostress have associated many aspects with technostress causes (Salanova, Llorens, & Cifre, 2013).

Some factors cause technostress by environmental factors such as poor working conditions, low lighting, defective equipment and safety measures, the inadequacy of the operator, noisy equipment, software limitations, lack of money, electrical problems, risk of accidental loss of

information, lack of knowledge of maintenance and lack of meaning (Salanova, Llorens, & Cifre, 2013). The P-E (person-environment) fit theory emphasizes how a person and their surroundings are compatible (Edwards et al., 1998). P-E fit theory, in contrast to the transactional-based approach, recognizes the dynamic characteristics of technostress. It claims that stress is caused by a combination of factors, not by either the individual or the environment alone. In other words, technostress occurs when there is a mismatch between the individual and the environment (Jansen and Kristof-Brown, 2006). Although we can look at technostress as misfits between an individual and various aspects of the world, the causes of the misfits are also significant. According to Edwards et al. (1998), stress occurs when (a) the environment does not have enough supplies to fulfill the person's needs, or (b) the person's abilities do not meet the demands of the environment (Player et al., 2017).

Social factors explain the struggle caused by technology, the changing of roles, and the nervousness of failure; hierarchical changes in work may grow some technological stress among individuals (Salanova, Lorens & Cifre, 2013). Behavioral effects of technostress have been recorded, including burnout (Mahapatra & Pati, 2018) and body pain consequences such as repetitive eyestrain, headaches, blood pressure, backaches, and stomach problems, irritability, and heart attacks (Tams et al., 2013).

The effects of technostress are psychologically expressed by negative thoughts, undesirable self-image, undesirable views about work or supplementary machine operators, and even psychosomatic diseases in some cases (Corradini, Marano & Nardelli, 2015). Memory loss, sleep complications, and the failure to concentrate on recreational activities are further consequences (Ragu-Nathan et al., 2008). Poor health, negative self-image, and even depression can also be encountered by Technostress sufferers (Erasmus, 2014).

Technology users are more vulnerable to addiction disorders that affect their social and emotional performance. Social networking networks and video games are such online communication technologies that are more addictive than others (Lee, Chang, Lin & Cheng, 2014). These technologies can produce progressive and severe mental disorders, according to Lee et al. (2014). Female users are more social media addicts, while individuals have been more addicted to video games and social media sites (Andreassen et al., 2016).

Rosen et al. (2013) noted that technology and social media platforms could cause anxieties and attitudes related to technology. Their studies also reported that excessive use of technology could contribute to personality disorders, such as narcissistic conduct, schizoid personality disorder, obsessive-compulsive disorder, antisocial behavior, histrionic personality disorder, and paranoia. It is also possible to experience mood disorders such as bipolar mania, dysthymia, and major depression (Rosen et al., 2013).

Their analysis also shows that anxieties associated with technology pointedly predicted the medical signs of these disorders (Rosen et al., 2013). Furthermore, the study

findings have highlighted several positive and negative features of using technology, including the adverse impact of social media on the user's ability to multi-task (Rosen et al., 2013). For the purposes of this analysis, these findings will prove vital since students are often required to multi-task and operate complex ICTs in the pandemic. Consequently, overexposure to such stresses may exacerbate the student's ability to deal with them and may consequence in psychological stress. Students are highly dependent on websites for online information and communication (Rutherford & Kerr, 2014).

#### 4.6 Technostress and Students as Digital Natives

The term "digital natives" is has been used to describe today's students. They have technical fluency, which can quickly become acquainted with new technological demands (Prensky, 2001). "Students (digital natives) are recommending that these new technologies be used as part of their education, in part since they are things that the students have already learned and use in their everyday lives, and in part because they realize just how useful they can be," according to Prensky (2007). Current generation learners are thought to have well-developed positive learning behaviors, such as multitasking and coordination. Still, digital natives are believed to be incapable of deep learning and productive work. Digital natives are thought to have adequate ICT skills and adapt to change (Joo et al., 2016).

ICTs have been shown to improve academic performance in studies of these digital natives. The use of mobile devices had a positive effect on students' academic success, according to Qi (2019). According to Insua et al. (2016), students use ICT for personal, entertainment, and leisure time rather than academic purposes, and that increased ICT use contributes to better academic results. According to Rabi (2016), the frequency at which undergraduate students use their phones has no impact on their academic results. On the other hand, TEL causes burnout, decreased interest in learning, low academic performance, and the intention to drop out, according to a study conducted by Jena (2015) among Indian university students.

Technostress has a negative effect on academic productivity, according to the findings (Upadhyaya & Vrinda, 2020). The findings were in line with previous studies conducted in business settings (Tarafdar et al., 2011a; Chen, 2015). HEIs will use the technostress instrument to classify high-risk students and advise on how to minimize technostress and improve their academic performance. Students experiencing high levels of technostress can be paired with a peer mentor to help them gain trust in their use of technology.

#### 4.7 Technostress and Coping

Stress is a general term for a transactional mechanism in which environmental demands outnumber an individual's ability and resources to satisfy them (Lazarus & Folkman, 1987). According to this definition, technostress is a problem of adaptation caused by an inability to cope with ICT-related demands (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008). The creation of technostress is depicted in the

following paragraphs using the transactional theory of stress (Lazarus & Folkman, 1987).

As per the transactional theory of stress, stress comprises three mechanisms: primary appraisal, secondary appraisal, and coping. The preliminary appraisal is the method of identifying a danger to oneself, such as a perceived mismatch between technical demands and one's own ability to meet them (Lazarus & Folkman, 1987).

The method of assessing available coping tools to deal with a perceived threat is known as secondary appraisal (Lazarus & Folkman, 1987). As a result, this mechanism is influenced by both an individual's resources (e.g., coping abilities) and environmental factors (e.g., circumstances). Coping is described as "adaptational actions performed by a person in response to disruptive events occurring in his or her environment" (Beaudry & Pinsonneault, 2005). As a result, coping encompasses problem-focused behavior to alter the stressful situation, such as attempting to take control of the stressful situation step by step (active coping) or finding assistance from others (seeking instrumental social support). Ignoring the stressful situation, denial, or disengagement are examples of other coping methods, such as cutting off all further interactions and withdrawing from the stressful situation (behavioral disengagement). Individuals can use more than one strategy at the same time (Beaudry & Pinsonneault, 2005). As a result, coping strategies are not mutually exclusive, and individuals can vary in their coping strategy preferences and the degree to which they use each one. According to recent studies, almost every employee (88.3%) tries to solve an ICT-related problem themselves or looks for the root of the problem first (Ortiz de Guinea, 2016).

Executing coping behaviors to mitigate adverse effects is the third aspect of the stress formation mechanism (Lazarus & Folkman, 1987). We distinguish between successful and dysfunctional coping using traditional coping taxonomies. As a result of behavioral disengagement, the level of experienced pressure decreases, but it can increase above the initial level if future experiences with the stressor cannot be prevented (Carver, Scheier, & Weintraub, 1989). As a result, behavioral disengagement is regarded as a dysfunctional coping strategy, while constructive coping and the use of instrumental social reinforcement are considered to be functional coping strategies (Carver, Scheier, & Weintraub, 1989). In a report on various coping strategies (Gaudioso, Turel, & Galimberti, 2017), researchers looked at three adaptive coping strategies (active coping, asking for technical assistance, and planning) as well as two maladaptive coping strategies in the sense of technostress (denial and behavioral disengagement). Employees in this study responded to technology-related stress primarily with maladaptive coping strategies, which increased work exhaustion, while adaptive coping strategies reduced work exhaustion (Gaudioso, Turel, & Galimberti, 2017). Consequently, pressure is not a direct result of being exposed to a stressor but rather a function of a person's resources and coping abilities. individual characteristics, such as emotional and mental competencies, are, in reality, negatively related to work-related technology strain (Salanova, Llorens, & Cifre, 2013).

Furthermore, coping behavior influences the perception of technology-related strain, but technology-related stress also initiates coping behavior (Lazarus & Folkman, 1987). Individuals can continue to participate in coping behavior if they believe the strain level is still too high due to such feedback loops. Maier, Laumer, Weiner, and Weitzel (2015) demonstrated that technostressors induced technology-related fatigue, which in turn caused behavioral responses such as avoidance.

Aristotle stated that happiness was contingent on engaging in activities that were in line with one's interests and aspirations (Christiansen & Matuska, 2006). Others have believed that emotions can influence physical health, and native health practitioners have maintained that physical health requires a balanced lifestyle. Two modern-day scientists, Adolf Meyer and Hans Selye aimed to prove the effects of emotions on physical health. Meyer confirmed that lifestyle choices impact mental health and illness, and he coined the term "psychobiology" to describe the phenomenon. Maintaining a balanced lifestyle is vital for human longevity and prosperity, and some theorists feel that living a balanced existence requires incorporating recreational activities (Mannell & Reid, 1999).

Stress also influences eating behavior, shifting meal choices toward foods with higher palatability and energy value, particularly those heavy in sugar and fat. Food's importance in a person's life extends beyond its nutritional value. When we are stressed, we typically turn to food for psychological comfort and a conscious plan to modify our mood and humor (Wardle, Steptoe, Oliver, & Lipsey, 2000). Food choices are usually oriented to more great palatability foods in stressful situations, notably those heavy in fat and sugar (such as sweets), with a concurrent decline in the consumption of fresh foods such as fruits and vegetables. Findings in the literature suggest a link between high-carbohydrate and high-fat meals, particularly sweets in general, and stress levels are typical (Mikolajczyk, El Ansari, & Maxwell, 2009).

It's challenging to deal with uncomfortable, strong, and even frightening emotions; but, acknowledging your feelings can also help you improve your emotion control, resulting in fewer mood swings and better emotional equilibrium. (Salters-Pedneault, 2019).

Learning to accept your emotional experiences is an alternative to pushing away or suffocating your feelings. Acceptance entails practicing allowing your emotions to be as they are without criticizing or attempting to change them (Lindsay & Creswell, 2019).

Technostress harms students' physical and psychological well-being (Tams et al., 2014). As a result, it is critical to provide students with effective coping strategies that will enable them to cope with the negative emotions that technostress can cause. Technostress can be alleviated by implementing user-friendly software, educating people about new technology, and improving workplace reassurance, patience, stability, and communication. Another choice is to stop or limit technology use.

Most studies on technostress focused on people in the workforce and technostress among specific professionals (e.g., administrators, educators). Some studies, on the other hand, applied technostress research to non-work domains such as smartphone use (Lee, Chang, Cheng, & Lin, 2016) and social media use (Maier, Laumer, Eckhardt, & Weitzel, 2015), changing measures and terminology to fit the circumstances. Consequently, findings may not apply to college students in the new normal education where HEI's conducted online learning as one of the strategies to continue education despite the pandemic. Nevertheless, the research acknowledges the impact of technology on students' academic work. Furthermore, the findings of this study may assist stakeholders in developing strategies to solve present inadequacies in the HEI's program for addressing technologically linked stress in the country because of the conduct of online learning in new normal education. The researcher proposes that future researchers may conduct an in-depth study on the phenomenon to provide more evidence of the coping strategies generated in the research and contribute to understanding technostress among students in the new normal to improve academic performance.

## 5. Materials and Methods

### 5.1 Research Design

Using the Case Study Research Method, the study considered questions that led to an explanation of a phenomenon, identification of factors, and a description of experiences. The behaviors of the research participants in the study were not manipulated. It involved vital information that is believed to be useful and relevant to the study (Yin, 2003).

For this analysis, this study's preference dwelt more on Robert Yin's Case Study model. Yin (1984) describes the case study research process as "An empirical inquiry that examines a current phenomenon in its true context; where the boundaries between phenomenon and context are not clearly evident; and in which various sources of evidence are used". Yin (1984) distinguishes three types of case studies: exploratory, descriptive, and explanatory. Exploratory case study is deemed fit in this phenomenon as it aims to investigate some phenomenon in the data that piques the researcher's interest. the exploratory case study will apply as the purpose of a research case study is to acquire an appreciation of the method. The study's goal was to investigate the perceptions and effects of technostresses among college students and to bring an awareness of how technostress is experienced by students to add information to explore the relationship between technology and stress experienced by technology-using students. An exploratory case study aims to discover the hypothesis in its natural context by specifically studying a social phenomenon. As in an exploratory study, the researcher can identify more research questions for future studies and generate a hypothesis (Hollweck, 2016).

### 5.2 Research Environment

The study was carried out in one of the schools HEIs in Zamboanga Sibugay, where on September 5, 2020, the

school offered its first semester AY 2020-2021. The institution helped the college capture the three categories of its students depending on their accessibility to technology and the internet (wide or full access, restricted and entirely offline) for inclusive and versatile learning in response to the current need for continuing education during the pandemic. Students with minimal or no access to online technology, on the other hand, may use learning packets prepared by their teachers and sent to them via couriers. Students with complete internet access at home can also use the learning packets.

### 5.3 Research Subject

The study population was all 3rd year and 4th year BSED students in one of the schools in Zamboanga Sibugay. According to the College of Education Department, the institution has 30 BSED students enrolled (2020). The researcher used codes to represent the Research Participants as SP01 for Student A to SP11 for Student K.

### 5.4 Sampling Technique

The Researcher used Qualitative Purposive Sampling. The Researcher picked participants from the list that fit into the established profile. The research participants came from schools that formerly used Traditional Face-to-Face teaching as a primary means of delivering instruction, but now we're forced to enroll where Online Delivery of Instruction is used due to the abrupt shift of modality. The reason why the Researcher decided to pick research participants coming from SUC's schools was that in the province of the Zamboanga Sibugay, they are the school under SUC's supervision and only learning avenues that offer BSED and at the same time offers online delivery of instruction. The participants included in the qualitative process were those participants yielded a high result on TSC. The participants must be at least three years in the same school. This was to gauge relative experiences from both traditional face-to-face teaching and online teaching.

### 5.5 Research Instruments

The researcher was the study's main instrument. One of the tools used in this study was the Interview protocol. The Researcher developed questions for the interview and had validated them before gathering essential data. The second source of data was the adopted (TSC) Technostress Questionnaire for the student participants. The researcher gathered data from multiple sources mentioned above for the triangulation of data to happen. Triangulating measures from various sources strengthened a study's validity by countering bias that may arise from a single effort and contributing to establishing facts (Beverland & Lockshin, 2003). The intent of triangulating data sources was to increase the study's validity and reliability (Decrop, 2004). Having multiple instruments in gathering information is believed to be a good practice, primarily if a researcher conducts a Case Study Research Design (Yin & Merriam, 2018).

### 5.6 Data Gathering Procedure

Since the school involved in the study is from the province of Zamboanga Sibugay, the Researcher requested authorization from the School's Chancellor to run the study. Upon approval, the Researcher informed the college dean and the participants about the study's nature and purpose. Triangulation of data had been applied in this study to make sure results are well supported. Multiple data collection methods are commonly used in case study studies, and data is gathered from various sources. Data collection techniques include interviews, observations (direct and participant), questionnaires, and relevant documents (Yin, 2014). The researcher administered Interview Guide Questions to the selected participants. As an additional method of data collection, the researcher administered Interview Guide Questions to the subject teachers. Upon conducting the research participant's interview, the researcher observed and made a case note. The Researcher personally administered the instrument to the participants to encourage them to answer the questions wholeheartedly. The research participants were instructed to answer each question in oral form. There was an Audio Recorder during the process. The audio recording of the interview process was approved by the participants and stated in the Informed Consent that was given prior to the said interview. The researcher made sure to collect the Informed Consent before the start of the interview process to make sure that there is an acceptance of terms and understanding of the nature of the study. The Researcher also conducted members' checks to help improve the accuracy, credibility, validity, and transferability of a study. The basis of high-quality qualitative research is the reliability of findings (Birt, Scott, Cavers, Campbell, & Walter, 2016). Data Analysis was thoroughly checked to have accuracy and resonance of thoughts and words. In other words, after putting recorded responses into writings, the Researcher came back to the research participants and provided a copy of their responses. The research participants validated whether their transcription responses were accurate and valid.

### 5.7 Data Analysis

The Researcher gathered all possible descriptive data coming from the responses of Research Participants, Teachers, and Researcher's observation record. The first step was to propose building a data repository based on relational database theory. The second step was to develop codes to classify the various data "chunks." After that, the codes are analyzed and rationalized. The third step entailed in analyzing the data from the case study and producing a variety of reports. The final step was to link the codes back to the initial propositions and, where appropriate, by creating new propositions. The result of these measures is a collection of propositions representing the essence of the data in the case studies. The results directed to the central question that tackles about the Technostress among college students in the new normal. Since the utilized Case Study model is of Yin, the Researcher then provided a holistic description, interpretation, and analysis of a case such as the experiences of a group of people that belongs to a social unit. The summary's content described the study's primary features since the case study model involved interpretation

of what the research participants have said and what the Researcher has written.

## 6. Results and Discussion

### 6.1 Forms of Technostress Experienced by College Students of Online Learning

It was evident that participants encountered technostress, resulting in emotional discomfort and body pain, because of the increased use of technology during online classes in the pandemic time. The students are now forced to use technology to complete all their academic work, including exams, resulting in a high state of emotional discomfort. Body pain is the most common effect of technostress felt by the participants.

**Emotional discomfort.** It became one of the technostresses participants experienced by their feeling of irritability, loss of temper, frustration, and nervousness. Participants revealed that interactions with technology could be stressful at times and increase nervousness and anger emotions. The participants shared the following statements below.

*Frustration, mabalaka man gud ka kay naay mga due dates* [Frustration, you'll get worried because of the due dates.] SP07

*Stress, frustration ma frustrate jud kay ka example among gamit man gud maam is WIFI so naa to time maam na nikalit siya ug brownout so "hala! Unsaon man nako ni pagpasa sa akong activity hapit na ang deadline" so na frustrate jud kayo ko.* [ Stress, frustration, I'm frustrated because for example what we use ma'am is WIFI so there's a time ma'am it's raining and brownout so "hello! How can I submit my activity and its almost deadline" so I got frustrated?] SP09

*Mawad-an jud ka ug control like sa Google form then ikapila na jud ka nagtry-try ug balik-balik then so maka temper na jud siya masuko na jud ka sa everything kay tanan nimu makitan sa palibot kay masuko na dayun ka mao to dili nka ka respond.* [ You'll lose control like in Google form then even if you try it many times, so it will lose your temper ma'am you'll get mad at everything since all the things you'll see around makes you mad, so that's it you cannot respond anymore.] SP10

*Like having pressurized because of the modules and some point that you want to give up but you can't give up because you need to pursue to graduate. Of all those experiences I experience anxiety afraid of being late to pass like I've passed my modules 3 days or 2 days early from the deadline because I am afraid of getting really late in passing the modules like I really hate my phone not notifying me of the modules that is in.* [ Having pressurized because of the modules and some point that you want to give

up but you can't give up because you need to pursue to graduate. Of all those experiences I experience anxiety afraid of being late to pass like I've passed my modules 3 days or 2 days early from the deadline because I am afraid of getting really late in passing the modules like I really hate my phone not notifying me of the modules that is in.] SP11

Emotions are described as a "mental state of readiness for action that encourages behavioral activation." Emotions are triggered by a person's assessment of an event significant to them (Beaudry & Pinsonneault, 2010). A better understanding of stress-related emotions will explain how people evaluate their interactions with the world and how they respond to it. According to Sarabadani, Compeau, and Carter (2020), understanding individuals' emotional responses to technostress is significant since it influences their future actions, attitudes, and decision-making.

Technostress may have both emotional and physical effects (Salanova, Gumbau & Cifre, 2013). Poor ergonomics at computer stations in classrooms, especially for students, may make them feel tired and stressed out. Students are also forced to over-identify with technology to acquire the skills needed to operate advanced technology (Anderson et al., 2014)

**Body pains.** It is also evident that participants encountered technostress. Most participants experienced eye pressure, backaches, headaches, stiff shoulders, and neck pain are the most common physical effects of technostress. The participants shared the following statements below.

*So ako mka ingun na may pa sila nuon na bata-bata pa "hala!nindota nila uy!" then permenti ko mag.atubang sa cellphone then laptop pa jud then hapdos na ang mata makahilak pa jud.* [I will always face my cellphone then laptop then my eyes will sore and watery.] SP02

*Naka affect siya sa physical maam naka affect siya sa akong mata kay kana bitaw malibat ka sa kagamay then e.zoom-in pa nimu then ang brightness sa cellphone* [It affected me physically ma'am, it affected my eyes that you'd be cross eyed because of the small font then the brightness of the cellphone.] SP05

*Sa physical aspects kay I have sakit sa mata, kay sa sigeg basa sa PDF kay gagmay man siya (letter) and then usahay kay sige ug lingkod, so backpain and then sakit sa ulo.* [In physical aspects, I have strained eyes, from reading PDF since it's very small (letter) and then sometimes due to sitting, so backpain and then headache.] SP06

*Eyestrain maam, last sem I have 30 units so sa isa ka adlaw grabe tinutukay sa cellphone, then wala pay laptop kay apekti ang panahon then wala pa jud kay tarong bangko then magsakit na imong liog, imong likod.* [In eyestrain ma'am, last sem I



have 30 units so in a day, I am really using my phone, then I don't have a laptop then I don't have a stable chair your neck and back will ache.] SP07

*Sa physical aspects daghan especially sakit sa mata kay tungod sa radiation [Physical aspects, a lot especially eye pain because of radiation.] SP08*

*Based on what I experienced ma'am sa physical aspects is eye strain like imong mata sige tutok sa technology magluha-luha then ka nang overtime ma'am for example naay activity na kailangan ipass then due tomorrow so you really need to work hard from then kana pud sige ka bako (slouch) backpain dayun sakit akong liug(neck) kay sige ko huna-huna sa answer akong back akong mata after long quiz maka experience dayun ko ug headache. [Based on what I experienced ma'am in physical aspects is eye strain like your eyes focus on technology and just shed tears then if you work overtime ma'am for example there is an activity that needs to be passed then due tomorrow so you really need to work hard from then when you slouch you'll get a backpain then my neck hurts a lot because I'll think about the answer, you're in pain, my neck, my back, my eyes, after a long quiz, I can experience a headache.] SP09*

*Sa physical aspects medyo daghan jud like eye strain makatutuk man ka ug dugay aning sa atung gadget then kaning backpain kay need man nimu maglingkod or to make yourself comfortable pero inig mag dugay mosakit najud ang likod, then headache kay molabad na jud akong utok ay! atong ulo tungod sa radiation then neck pain pud kay ako mag-answer kay magduko so sa modugayon magsakit na jud sa liog. [In physical aspects there are a lot ma'am like eye strain because you'll gaze for too long in our gadgets so our eyes will hurt then back pain ma'am because we need to sit down or to make yourself comfortable ma'am but if you'll do it for too long your back will ache, then headache because my brain always throbs! Our head because of the radiation then also neck pain ma'am because you'll bow your head while answering so after a long-time ma'am my neck will be in pain.] SP10*

*Mga pains daghan maksakit sa likod, magsakit akong mata kay like for pila ka oras nagtutok sa computer tapos mokalit ug maligo tapos mokuan napud ug computer. [There are a lot of pain ma'am, it hurts my back. My eyes hurt ma'am because like I stare at the computer for how many hours and after that I'll take a bath and go back to computer again.] SP11*

Behavioral effects of technostress have been recorded, including burnout (Mahapatra & Pati, 2018) and body pain consequences such as repetitive eyestrain, headaches, blood pressure, backaches, and stomach problems, irritability, and heart attacks (Tams et al., 2013). Physical manifestations,

such as eye strain and musculoskeletal disorder, are increasingly being corrected by ergonomics (Bichteler, 1987).

## 6.2 Causes of Technostress in the Conduct of Online Learning

When participants interacted with technology, it was clear that the causes of the technostress they experienced are that. According to students interviewed, the most common causes of technostress were poor quality, malfunctioning technology devices, low internet connectivity, and lack of finances to buy a load. Teachers affirmed that most of their students complained about poor internet connectivity and lack of finances to buy a load to connect to the internet. They also shared that there are also students who don't have a good quality phone that can support the applications they used in their online classes.

**Poor quality.** Malfunctioning technology devices came out to be one the causes of technostress in the conduct of online learning, as participants mentioned during the interview.

*Sa una pa gyud kay dili jud ka kaingun nga naa kay sako na gamit na smart phone, kay gbubaon na unya gamay kaayo ug storage. [Before you cannot say that you have a good quality of smartphone, because its defective and has a very little storage.] SP01*

*Sa start pa lang dili pa jud in ani akong phone kato pang dili pa upgraded, then gamay pa siya(referring to phone storage) dili daghan ang apps na masukod. [From the start my phone isn't like this, it hasn't been upgraded yet, then it's still small (referring to phone storage) there aren't many apps to store.] SP02*

*Technology is a very factor, especially sa start pa lang kay wala jud koy technology wala koy cellphone, especially cellphone man jud ang pinaka-gamit karon sa online class so nag-struggle ko ato kay nakahuna-huna pa gani ko ug undang "moundang na lang siguro ko ani kay dili man ko maka cope-up ani sa lesson kay online man" nya wala man koy cellphone so mao to nakasugod ko ug attend sa online class mga 1month to kay nitrabaho ko daan para makapalit ko ug cellphone para maka apil ko ug online class.[ Technology is a very factor, since from the start I don't own a cellphone, especially cellphone is the most used in online class then that time I don't own one so it was really a struggle that I even thought of stopping, I was just even thinking of stopping "what if I stop because I can't cope up to the lesson because it's online?" so I started attending online class like 1 month since I need to work first so that I can buy myself a cellphone for online class.]SP04*

Some factors cause technostress by environmental factors such as poor working conditions, low lighting, defective equipment and safety measures, the inadequacy of the operator, noisy equipment, software limitations, lack of money, electrical problems, risk of accidental loss of

information, lack of knowledge of maintenance and lack of meaning (Salanova, Llorens, & Cifre, 2013).

**Slow internet connectivity.** It also came out to be one of the causes of technostress in the conduct of online learning, as research participants (SP01-SP10) revealed during the interview.

*To be completely honest “we’re not really doing good, kay kanang daghan man gud kayo ug factors e.consider for example ang signal, signal man gyud maoy grabe na kalaban namu na estudyante. [To be completely honest we’re not really doing good because of really many factors to consider for example the signal, signal is really the serious thing against us students.] SP01*

*For example, naa kay ipasa maam sa online dayun mohinay ang signal dayun nag-apas ka sa time. [ For example, I have something to submit it online then the signal slows down then you have to catch up the time.] SP02*

*Struggle nako sa amo-a kay ang signal ug ang pagload kay wala biya kay trabaho akong papa dili kayo maka support sa ako.a so kailangan jud nah mag-budget so naa jud uban nga sometimes naay klase na dili ko ka attend tungod sa wala pud load. [My struggle is that, the signal in our place and the load because my father doesn’t have a work, he really can’t support me so it needs to budget so there are times that I can’t attend classes because I don’t have load.] SP03*

*Signal ang internet connection jud ang pinaka struggle jud sa online class. [The signal, the most struggle part of the online class is the internet connection.] SP04*

*Struggle jud kay naa usahay nga kanang dugay masend. [It’s really a struggle if sometimes it takes too long to send.] SP05*

*Ang problema lang jud kay ang internet connection labi na sige ug brownout sge ka postponed ang klase. [The problem is the internet connection especially when it’s always brownout, the classes are always postponed.] SP06*

*Actually, stress jud kaayo siya kay una jud sa tanan kay hinay kaayo ug signal so I need to muanhi sa centro para magpa signal. [ Actually, it’s really stressing because first of all the signal is very weak so I need to go to center to have a strong signal.] SP07*

*Naa man gud panahon na naa silay ihatag dayun ma stress ka kay syempre mag travel-travel paka magita paka ug signal especially during exams inig mawala and signal kay wala ihilak mudagan na jud ka imbes nag focus ka during sa imong activity na buhaton mawala ka sa imong*

*momentum kay especially diri sa atong lugar kay mas kusog ang signal kung 11PM kanang na ngatulog nah ang mga tao. [There were times that they have something to give, then you feel stressed because of course you have to travel and look for load, especially during exams when you lose the signal and just cry instead of focusing during your activity that you will do you lose your momentum especially here in our area because the signal is stronger when people are already asleep at 11PM.] SP08*

*I cannot say na fine kaayo for example we are given this activity and we cannot approach our teacher if ever dili mi kasabot sa among activity dili mi dayun ka pangutana because of the internet connection and dili maka online among online teacher then amo pud signal loading kayo dili ma send among messages then hapit na ang deadline mastress kaayumi. [I can't say it's very fine for example we are given this activity and we cannot approach our teacher if ever we do not understand our activity we cannot ask because of the internet connection and cannot approach our online teacher then our signal is loading we can't send our messages then the deadline is almost over we get stressed.] SP09*

*Ang internet connection kay usahay man jud dili man nato siya ma handle so if kung poor ang internet connection usahay need pa nato magpload. Kanang technical difficulties kay nakasulay jud ko ikapila ana kay labaw na same sa Google form need jud siya balik-balikon kay once mo reload nato siya kay back to zero napud so balik napud ka ug answer so maka irritate lang jud to siya tungod anang technical difficulties. [The internet connection is poor we sometimes even need to buy load. So, in technical difficulties I already experienced it numerous times especially in Google forms you need to go back and forth because once it reloads, you’ll start back to zero and you need to answer again and it’s very irritating because of that technical difficulties.] SP10*

According to Brod (1984), the adverse effects of technostress are feelings of anxiety, reluctance, and fear towards computers. Technostress manifests in the form of a person experiencing nightmares, headaches, irritability when using a computer, or absolute refusal to use technology. Students are perceptible to the same adverse effects.

**Lack of finances.** Research participants (SP04 and SP07) stressed that they are also struggling in the financial aspect to survive in online learning to buy a load to connect to the internet.

*Sa load pud financial, labi na low income, mao na ako ma feel sa online class. Dugang pud nag self-support man gud ko so kung dili ko maka-kwrta kung dili pud ko motrabaho isa siya sa factor mao ng nakafeel ko ug stress sa online class kay*

*gastuan nako sa load kanang wala koy kwarta dili ko ka attend sa klase. [And load, financial, especially if you have a low income, that's what I feel in online class, I am stressed in that part. Plus, I self-support so I can't make money unless I work. That's a factor why I also get stressed in online class because of the expenses in load. If I don't have a money, I can't attend classes.] SP04*

*Ang load pa jud mao jud na ang pinaka struggle sa ako sa online class. Naa man gud panahon maan nan aa silay ihatag dayun ma stress ka kay syempre mag travel-travel paka magita paka ug pangload. [The load is the main struggle for me in this online class. There are times when they will give something and you'll get stressed because of course you have to travel, find signal and money for load.] SP07*

The P-E (person-environment) fit theory emphasizes the compatibility of a person and their surroundings (Edwards et al., 1998). P-E fit theory acknowledges the complex features of technostress, according to the study, stress is triggered by various factors, not only by the person or the environment. In other words, technostress occurs when the individual and the environment are out of sync (Jansen and Kristof-Brown, 2006). Poor working conditions, low lighting, faulty equipment and safety measures, the inadequacy of the operator, noisy equipment, software limitations, a lack of money, electrical problems, the possibility of accidental data loss, a lack of maintenance expertise, and a lack of sense are some of the factors that trigger technostress (Salanova, Llorens, & Cifre, 2013). The struggle caused by technology, the changing of roles, and the fear of failure are all explained by social factors; hierarchical changes in the workplace may increase some technological stress among individuals (Salanova, Lorens & Cifre, 2013). Students' technical issues remain poor internet connections, signal loss, lack of adequate digital devices, especially for students living in rural areas or come from low-income families (Coman, Țîru, Meseşan-Schmitz, Stanciu, & Bularca, 2020).

### 6.3 Effects of Technostress to Academic Performance

The research participants in the study viewed the effects of technostress differently. The responses of the research participants mostly point out that technology-related stress affects their class performance as students have lower records due to delays in submitting requirements because of poor internet connections, and a lack of motivation to study because they are reliant on the available resources. Some of the students mentioned that they are not genuinely learning and that their only aim is to meet requirements to get good grades. It is also affirmed by the teachers that there is a significant impact, for instance, those students who have a dream, their academic career is being affected so, they want to cope up in their lesson, but there are barriers through an online class, like poor internet connection, so it's tough for them.

**Lower records.** Research participants (SP03, SP04, SP06, SP07, and SP08) mentioned that poor internet connection was among the reasons they got a lower grade and affected

their class performance. The data were supported by their teachers' observation with regards to their performance.

*Usahay mawal-an ko pag-laum usahay tungod sa mga factors(like, poor internet connection) na usahay mao xa ang mag-lead na dili ko ka attend sa klase mababa napud akong grades ana [Sometimes I lose hope because of the factors (like, poor internet connection) that leads to me not attending classes because my grades will be low again.] SP03*

*Dako jud kayo siya ug apekto sa akong class performance kay ako jud siyang na base sa akong past performance nako akong grado dako ra kayo ug kalainan kay sa face to face kay dako-dako pako ug grado dayun sa pag-online nah layu na kayo. [ It really affected my class performance because I really based in on my past performance, the difference in my grades were really different during face to face because my grades were kind of high compared to online class.] SP04*

*Sa physical class kay maka compete jud ka bah maka perform jud ka, unlike sa online na magpass lang ka, murag limited lang ang imong ma showcase. One of the factor is grade kay mabalaka ka kay unsay grade ani kay mao jud na ang problem sa student kay among grade kay limited lang pud ilang ihatag bah dili namu ma showcase na "okay raman mi modawat ug gamay na grade pero kanang kabalo mi na murag nahatag na bitaw namu ang among best" pero among grado limited lang so maglisud mi ug abot sa dean's list. [The physical class is really different since you can really compete and perform well, unlike in online class, you just have to submit, you can just showcase limited performance one of the factors is grade because you'll get worried on your grades since it's the students' problem because there are instructors who will meet us only once then they will just give limited grade we can't showcase that "It's okay for us to accept small grades but I hope we know that we did our best" but our grades are only limited so we're having a hard time reaching dean's list.] SP06*

*Pag-pass nako paglantaw nako sa akong grado na stress jud ko kay dili nako deserve kay nag effort ka ug taman and then tagaan ka ug in ani na grado kanang where in fact gipasa nimu na siya then nag sige ka ug attend sa class. [After I submitted and look at my grades, I'd get stressed because I know I don't deserve it since I put effort and then they'll give you a grade like that where in fact you submitted and you always attend class.] SP07*

*Mas ning baba akong records kay usahay man kay due to low of internet connection mahutdan ta ug time then minus, minus kay malate pag pass [I have lower records because sometimes due to low*

internet connection we run out of time then minus, minus because I'm late to pass.] SP08

Technostress Affects Class Performance. In the last twenty years, researchers were increasingly interested in understanding the harmful consequences of technology. Technostress, or stress brought on by technology, has been widely documented among working professionals. Despite the increased use of digital technologies in higher education, few studies look at the prevalence of technostress and its effects on students (Upadhyaya & Vrinda, 2020).

Technical issues are still the most challenging issues due to the capacity of the servers owned by universities. Indeed, universities have made efforts to solve these problems and improve the way the E-learning platforms work (Coman, Țiru, Meseșan-Schmitz, Stanciu, & Bularca, 2020).

**Lack of motivation to study.** Research participants (SP01, SP05, SP09, and SP10) revealed that they are suffering from a lack of motivation to learn because they are reliant on the available resources. The participants shared the following statements below.

*Dili jud pud ko kaingun nga naa koy nasabtan sa uban subject. Dili ko mkaingun nah. Nag pass lang mi kay required ana bitaw dayun mag pass lang ka for requirement dili lang kay learning. [I can't also say that I have learned the other subject. I don't think so. We only submit because it is required, then we just submit just because it is a requirement, not for learning.] SP01*

*Dili ka katarong ug tuon, then honest lang pud ko kay naay uban na topic na naa raman sa Google tanan, apil exam apil assignment so, dali raman kay e, search ra so didto na part wala koy nasabtan sa subject. [I can't study properly, then I am just being honest there are topic that it's all in Google, the exam and assignment, so, you'll just search it" so in that part I haven't understand anything in that subject." ] SP05*

*Kanang akong stress nga related to technology na maka-affect jud siya sa akong pag eskwela ug pagtuon kay for example moingun among teacher na study mo ani kay mag exam ta tomorrow kay dili na jud mi mag study kay naa naman mi module so nganong mag-study paman mi nga naa man mi module so nka affect jud kaayo na siya. [My stress related to technology can affect my schooling and study because for example our teacher says that you will study this because we have an exam tomorrow, we won't have to study anymore because we already have a module so it really affects.] SP09*

*Ang reason maong ma stress ko karon kay wala koy masabtan karon na system mao gyud na siya then murag walay nisulod sa among utok kay mao rana siya magbasa rami then pwede mi mo tanaw sa module na gihatag kay mag-answer because kay wala man maestra naga-lantaw sa amo. Sa*

*mga soft wares naka tabang jud siya kay it advances kung unsaon pag answer ang modules like example the Grammarly and the Mathway to check if sakto ba jud imong mga answers sa Math. [The reason why am I stressed is that I can't understand a thing in this system it really seems that nothing was absorbed by our brain because that's it, we'll just read and we can just look back at the module given when answering because there is no teacher looking at us. Software can really help because it advances on how will I answer the modules like example the Grammarly and Mathway to check if your answers are correct.] SP10*

Distance education can be a lonely experience in many ways. Students are left to motivate themselves and struggle through challenges and obstacles with less guidance and encouragement from peers and teachers, creating a sense of isolation. There is an obvious need to understand what factors influence motivation in distance education when the student is left to self-motivate and propel his or her studies forward. The importance of motivation in online learning has been established (Lim, 2004).

Self-directed e-learning (SDEL) is known as electronic learning environments. No peers or teachers are present daily; according to previous research, the primary causes of learner attrition in an online environment are a lack of time and encouragement (Kim & Frick, 2011).

Higher education has had a considerable effect on educational access, allowing for a 24/7, anywhere model. This access has had a significant impact on our learning processes and outcomes. Organizations have enthusiastically adopted the advantages of information technology as learning tools, which has resulted in increased efficiency in the learning process. However, the use of technology often "encourages" students and try to complete more activities in less time, resulting in self-induced stressors that may negatively affect their relationships with others as well as the development of potentially permanent health conditions (Booker, Rebman, Jr, & Kitchens, 2014).

#### 6.4 Students' Coping Strategies to Technostress

Research participants displayed different ways of dealing with or managing technostress. Research participants believed that to manage technostress, one must seek how to deal with technostress by engaging in recreational activities such as watching movies, listening to music, reading novels, and participating in sports such as basketball to relax. Others dealt with stress by eating and visiting places where they could unwind. A small percentage of participants say that one should acknowledge their feelings of emotional discomfort; some say they stop using technology to avoid tension.

Manage technostress by engaging in recreational activities. Research participants mentioned the coping strategies they've tried to lessen stress, such as sightseeing, watching movies, listening to music, reading novels, and

participating in sports such as basketball to relax. Below are the following statements shared by the research participants.

*Akong way, kanang mag-hangout bitaw pampalipas oras bitaw. [My way, hangouts to kill time.] SP03*  
*Relax in ana lang nako pag cope up sa akong stress. Mangita ko ug way na ma relieve akong stress through engaging different recreational activities like basketball, nagpalit pud ko ug badminton(racket). [Relaxing, that's how I cope with my stress ma'am. I'll find a way to relieve my stress through engaging different recreational activities like basketball, I also bought a badminton (racket)]. SP04*

*I just find ways to keep myself calm like maminaw ug music mga inspirational songs to make myself intact (laughing). "Prayer is the best healer" mao ra jud na pray and listen to music and especially do things that makes you happy and of course always motivate myself through praying kay mao rajud na akong ultimate defense. [I just find ways to keep myself calm like listening to music, inspirational songs to make myself intact (laughing). "Prayer is the best healer" that's it prays and listen to music and especially do things that makes you happy and of course always motivate myself through praying because that's my ultimate defense.] SP06*

*I calm myself I also listen to music and then magbasa ug mga quotes na maka motivate sa ako-a. [I calm myself I also listen to music and then read quotes that can motivate me.] SP07*  
*mag-sige ug lakaw-lakaw (laag-laag) Reading novels dayun mag tanaw ug mga series. Dili xa part sa academe. [I will go out of the house. Reading novels then views and series. Not part of academe] SP08*

*I make myself comfortable or happy again by watching videos on YouTube or Netflix. Making myself happy by playing games, watching movies and especially listening to music. [I make myself comfortable or happy again by watching videos on YouTube or Netflix. Making myself happy by playing games, watching movies and especially listening to music.] SP10*

Aristotle stated that happiness was contingent on engaging in activities in line with one's individual interests and aspirations (Christiansen & Matuska, 2006). Others have believed that emotions can influence physical health, and native health practitioners have maintained that physical health requires a balanced lifestyle.

Maintaining a balanced lifestyle is vital for human longevity and prosperity, and some theorists suggest that living a balanced existence requires incorporating recreational activities (Mannell & Reid, 1999).

**Stress-eating to manage technostress.** Research participants (SP06, SP07, and SP011) stressed in their responses that they dealt stress by stress-eating. The participants shared the following statements below.

*Ipaubaya na lang, kay Naa man things na dili malikayan inevitable bah dili makabuot ta so okay ra siya kaon lang "snacks". [I'll just let it be, because there are inevitable things, we can't do anything so it's okay, I'll just eat "snacks"]. SP06*

*Relax, usahay kaon nako. [Relax, sometime I will eat.] SP07*

*I manage the stress by going to my favorite places mga stress relieve places. Like magkaon ko ug mga foods for example mga nuts paborito jud nako ng mga nuts like makawala jud siya sa akong kaguol maka happy jud siya sa akong utok. [I manage the stress by going to my favorite places where I can relieve stress and eat foods ma'am for example nuts, which I really like, they really relieve worries and makes my brain happy.] SP11*

Food's importance in a person's life extends beyond its nutritional value. When we are stressed, we typically turn to food for psychological comfort and a conscious plan to modify our mood and humor (Wardle, Steptoe, Oliver, & Lipsey, 2000). Food choices are usually oriented to more great palatability foods in stressful situations, notably those heavy in fat and sugar (such as sweets), with a concurrent decline in the consumption of fresh foods such as fruits and vegetables. Findings in the literature suggest a link between high-carbohydrate and high-fat meals, particularly sweets in general, and stress levels are typical (Mikolajczyk, El Ansari, & Maxwell, 2009).

**Acknowledge the feeling of emotional discomfort.** Research participants (SP01, SP05, and SP09) responded that they dealt with stress by acknowledging their feelings of emotional discomfort to know how to deal with the stress. The participants shared the following statements below.

*Recognized nako kung aha ko weak para ma determine nako na kini kailangan nako e.work. [I will recognize that where am I weak so that I could determine that I need to work this part.] SP01*

*Pugson nimu imong kaugalingon na "mao naman jud ni tungod sa pandemic" ana pugson na lang kay nag eskwela paman ta maningkamot. [You'll force yourself to "this is really it because of the pandemic" we just need to force it because we are still studying, we need to work hard.] SP05*

*Dapat jud bation nimu siya na stress jud to siya sakit siya na panghitabo pro nahitabo naman jud siya so kailangan nimu na ikalma ra imong self padayon lang gihapon ka .[It should be, I feel stressed, it's painful, it's a painful event, it's already happened, so you need to calm down yourself, just keep going.] SP09*

It's challenging to deal with uncomfortable, strong, and even frightening emotions; but, acknowledging your feelings can help you improve your emotion control, resulting in fewer mood swings and better emotional equilibrium (Salters-Pedneault, 2019).

Learning to accept your emotional experiences is an alternative to pushing away or suffocating your feelings. Acceptance entails practicing allowing your emotions to be as they are without criticizing or attempting to change them (Lindsay & Creswell, 2019).

Stop using technology to avoid tension. Research participants (SP03, SP09, and SP10) responded that they dealt with stress by limiting their time using gadgets to lessen the stress. Below are the following statements shared by the research participants.

*Gi-manage nako siya through dili kay nako siya gi seryoso kanang mag-spend ko ug time nga kanang dili bitaw kay ko ma stress e.limit nako akong time magamit ug cellphone bisan nay deadline.[I manage it through not taking it seriously, I will spend time to de-stress, and I will limit my time using cellphone even if there's a deadline.] SP03*

*Akong pamaagi na ma cope up nako ang stress kay magpahulay na lang ko maske pila lang ka hours, then magpalayo ka dili pud dapat adlaw-adlaw, minute-minuto magatubang ka ug technology kay dili jud siya mayo. [My way I can cope up with stress because I'll just rest ma'am at least for a few hours, then you go away, you don't have to do it every day, minute by minute you will face technology since it's not good.] SP09*

*So, if na overwhelmed na jud ko anang online class I stop using gadgets and let myself relax kay murag tungod pud sa gadget kay masobrahan jud ang stress na maabot sa imong utok so need jud nimu magpahulay usahay sa online world.[ So, if I'm being overwhelmed by online class I stop using gadgets and let myself relax maybe because it's the gadget that stress overflows so you also need to rest from the online world sometimes.] SP10*

The negative psychological connection between people and the implementation of new technology has been described as technostress. Whereas ergonomics is the analysis of how humans respond to and physically fit with machines in their environment, technostress is the product of changed work and teamwork patterns caused by modern information technology at work and home (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008).

Technostress management is a highly individualistic and personal matter that varies from person to person (Brillhart, 2004). As a result, developing unique strategies for handling and preventing technostress is critical. It's also important to recognize that technology's constant changes can trigger varying degrees of technostress (Aida, Azlina & Balqis, 2007). The consumer will handle technostress better until this is achieved (Tarafdar, Tu, & Ragu-Nathan, 2011).

Technostress can be alleviated by implementing user-friendly software, educating people about new technology, and improving workplace reassurance, patience, stability,

and communication. Another choice is to stop or limit technology use (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008).

Coping is the process of dealing with challenging encounters to lessen or eliminate the situation (Lazarus 1966). Individuals use several coping strategies to relieve stress, according to stress studies. Individuals can, for example, attempt to remove themselves from a stressful situation or vent their emotions (Carver et al., 1989).

### 6.5 The implication of Coping Strategies of Technostress

The study's findings notably identify two forms of technostress experienced by the participants, such as emotional discomfort and body pains caused by various challenges of distance learning. Alongside these forms of technostress are remarkable coping strategies that somehow help students manage various discomforts and difficulties as means of survival.

The forms of technostress are evident in students' experiences, like developing low frustration tolerance and low academic performance. They lost the motivation to study apart from the feeling of discouragement due to financial constraints that hindered them from acquiring their high-quality gadget needs and access to fast internet connectivity. Although the participants have developed their mechanisms to face the various challenges of distance learning, the study found out that some of their coping strategies have the potential to develop negative coping like stress-eating. The danger of this coping strategy is when students find so much pleasure in stress eating and develop an addiction. The said addictive behavior would lead to disequilibrium in their activity, likely affecting the students' academic performance.

Therefore, the study highlights its repercussions to proposing well-crafted coping strategies to be integrated into the guidance activities and is subject to consideration of an amendment to be added to the institutional policy. In this way, the proposed technostress coping strategy will be strictly implemented, monitored, and evaluated for the sustainability and efficiency of the program and to serve its purpose.

Undeniably, the study's findings harmonized with Lazaru's transactional theory of stress and somehow described the students' experiences. Therefore, this study proposes that crafting technostress coping strategies will anchor on Lazaru's transactional theory of stress. Activities may vary depending on the context and degree of the technostress that would help students cope.

## 7. Conclusion

Based on the outcome of the study, technostress in an online learning environment is caused by malfunctions of technology devices, such as low-quality phones, low internet connection, and poor ergonomics. When technostress occurs, students usually perform under stress control, which negatively influences their academic performance. The presence of stress tends to demoralize students' mindsets,

bringing nervousness and frustration that does not help their final academic results.

Technostress engenders several adverse effects. Physically, students experience body pain such as eye pressure, backaches, headaches, stiff shoulders, and neck pain. These effects, in the future, might develop into severe illnesses in a student's life. However, it's normal for our minds to think about all the daily things we might not be able to do during this time of transition. Make a deliberate effort to reflect on what we can still do or have more opportunities to do if we spend more time at home. Spending time with loving family and friends will help you feel more at ease and secure. Talking with someone about our worries, emotions, and feelings can also help us develop new ways to think about or cope with a stressful situation.

## 8. Recommendations

The researcher formulated the following recommendations with reference to the constructed conclusion:

- 1) Technostress can be lessened by implementing user-friendly applications, evaluating students about technological innovations, and improving workplace reassurance, patience, and internet connection stability.
- 2) Performing stress management exercises like meditation, constructive self-talk, teamwork with a classmate, and eating a healthy diet are examples of ways to eliminate technostress.
- 3) Guidance counselors' in HEIs may use techno stress instruments to classify high-risk students and advise on how to minimize technostress and improve their academic performance.
- 4) Students experiencing high levels of technostress can be paired with a peer mentor to help them gain trust in their use of technology.
- 5) Schools may use secondary individual-level interventions to provide students with the knowledge and abilities to handle stress and encourage well-being and opportunities to participate in stress-relieving activities.
- 6) Guidance counselors may use the generated data to present to the administrators as a basis for choosing a social learning management system for a free stress learning experience that is accessible to all and at a lower cost.

## References

- [1] Agboola, A. A., & Olasanmi, O. O. (2016). Technological stressors in developing countries. *Open Journal of Applied Sciences*, 06(04), 248–259. Retrieved from <https://bit.ly/3mSjEhA>
- [2] Aida, R. I. R. Z., Balqis, M. N. S., & Balqis, M. N. S. (2007, July). Techno stress: A study among academic and nonacademic staff. Retrieved April 21, 2021, from [springerprofessional.de](http://springerprofessional.de) website: <http://bitly.ws/cSLq>
- [3] Alabi, C., Olabode, Abayomi, J., & Khavwandiza, K. (2019). International journal of advanced multidisciplinary research how does technostress affect students' performance? An empirical investigation of social network sites on quitting intention. *Int. J. Adv. Multidiscip. Res*, 6(2), 42–55. Retrieved from <https://bit.ly/2Qee78Z>
- [4] Anderson, A. A., Brossard, D., Scheufele, D. A., Xenos, M. A., & Ladwig, P. (2014). The “Nasty Effect:” Online Incivility and Risk Perceptions of Emerging Technologies. *Journal of Computer-Mediated Communication*, 19(3), 373–387. Retrieved from <http://bitly.ws/douM>
- [5] Ayyagari, Grover, & Purvis. (2011). Technostress: Technological antecedents and implications. *MIS Quarterly*, 35(4), 831. Retrieved from <http://bitly.ws/dCG8>
- [6] Baqutayan, S. M. S. (2015). Stress and coping mechanisms: A historical overview. *Mediterranean Journal of Social Sciences*, 479. Retrieved from <http://bitly.ws/dCG9>
- [7] Beaudry A, Pinsonneault A. Understanding User Responses to Information Technology: A Coping Model of User Adaptation. *MIS Quarterly*. 2005;29(3):493–524. <http://bitly.ws/cTr7>
- [8] Bichteler, J. (1987). Technostress in libraries: Causes, effects and solutions. *The Electronic Library*, 5(5), 282–287. <https://doi.org/10.1108/eb044766>
- [9] Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13), 1802–1811. <https://doi.org/10.1177/1049732316654870>
- [10] Bloom, A. J. (1985). An anxiety management approach to computerphobia. *Training & Development Journal*. Retrieved from <http://bitly.ws/douE>
- [11] Booker, Q. E., Rebman, Jr, C. M., & Kitchens, F. L. (2014). A model for testing technostress in the online education environment: An exploratory study. *Issues in Information Systems*, 15(2). <https://bit.ly/3eeFNCV>
- [12] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. Retrieved from <https://bit.ly/2OUrMS0>
- [13] Brillhart, P.E. (2004) technostress in the workplace managing stress in the electronic workplace. *Journal of American Academy of Business, Cambridge*, 5, 302–307. - references - scientific research publishing. (2004). Retrieved April 21, 2021, from [www.scirp.org](http://www.scirp.org) website: <http://bitly.ws/cSLA>
- [14] Brod, C. (1982). Managing technostress: Optimizing the use of computer technology. *Personnel Journal*, 61(10), 753-757. Retrieved from <https://bit.ly/3x1IUqi>
- [15] Brooks, S. (2015). Does personal social media usage affect efficiency and well-being? *Computers in Human Behavior*, 46, 26–37. Retrieved from <http://bitly.ws/dCGb>
- [16] Brown, B. A., & Ryoo, K. (2008). Teaching science as a language: A “content-first” approach to science teaching. *Journal of Research in Science Teaching*, 45(5), 529–553. Retrieved from <https://doi.org/10.1002/tea.20255>
- [17] Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 287, 112934. Retrieved from <http://bitly.ws/dCGd>

- [18] Caplan, R. D. (1987). Person-environment fit theory and organizations: Commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational Behavior*, 31(3), 248–267. Retrieved from [https://doi.org/10.1016/0001-8791\(87\)90042-x](https://doi.org/10.1016/0001-8791(87)90042-x)
- [19] Caplan, R. D., & Harrison, R. (1993). Person-Environment fit theory: Some history, recent developments, and future directions. *Journal of Social Issues*, 49(4), 253–275. Retrieved from <https://doi.org/10.1111/j.1540-4560.1993.tb01192.x>
- [20] Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: a theoretically based approach. *Journal of personality and social psychology*. 1989;56(2):267. <http://bitly.ws/cTrg>
- [21] Christiansen, C. H., & Matuska, K. M. (2006). Lifestyle balance: A review of concepts and research. *Journal of Occupational Science*, 13(1), 49–61. <https://doi.org/10.1080/14427591.2006.9686570>
- [22] Chuang, A., Shen, C. T., and Judge, T. A. (2016). Development of a multidimensional instrument of person-environment fit: the perceived person-environment fit scale (PPEFS). *Appl. Psychol.* 65, 66–98. Retrieved from <https://bit.ly/3adN6JN>
- [23] Coman, C., Țiru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability*, 12(24), 10367. Retrieved from <http://bitly.ws/dCGf>
- [24] Commission on Higher Education. (2020). Office of the chairperson commission on higher education guidelines for the prevention, control and mitigation of the spread of coronavirus disease 2019 (COVID-19) in higher education institutions (heis). Retrieved from website: <https://bit.ly/2RzdcjO>
- [25] Corradini, I., Marano, A., & Nardelli, E. (2016). Work-Related stress risk assessment. *SAGE Open*, 6(3), 215824401666688. Retrieved from <http://bitly.ws/dCGh>
- [26] Creswell, J. W. (2018). Qualitative, Quantitative, and mixed-methods-approaches. Retrieved October 9, 2020, from Unj.ac.id website: <https://bit.ly/3mRZJzi>
- [27] Cuneo, C. J., & Harnish, D. (2002). The lost generation in e-learning: Deep and surface approaches to online learning. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA. Retrieved from website:
- [28] De La Salle University (2020a). Coping with Challenges and Learning during the Enhanced Community Quarantine Period. Available online at: <https://www.dlsu.edu.ph/2nd-term-faqs/> (accessed October 6, 2020).
- [29] De', R., Pandey, N., & Pal, A. (2020). Impact of digital surge during covid-19 pandemic: A viewpoint on research and practice. *International Journal of Information Management*, 102171. Retrieved from <http://bitly.ws/dCGm>
- [30] Department of Education. (2020). Briones: Ensure educational continuity amid challenges | department of education. Retrieved May 8, 2021, from Department of Education website: <https://www.deped.gov.ph/2019/11/20/briones-ensure-educational-continuity-amid-challenges/>
- [31] Dunn, T. J., & Kennedy, M. (2019). Technology enhanced learning in higher education; motivations, engagement and academic achievement. *Computers & Education*, 137, 104–113. Retrieved from <https://doi.org/10.1016/j.compedu.2019.04.004>.
- [32] Edwards, J. R. (2008). 4 Person-Environment fit in organizations: An assessment of theoretical progress. *Academy of Management Annals*, 2(1), 167–230. Retrieved from <https://bit.ly/32oKS66>
- [33] Edwards, J. R., & Caplan, R. D., & Van Harrison, R. (1998). Person-environment fit theory: conceptual foundations, empirical evidence, and directions for future research. *Theories of organizational stress*, 28–67. Retrieved from <http://bitly.ws/cR76>
- [34] Ennis, L. A. (2005). The evolution of technostress. *Computers in Libraries*, 25(8), 10–12. Retrieved from <https://eric.ed.gov/?id=EJ718549>
- [35] Erasmus, E. 2014. Technology acceptance, psychological attachment and technostress, Doctoral dissertation at the North-West University.
- [36] Farrokhi, F., & Mahmoudi-Hamidabad, A. (2012). Rethinking convenience sampling: Defining quality criteria. *Theory and Practice in Language Studies*, 2(4). <https://bit.ly/3aiXKyM>
- [37] Fink, J. K. (2017). Editors and editorial board. *Reactive and Functional Polymers*, 118(4), IFC. Retrieved from [https://doi.org/10.1016/s1381-5148\(17\)30143-8](https://doi.org/10.1016/s1381-5148(17)30143-8)
- [38] Fischer, H., Heise, L., Heinz, M., Moebius, K., & Koehler, T. (2014). E-learning trends and hypes in academic teaching. methodology and findings of a trend study. In *Proceedings of the International Association for Development of the Information Society (IADIS) International Conference on Cognition and Exploratory Learning in the Digital Age (CELDA)*, Porto, Portugal, pp. 63–69.
- [39] Gaudioso F, Turel O, Galimberti C. The mediating roles of strain facets and coping strategies in translating technostressors into adverse job outcomes. *Computers in Human Behavior*. 2017;69:189–96. Retrieved from <http://bitly.ws/dCGr>
- [40] Hackbarth, G., Grover, V., & Yi, M. Y. (2003). Computer playfulness and anxiety: Positive and negative mediators of the system experience effect on perceived ease of use. *Information & Management*, 40(3), 221–232. Retrieved from [https://doi.org/10.1016/s0378-7206\(02\)00006-x](https://doi.org/10.1016/s0378-7206(02)00006-x)
- [41] Hassan, N., Yaakob, S. A., Mat Halif, M., Abdul Aziz, R., Abdul Majid, A., & Sumardi, N. A. (2019). The effects of technostress creators and organizational commitment among school teachers. *Asian Journal of University Education*, 15(3), 92. <https://bit.ly/3mTr6ch>
- [42] Hofmann, S. G., & Asmundson, G. J. G. (2008). Acceptance and mindfulness-based therapy: New wave or old hat? *Clinical Psychology Review*, 28(1), 1–16. <http://bitly.ws/cSKV>
- [43] Hollweck, T. (2016). Robert K. Yin. (2014). Case study research design and methods (5th ed.). thousand oaks, CA: Sage. 282 pages. *The Canadian Journal of Program Evaluation*. Retrieved from <https://doi.org/10.3138/cjpe.30.1.108>
- [44] Holman, D., Johnson, S., & O'Connor, E. (2021). Stress management interventions: Improving subjective



- psychological well-being in the workplace. Retrieved from website: <http://bitly.ws/cSKN>
- [45] Insúa, P., Bernaras, E., & Bully, P. (2016). Computers in human behavior use of information and communications technology, academic performance and psychosocial distress in university students. *Computers in Human Behavior*, 56, 119–126. <https://doi.org/10.1016/j.chb.2015.11.026>.
- [46] Jansen, K. J., & Kristof-Brown, A. (2006). Toward a multidimensional theory of person-environment fit. *Journal of Managerial Issues*, 193-212. Retrieved from Google Scholar <http://bitly.ws/cRaG>
- [47] Jena, R. K. (2015). Technostress in ICT enabled collaborative learning environment: An empirical study among Indian academician. *Computers in Human Behavior*, 51, 1116–1123. <https://doi.org/10.1016/j.chb.2015.03.020>.
- [48] Joaquin, J. J. B., Biana, H. T., & Dacela, M. A. (2020). The philippine higher education sector in the time of COVID-19. *Frontiers in Education*, 5. Retrieved from <https://doi.org/10.3389/educ.2020.576371>
- [49] Joo, Y. J., Lim, K. Y., & Kim, N. H. (2016). Computers & education the effects of secondary teachers' technostress on the intention to use technology in South Korea. *Computers & Education*, 95, 114–122. Retrieved from <http://bitly.ws/dCGt>
- [50] Kamalludeen, R. (2020). Transitioning to the new normal in education, Available online at [www.thestar.com.my](http://www.thestar.com.my), Date Accessed, 16 August 2020.
- [51] Kim, K.-J., & Frick, T. W. (2011). Changes in student motivation during online learning. *Journal of Educational Computing Research*, 44(1), 1–23. Retrieved from <http://bitly.ws/dovd>
- [52] Kristof, A. L. (1996). Person-organization fit: an integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49(1), 1–49. Retrieved from <https://bit.ly/3dqL6Qs>
- [53] Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, 58(2), 281–342. Retrieved from <https://bit.ly/3mVIIuF>
- [54] Lazarus RS, Folkman S. (1987). Transactional theory and research on emotions and coping. *European Journal of personality*. 1987;1(3):141–69. Retrieved from <http://bitly.ws/dov3>
- [55] Lee, Y.-K., Chang, C.-T., Lin, Y., & Cheng, Z.-H. (2014). The dark side of smartphone usage: Psychological traits, compulsive behavior and technostress. *Computers in Human Behavior*, 31, 373–383. Retrieved from <http://bitly.ws/cTrz>
- [56] Lim, D. H. (2004). Cross cultural differences in online learning motivation. *Educational Media International*, 41(2), 163–175. Retrieved from <http://bitly.ws/douZ>
- [57] Lindsay, E. K., & Creswell, J. D. (2019). Mindfulness, acceptance, and emotion regulation: Perspectives from monitor and acceptance theory (MAT). *Current Opinion in Psychology*, 28, 120–125. <https://doi.org/10.1016/j.copsy.2018.12.004>
- [58] Mahapatra, M., & Pati, S. P. (2018). Technostress creators and burnout. *Proceedings of the 2018 ACM SIGMIS Conference on Computers and People Research*. Retrieved from <http://bitly.ws/cR7c>
- [59] Maier C, Laumer S, Weinert C, Weitzel T. The effects of technostress and switching stress on discontinued use of social networking services: a study of Facebook use. *Information Systems Journal*. 2015;25(3):275–308. <http://bitly.ws/cTry>
- [60] Mannell, R. C., & Reid, D. G. (1999). Work and leisure. In E. L. Jackson & T. L. Burton (Eds.), *Leisure studies: Prospects for the twenty-first century* (151–165). State College, P.A.: Venture Publishing. Retrieved from <https://doi.org/10.1080/1937156x.2000.11949464>
- [61] Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). Evidence-Based practices in online learning: A meta-analysis and review of online learning studies. Retrieved from <https://bit.ly/2OUwfnK>
- [62] Mikolajczyk, R. T., El Ansari, W., & Maxwell, A. E. (2009). Food consumption frequency and perceived stress and depressive symptoms among students in three european countries. *Nutrition Journal*, 8(1). <https://doi.org/10.1186/1475-2891-8-31>
- [63] Ortiz de Guinea, A. (2016). A pragmatic multi-method investigation of discrepant technological events: Coping, attributions, and 'accidental' learning. *Information & Management*. 2016;53(6):787–802. <http://bitly.ws/cTrc>
- [64] Oztok, M., Zingaro, D., Brett, C., & Hewitt, J. (2013). Exploring asynchronous and synchronous tool use in online courses. *Computers & Education*, 60(1), 87-94. Retrieved from <https://bit.ly/3ajTgrF>
- [65] Phan, T. (2018). Instructional strategies that respond to global learners' needs in massive open online courses. *Online Learning*, 22(2). Retrieved from <https://bit.ly/32mALi1>
- [66] Player, D., Youngs, P., Perrone, F., and Grogan, E. (2017). How principal leadership and person-job fit are associated with teacher mobility and attrition. *Teach. Teacher Educ.* 67, 330–339. doi: 10.1016/j.tate.2017.06.017
- [67] Popovici, A., & Mironov, C. (2015). Students' perception on using eLearning technologies. *Procedia - Social and Behavioral Sciences*, 180, 1514–1519. Retrieved from [www.sciencedirect.com](http://www.sciencedirect.com) website: <http://bitly.ws/cSNt>
- [68] Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1–6. <https://doi.org/10.1108/107481201110424816>
- [69] Prensky, M. (2007). How to teach with technology: Keeping both teachers and students comfortable in an era of exponential change. *Emerging technologies for learning*, 2(4), 40-46. Retrieved from <http://bitly.ws/cTaC>
- [70] Qi, C. (2019). A double-edged sword? Exploring the impact of students' academic usage of mobile devices on technostress and academic performance. *Behaviour & Information Technology*, 38(12), 1337–1354. Retrieved from <http://bitly.ws/douP>
- [71] Rabiou, H. (2016). Impact of mobile phone usage on academic performance among secondary school students in Taraba State, Nigeria. *European Scientific*

- Journal*, 12(1), 1857–7881. <https://doi.org/10.19044/esj.2016.v12n1p466>.
- [72] Ragu-nathan, T. S., Tarafdar, M., Ragu-nathan, B. S., & Tu, Q. (2008). The consequences of technostress for end users in organizations: conceptual development and empirical validation. *Information Systems Research*, 19(4), 417-433. Retrieved from <https://bit.ly/2QxJifc>
- [73] Rosen, L. D., Whaling, K., Rab, S., Carrier, L. M., & Cheever, N. A. (2013). Is facebook creating “idisorders”? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Computers in Human Behavior*, 29(3), 1243–1254. <https://doi.org/10.1016/j.chb.2012.11.012>
- [74] Rutherford, A. G., & Kerr, B. (2014). An inclusive approach to online learning environments: *Models and resources*. In ERIC (Vol. 9). Retrieved from <https://eric.ed.gov/?id=ED501110>
- [75] Salanova, M., Llorens, S., & Cifre, E. (2013). The dark side of technologies: Technostress among users of information and communication technologies. *International Journal of Psychology*, 48(3), 422–436. Retrieved from <https://bit.ly/3ggJhqS>
- [76] Salters-Pedneault, K. (2019, June 22). Accepting emotions when you have BPD will improve your health. Retrieved from Verywell Mind website: <https://www.verywellmind.com/how-accepting-emotions-can-improve-emotional-health-425368>
- [77] Shachar, M., & Neumann, Y. (2010). Twenty years of research on the academic performance differences between traditional and distance learning: Summative meta-analysis and trend examination. *MERLOT Journal of Online Learning and Teaching*, 6(2). Retrieved from <https://bit.ly/3st9AwB>
- [78] Tacy, J. W. (2015). Technostress effects on technology acceptance by Nurse Faculty. Retrieved from <http://hdl.handle.net/10950/299>
- [79] Tams, S. Hill, K. de Guinea, A.O. Thatcher, J. & Grover, V. 2014. NeuroIS-alternative or complement to existing methods? Illustrating the holistic effects of neuroscience and self-reported data in the context of technostress research. *Journal of the Association for Information Systems*, 15(10):723.
- [80] Tarafdar, M, Tu, Q. & Ragu-Nathan, T. 2011. Impact of technostress on end-user satisfaction and performance. *Journal of Management Information Systems*, 27(3):303-334.
- [81] Tarafdar, M., Ragu-Nathan, T.S., Ragu-Nathan, B. and Tu, Q., The Impact of Technostress on Productivity, *Journal of Management Information Systems*, Summer 2007
- [82] Tarafdar, M., Tu, Q., and Ragu-Nathan, T. (2010). Impact of technostress on end-user satisfaction and performance. *J. Manag. Inform. Syst.* 27, 303–334. Retrieved from <https://bit.ly/32pFVd0>
- [83] Tham, C. M. & Werner, J. M. (2005). Designing and evaluating e-learning in higher education: A review and recommendations. *Journal of Leadership & Organizational Studies*, 11(2), 15–25. Retrieved from <http://bitly.ws/doyQ>
- [84] Tuscano, F. J. (2020, May 7). It’s not about online learning: A reflection on the “new normal” in education (part 2). Retrieved October 2, 2020, from EmpowerED website: <https://bit.ly/3srXaF2>
- [85] UNESCO. (2020). Education: From disruption to recovery. Retrieved May 14, 2021, from UNESCO website: <http://bitly.ws/aHRB>
- [86] University of Santo Tomas. (2020). Institutional continuity plan during extended and post-ecq | UST - graduate school. Retrieved February 1, 2021, from [graduateschool.ust.edu.ph](http://graduateschool.ust.edu.ph) website: <https://bit.ly/2QxiZpA>
- [87] Upadhyaya, P., & Vrinda. (2020). Impact of technostress on academic productivity of university students. *Education and Information Technologies*, 26(1647–1664). <https://doi.org/10.1007/s10639-020-10319-9>
- [88] Villarin, J. R. T. (2020, March 17). Enhanced community quarantine. Retrieved from Ateneo de Manila University website: <http://www.ateneo.edu/enhanced-community-quarantine>
- [89] Wantulok, T. (2015). How important is technology in education? Pine cove’s top 10 reasons. Retrieved from [marketing.pinecc.com](http://marketing.pinecc.com) website: <https://bit.ly/3gva96X>
- [90] Wardle, J., Steptoe, A., Oliver, G., & Lipsey, Z. (2000). Stress, dietary restraint and food intake. *Journal of Psychosomatic Research*, 48(2), 195–202. [https://doi.org/10.1016/s0022-3999\(00\)00076-3](https://doi.org/10.1016/s0022-3999(00)00076-3)
- [91] Yin, R. K. (2013). Validity and generalization in future case study evaluations. *Evaluation*, 19(3), 321–332. Retrieved from <http://bitly.ws/dCGy>
- [92] Yin, R. K. (2015). Case study research: designs and methods (5th ed.). *Thousand Oaks: Sage*.