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# TECHNOSTRESS OF COLLEGE TEACHERS IN THE ONLINE LEARNING ENVIRONMENT

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## Abstract

The sudden shift from the traditional face-to-face learning modality to alternative learning modalities (ALMs) aided by information and communication technology (ICT) became one of the most emphasized changes in the educational landscape during the outbreak of the COVID-19 pandemic. The huge and immediate adjustments needed to use different ALMs resulted in different issues such as teachers dealing with technology-related stress or what is known as "technostress". Hence, this study aimed to identify the level of technostress of college teachers along learning-teaching process factor, profession factor, technical issue factor, personal factor, and social factor. Quantitative descriptive research design is used to collect descriptive information regarding technostress. A 28-item questionnaire was adapted to collect the main data and semi-structured interviews were conducted to further analyze and verify the results of the study. Generally, the result of the study shows that the college teachers have low levels of technostress. With this, other higher education institutions (HEIs) are encouraged to have personnel who are mainly focused on aiding the teachers in the use and exploration of ICT tools in the online classroom.

**Keywords:** online teaching competency, ICT, online learning, alternative learning modalities, flexible learning

## Introduction

Due to the use of different alternative learning modalities (ALMs) such as the online and blended learning modalities, many teachers were reported to struggle with emotional and mental issues. Several studies found that teachers experienced heightened depression and job-related stress due to the changes brought by the COVID-19 pandemic (Lizana & Lera, 2022; Silva et al., 2021). Similarly, Baker et al. (2021) discussed that the mental health of teachers has suffered in the pandemic. These problems were rooted by many researchers to the technostress experienced by teachers due to the increase in the utilization of ICT during the pandemic (Liu et al., 2022).

The term "technostress" was first conceptualized in the 1980s by Craig Brod (Upadhyaya et al., 2020). He (as cited in Brivio, 2018) described technostress as a "modern disease of adaptation caused by the inability to cope with new technologies in a healthy manner" (para. 2). In modern times, technostress is defined as the inability to cope with new technologies (Upadhyaya et al., 2020; Liu, 2019). In addition, Efilti and Coklar (2019) defined technostress as "general negative emotions, thoughts, behaviors, and attitudes such as anxiety that the employees feel when they need to deal with new technologies" (pp. 23-24).

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There were only a few researchers who were able to identify sub-categories under technostress. Among these researchers, Coklar et al. (2017) developed a research tool that is particularly targeting the factors that affect technostress. They mentioned five technostress factors, namely:

*Learning-teaching process factor*

It refers to technology-related issues that negatively affect the teacher in teaching the course content and facilitating classroom activities.

*Profession factor*

It refers to technology-related issues that negatively affect the attitude of the teacher towards teaching as a profession.

*Technical issue factor*

It refers to the lack of competency of the teacher in using technological tools in teaching the course content and facilitating classroom activities.

*Personal factor*

It refers to technology-related issues that negatively affect the attitude of the teacher towards using technological tools.

*Social factor*

It refers to technology-related issues that negatively affect the rapport between the teacher and other stakeholders (i.e.: colleagues and school administrators) in the educational community.

The emphasis on technostress is paramount towards the future of ICT in education as more HEIs adapt programs and policies that are aligned with international and local ICT policies and frameworks. This implicates the relevance of further studies in relation to the aforementioned variable for there are diverse technological innovations that are introduced every year. These technological devices are reshaping the teaching and learning experiences in both the physical and virtual classroom (Liu, 2019). Furthermore, the assessment of the technostress of teachers is important because it is correlated with high turnover rates and low teaching quality that consequently, influences the student participation and performance (Muñoz et al., 2021).

Hence, this study aims to examine the level of technostress among college teachers in response to the recommendations of the study of Bantasan et al. (2021) in which they have suggested that a quantitative analysis may be done in order to assess the technostress of the college teachers of the University of the Cordilleras.

**Review of Literature**

Even pre-pandemic, the technostress of teachers is a variable that caught the interest of many researchers. Wang and Li (2019) studied the technostress among university teachers in China. Their findings identified that university management related to ICT tended to affect university teachers of higher grade levels more than those of lower grade levels in generating technostress. In relation to this, other studies determined several factors that have affected the

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technostress of teachers. Coklar et al. (2016) conducted a qualitative study that identified the determinants of the technostress of Turkish teachers. According to their participants, there are five main reasons why they experience technostress, namely: individual problems, technical problems, health problems, and time problems. Furthermore, Liu (2019) reported that teachers in Canada experience technostress because they need to change their habits, sacrifice their personal time, and update their technology schools in order to be at par with public school policies.

With the shift of learning modalities due to the COVID-19 pandemic, there was an increasing number of studies focusing on technostress. In Chile, Muñoz et al. (2021) claimed that 11% of the teachers experience techno anxiety and 7.2% experience techno fatigue. They added that the combination of these two manifestations result in 6.8% of the teachers experiencing technostress. Mokh et al. (2021) explored the influence of online learning towards the technostress of Palestinian language teachers during the pandemic. It was reported in their study that technostress is moderately affected by online learning.

In the Philippines, there are only limited studies about the technostress during the pandemic. These studies emphasized the experiences of workers in the workplace but not specifically in the field of education. For instance, the study of Laspinas (2015) centered on examining the technostress of librarians who are in the postgraduate level. The study indicated that the respondents slightly experience technostress in terms of physical, emotional, behavioral, and psychological aspects.

Nonetheless, there were several news reports that covered the emotional and mental health of Filipino teachers. In the news report of Adonis (2021), a public school teacher reported that the heavier workload brought by the shift to learning modalities aided by ICT was taking a toll on her emotional and mental health. Vivas (2020) also shared the same sentiments as she described that many Filipino teachers are not “tech savvy” so many teachers are experiencing challenges in shifting to digital education. Hence, she emphasized that mental health became one of the major issues for teachers during the new normal. With the dearth of literature on the specific discussion of technostress in the local context, the importance of this study is further established.

## Methodology

*Research Design*

Quantitative descriptive research design was used in the study. This research design aims to describe the “what” rather than the “how” or “why” of a research problem (Nassaji, 2015). In this study, it was used to provide a more detailed discussion regarding the level of the technostress of the college teachers along five factors.

*Research Respondents and Locale*

The study was conducted at the University of the Cordilleras located at Baguio City, Philippines. It targeted 9 colleges that are offering baccalaureate degrees. The population covered the college teachers who were already teaching in the University since the implementation of flexible learning modality in the second half of 2020. The researchers conducted a pre-survey which identified 94 respondents.

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*Research Instrument*

The study used a 28-item survey questionnaire on technostress. This was adapted from the study of Coklar et al. (2017) entitled "Defining Teachers' Technostress Levels: A Scale Development". The survey questionnaire has a Cronbach's alpha reliability coefficient of 0.917 which means that the items in the questionnaire have relatively high consistency. It is composed of five factors that determine technostress, namely: learning-teaching process, profession, technical issue, personal, and social.

*Research Process*

The researchers secured letters of permission and consent signed by the Vice-President for Academic Affairs and Research of the University. The copies of these letters were distributed to the deans and college teachers of the 9 colleges. For the safety of the respondents, printed and digital copies of the survey questionnaire were created. For further validation of the results, the researchers conducted a semi-structured interview with 9 school administrators and 18 college teachers.

*Treatment of the Data*

Weighted mean was utilized to categorize the level of technostress of the college teachers. Table 1 presents the statistical range that was used to categorize and interpret the level of technostress of the college teachers.

Table 2
Level of Technostress

| Statistical Range | Descriptor | Interpretation |
|---|---|---|
| 3.25-4.00 | Strongly Agree | The level of technostress of college teachers is very high. This means that they always feel negative emotions, thoughts, behaviors, and attitudes in using technology in teaching. |
| 2.50-3.24 | Agree | The level of technostress of college teachers is high. This means that they often feel negative emotions, thoughts, behaviors, and attitudes in using technology in teaching. |
| 1.75-2.49 | Disagree | The level of technostress of college teachers is low. This means that they seldom feel negative emotions, thoughts, behaviors, and attitudes in using technology in teaching. |
| 1.00-1.74 | Strongly Disagree | The level of technostress of college teachers is very low. This means that they rarely feel negative emotions, thoughts, behaviors, and attitudes in using technology in teaching. |

## Findings

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Table 2 presents the analysis of data on the level of online teaching competency of college teachers.

Table 2
Level of Online Teaching Competency of College Teachers

| Technostress Factors | Mean | Descriptor |
|---|---|---|
| Learning-Teaching Process Factor | 2.31 | Low |
| Technical Issue Factor | 2.29 | Low |
| Social Factor | 2.13 | Low |
| Profession Factor | 2.00 | Low |
| Personal Factor | 1.91 | Low |
| **Total** | **2.13** | **Low** |

Generally, the results show that the level of technostress of the college teachers is low (2.13). Based on the interpretation found on Table 1, this means that the majority of the college teachers seldom feel negative emotions, thoughts, behaviors, and attitudes in using technology in teaching. In addition, the majority of the college teachers disagree that they feel technology-related stress caused by factors along learning-teaching process, technical issue, social, profession, and personal.

The technostress of teachers caused by the sudden shift from traditional face-to-face learning to online distance learning sparked diverse discussions since the onslaught of the pandemic. The result corroborates a recent study conducted by Rabacal et al. (2020) in which they found that Filipino teachers have somehow coped with the impact of the pandemic. This is further affirmed by College Teacher 14 who mentioned that the technostress among the college teachers in his department is no longer prevalent because “it has been a while” since they shifted from face-to-face teaching to online teaching. Thus, this statement reveals that the college teachers were able to cope with the changes in the learning modality due to the pandemic.

Many studies concluded that the support mechanisms provided by the school are deemed significant in helping the teachers cope with technostress (Siddiqui et al., 2022; Syvänen et al., 2016). With the implementation of flexible learning modality during the pandemic, the University implemented various measures to promote a better online teaching environment for the college teachers. According to School Administrator 5, the University has appointed a Course Content Developer (CCD) for each college because there was a need for technical support staff with the shift of learning modality. College Teacher 1 explained the role of the CCD as someone who supports the college teachers by providing orientations and guidance regarding technology-related concerns. In addition, School Administrator 2 indicated that the CCD provides regular upskilling webinars for the college teachers particularly, with the use of the Learning Management System (LMS) called Canvas.

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However, the result also contradicts other studies conducted about the technostress of teachers during the pandemic. The findings of Mokh et al. (2020) yielded moderate levels of technostress among Palestinian teachers mainly because of inadequate logistic support such as the provision of laptops and internet services. Similarly, College Teachers 4, 5, and 7 expressed that frustration may develop for both the teachers and students if there are instances when the internet connection is weak. This is confirmed by School Administrator 3 who described that problems in the internet connection are "added frustrations" which negatively affect the online classroom management of the college teachers.

Furthermore, Bantasan (2022) found in his study that Filipino teachers experience a high level of technostress in the online learning environment. He cited that the experiences of the said respondents are affected by socio-demographic variables such as age, marital status, and sex. In the same manner, other studies also found a relationship between technostress and socio-demographic variables (Abilleira et al., 2021; Li & Wang, 2021; Özgür, 2020). In the current study, these socio-demographic variables were not addressed; however, the interviews with the college teachers reveal that older college teachers who are not adept with technology tend to have difficulties in adapting to the flexible learning modality compared to their younger counterparts. This is evident in the statement of College Teacher 16 found below:

> *"We don't have computer [sic]. We don't have that before. It has been a big problem for us since for the improvement of technology, we were not really adept for that but it's a big challenge on our part."*

Despite the concern on age gap, this is alleviated through the collaborations that are done within the University and different colleges. School Administrator 7 recounted that technical problems experienced by college teachers are shared through their group chat and other colleagues are free to exchange their advice on solving the said problems. The effort of the younger college teachers in sharing their "new discoveries" was also commended by College Teacher 9. She further narrated that the younger college teachers aid the CCD in guiding the older teachers in terms of the navigation of Canvas LMS features when there are recent updates.

*Learning-Teaching Process Factor*

The level of technostress of the college teachers along the learning-teaching process factor is low (2.31) which implies that majority of them disagree that there are technology-related issues that negatively affect them in teaching the course content and facilitating classroom activities. School Administrator 9 verifies this result in her statement below:

> *"We do a general meeting first. Of course, to identify what are the problems that we encounter towards the delivery or the execution of the teaching and learning activities to our students virtually."*

In addition, many of the college teachers have shared the advantages of the recent updates in the Canvas LMS. For example, College Teacher 3 disclosed about the addition of video editing and recording features called Canvas Studio and the Big Blue Button as some of the tools that enable a more efficient communication and collaboration with her students. College Teacher 9 affirmed that these new Canvas features make the lives of the teachers "easier".

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In the online learning environment, the teacher manages various aspects of the learning-teaching process. Being an online teacher requires knowledge and skills in creating modules, activities, and interactions within the online classroom (Lohmann et al., 2021). As most of the learning-teaching activities happen online, College Teacher 1 posited that learning new ways of navigating technology is necessary. Thus, the support given by the school administration is important in mitigating technology-related issues that may affect the content delivery and classroom facilitation of the college teachers in the online classroom.

*Technical Issue Factor*

The level of technostress along the technical issue factor is low (2.29) which implies that majority of the college teachers disagree that they lack competency in using technological tools in teaching course content and facilitating classroom activities. Similar to the learning-teaching process factor, many of the college teachers have indicated their confidence with the use of technological tools. College Teacher 7 described that her colleagues have positive perception in relation to their technical competence as they are "tech savvy". On another note, School Administrator 8 divulged that her "tech savvy" college teachers are volunteering to mentor other colleagues who are having a hard time with the use of technological tools.

Apart from webinars and trainings, many studies also observed the increase of collaboration among teachers during the pandemic. Hammond and Hyler (2020) asserted that academic institutions should promote collaboration among teachers in order to bridge the gap between the old roles of the teachers in the physical classroom and their new roles in the online platform. The University encourages collaboration through the webinars and orientations prepared by the CCDs. This is echoed as School Administrator 9 illustrated that the CCDs "love to share" especially if their colleagues have limitations with the use of the Canvas LMS. So, with this practice, other teachers who may have a lack of competency in using technological tools are supported.

*Social Factor*

The level of technostress of the college teachers along social factor is low (2.13) which implies that majority of them disagree that there are technology-related issues that negatively affect them in their rapport between the teacher and other stakeholders such as their colleagues and school administrators in the educational community. In the interview, the school administrators assured that various measures are considered in order to create a conducive working environment for the college teachers. School Administrator 9 highlighted that the technical support given by his college builds "good camaraderie". Also, School Administrator 8 detailed that she encourages her colleagues to communicate with her virtually or physically in case of personal concerns that may not be addressed in the presence of other teachers.

Rather than being a hindrance, the use of technology in many organizations is perceived to be positive. In the study of Ter Hoeven et al. (2016), the implementation of new technologies in the workplace heightens flexibility, accessibility, and efficiency in communication. Hence, this implicates that the use of technology empowers the rapport between the college teachers and other stakeholders.

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*Profession Factor*

The level of technostress of the college teachers along profession factor is low (2.00) which implies that majority of them disagree that there are technology-related issues that negatively affect their attitude towards the teaching profession. Parallel to this, the motivation of the college teachers to further improve their online teaching competency is evident with their voluntary participation in different webinars and trainings offered by external organizations that are not required by the University. College Teacher 10 chronicled that they attend international trainings about the best practices in online teaching. Other teachers also take the initiative to search for webinars and trainings that match their specialization such as College Teacher 12 who attends international webinars despite the difference in time zones.

During the pandemic, the resilience of teachers to upgrade their digital competence can be observed in many literature. Many teachers are willing to undergo upskilling activities in order to stay relevant and updated regarding new educational trends (El Sayary, 2023; Raghunathan et al., 2022). Correspondingly, this willingness is also apparent with the positive outlook of the college teachers in undergoing webinars and trainings that are not prescribed by the University.

*Personal Factor*

The level of technostress of the college teachers along personal factor is low (1.91) which implies that majority of them disagree that there are technology-related issues that negatively affect their attitude towards technological tools. In congruence, many of the college teachers are willing to undergo webinars and trainings and even seek the guidance from a peer when technology-related concerns arise in their respective online classes. In the interview, College Teacher 15 conveyed that she does not hesitate to approach their CCD when she experiences technical problems. In response, the CCD accommodates these requests by setting a schedule to have a one-on-one tutorial. This is reverberated in the statement of School Administrator 2 as she portrayed that the college teachers in her college are "very open in embracing the new trend of teaching modality".

These findings are in accordance with the conclusion of Krishnakumar and Kumar (as cited in Phan & Dang, 2017) that college teachers from a selected HEI in India have a favorable attitude towards e-learning as they are already familiar with ICT use. Likewise, Hero (2020) found that Filipino teachers have a high level of acceptance with the use of ICT in teaching. He added that this result shows that 21st century educators are not afraid to welcome innovations and trends in teaching.

**Conclusion**

Generally, most of the college teachers do not experience heightened technostress as they are revealed to have a positive outlook towards ICT integration in the online classroom. Factors such as the provision of webinars, trainings, and CCDs further helped the teachers in addressing technology-related problems. Additionally, other interventions such as collaboration and peer mentoring among the college teachers emphasized good camaraderie and rapport between the school administrators and college teachers.

**Suggestions and Recommendations**

Series of webinars and trainings to orient the college teachers about ICT updates should be conducted regularly as these are deemed to be beneficial by the college teachers. Also, the provision of a personnel focused on aiding the teachers in the use and exploration of ICT tools may be adapted by other HEIs to alleviate the technostress among their college teachers. Lastly, socio-demographic variables such as age, marital status, sex, and teaching experience may also be explored by future researchers in order to further analyze other factors that may influence the technostress of teachers.

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*"For with God, nothing shall be impossible." – Luke 1:37*

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