Teachers and Technostress During Covid-19 Pandemic: A Modification of Technology Acceptance Model

Rina Anindita(✉), Lucia Lukito, and Lia Amalia

Faculty of Business Management, Esa Unggul University, Jakarta, Indonesia
rina.anindita@esaunggul.ac.id

Abstract. This study intends to investigate how instructors' intentions to use e-learning tools during the Covid-19 pandemic are influenced by technostress and other factors. The study used a modified Technology Acceptance Model (TAM) that took generation into account as a moderating variable and included behavior intention, perceived ease of use, perceived usefulness, technology self-efficacy, and technostress. The majority of people in Jakarta were teachers. In this study, 184 main data were gathered via a standardized questionnaire issued to instructors in public and private schools in Jakarta, particularly in West Jakarta, who had used e-learning during the Covid-19 outbreak. Smart-PLS 3.0 was utilized to analyze the data. Perceived usefulness and technological self-efficacy were revealed to be the primary determinants of behavior intention, while perceived ease of use was found to indirectly influence behavior intention and technostress through perceived utility. Perceived utility and simplicity of use have a negative impact on technostress levels. Contrary to earlier research, this study shows that perceived usability and technological stress have little impact on behavior intention. To ensure that teachers stay current with technology advancements and boost the organization's competitive advantage, it is imperative that teacher training and development programs be upgraded.

Keywords: Technostress · e-learning · teacher · technology self-efficacy · Technology Acceptance Model

1 Introduction

The Industrial Revolution 4.0 has infused new technology into every aspect of life, and education is no exception [1–3]. Teachers must adjust by incorporating technology in the classroom due to the rapid progress of information and communication technology (ICT). Effective use of technology in the classroom can help students' learning processes [4–6], but it can also add to instructors' workloads, present difficulties, and cause stress, leading them to stick with more traditional teaching strategies.

The Covid-19 pandemic was one of the influences that accelerated the adoption of e-learning technology. It forced the world of education in Indonesia to implement online learning without any prior preparation. The necessity to use technology in online

P. Hartanto and J. Suprapmanto (Eds.): ICEHoS 2022, ASSEHR 763, pp. 237–249, 2023.
https://doi.org/10.2991/978-2-38476-088-6_28

learning created pressure and stress for some educators, especially for teachers who were previously unprepared or constrained in technology, in terms of knowledge, abilities, and infrastructure.

The adoption of ICT does improve the effectiveness and quality of the learning process [8] so it is appropriate that e-learning continue to be used and integrated into the world of education when learning conditions return to normal. There were many challenges and obstacles in the implementation of e-learning, including significant costs, lack of training and infrastructure [9]. In addition, the demand to keep abreast of technological developments and innovations related to pedagogy increased the workload and technostress of teachers, which then affected their behavioral intention in adopting e-learning.

Internal factors such as perceived ease of use, perceived usefulness and self-efficacy also determined the behavioral intention in the use of e-learning [10, 11]. These perceptions also affected the level of technostress experienced by teachers [12]. In this case, support from the organization was an external factor that was needed to equip teachers to use e-learning in carrying out their duties proficiently [13].

Previous studies have explained several factors that affect a person's behavioral intention in using technology, including technology self-efficacy, perceived ease of use, perceived usefulness [10, 11, 14–20] and technostress [12, 21, 22]. On the other hand, according to Dong et al. [13], computer self-efficacy significantly reduced technostress. Moreover, in the medical field, technostress was found strongly affected by perceived complexity (in contrast to perceived ease of use) among doctors who use Mobile Electronic Medical Records [23].

Many studies on behavioral intention have been carried out before, but there was limited research involving age demographic variables. According to Morris & Venkatesh, age affected a person's acceptance of technology [24]. Based on this, and in accordance with the recommendations of previous research [12] we added generation as a moderator on the relationship between self-efficacy, perceived ease of use and perceived usefulness on behavior intention.

This research aims to explore the relationships between technostress, perceived ease of use, perceived usefulness and technology self-efficacy on teachers' behavioral intention to adopt e-learning during Covid-19 pandemic moderated by teachers' generational cohort utilize a modified Technology Acceptance Model.

A. Hypotheses Development

Utilize a modified Technology Acceptance Model to examine the effects of technostress, perceived ease of use, perceived usefulness, and technology self-efficacy on teachers' behavioral intention to adopt e-learning during the Covid-19 pandemic, which is moderated by teachers' generational cohort. Figure 1 depicts the research model suggested in this study.

The following are the main hypotheses that will be examined in this study:

H1: *Teachers' perceptions of the value of employing e-learning are positively influenced by perceived ease of use.*
H2: *Teachers' feeling of technological stress when adopting e-learning is negatively impacted by perceived ease of use.*

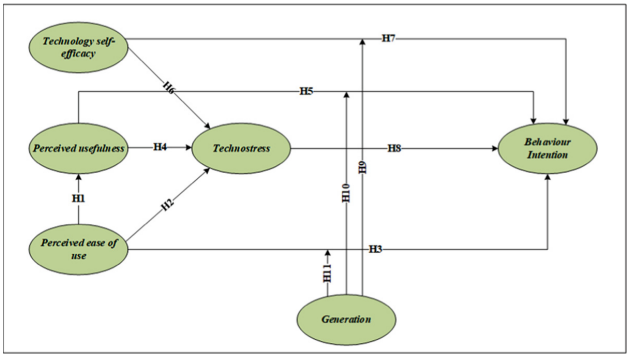

Fig. 1. Hypotheses

H3: *Teachers' behavioral intentions when adopting e-learning are positively influenced by perceived ease of use.*
H4: *Teachers who use e-learning report feeling more technologically stressed than they would otherwise.*
H5: *Perceived usefulness influences teachers' behavioral intentions to use e-learning in a favorable way.*
H6: *Technology self-efficacy has a detrimental impact on the technological stress teachers experience when using e-learning.*
H7: *Teachers' behavioral intentions to use e-learning are positively influenced by their technology self-efficacy.*
H8: *Technostress has a negative impact on teachers' behavior and e-learning intentions.*
H9: *The association between behavior intention and technology self-efficacy is moderated by generation.*
H10: *The association between behavior intention and perceived usefulness is moderated by generation.*
H11: *The association between behavior intention and perceived ease of use is moderated by generation.*

2 Research Method

A. Sample, population and data collection

This quantitative study applied Structural Equation Modelling (SEM) with Partial Least Square (PLS) approach. The statistical population for this study was teachers in Jakarta with the assumption that the infrastructure in Jakarta was considered adequate in conducting online learning. Purposive sampling technique was applied to teachers with the criteria of (1) being primary or secondary schools in West Jakarta, and (2) are currently teaching online due to the pandemic.

Primary data were collected in September and October 2021 using Google Form. WhatsApp message with the link to the questionnaire was shared to teachers of 10 public

and private schools in West Jakarta. 184 teachers participated in the survey and more than half (56%) had conducted online learning for more than 18 months.

B. Research instrument

The questionnaire comprised of 2 parts: Part A contained a total of 5 questions on demographic information, which were gender, education, location, online teaching period, and generation. Part B consisted of measurements for 5 constructs based on the framework developed in this study. The first three measurements were perceived ease of use, perceived usefulness and behavior intention scales adapted from Technology Acceptance Model by F. D. Davis (1989) [51]. Each scale consisted of 4 items which has been widely used in more recent studies [15, 52]. The next measurements were technology self-efficacy scale adapted from Dong et al. (2020), consisted of 5 items [13] and technostress scale adapted from Panisoara et al. (2020), consisted of 9 items [12]. All questions in Part B used -a four-point Likert scale interval, with 1 being strongly disagree and 4 being strongly agree.

C. Data analysis

This study used Smart-PLS version 3.0 software to analyze the data that had been collected. PLS Algorithm calculation was run to assess the reliability, validity (convergent & discriminant validity), and statistical collinearity of the questionnaire. The reliability for all constructs was accepted as the values of CR and α were found above 0.7, but 2 out of 9 items of technostress were dropped as the outer loading were found below 0.7, namely TS1 and TS6. In terms of discriminant validity assessment, it was found that all constructs had met the Fornell-Larcker criterion, indicating that all items of each construct were unique and different from each other. For the collinearity test, 1 of 4 items of perceived usefulness were dropped as the VIF was found above 5, namely PU2. Thus, 23 out of 26 items were declared valid and reliable for hypotheses testing.

3 Results

A. Demographic information of participants

There were 184 respondents in this study, consisting of 58.2% female and 41.8% male. Of this number, 57.6% were Generation X, 38% were Generation Y, the rest were Generation Z and Baby Boomers. Based on the teaching experience, 56% of respondents had conducted online learning for more than 18 months, 38% had taught online in the range of 13–18 months, and 6% for less than 13 months. Table 1 presents the demographic information of the participants.

B. Hypotheses Testing

Assessment of the coefficient of determination (R2) was conducted to find the proportion of the independent variable(s) in explaining the variance of dependent variable. Finding showed that 47.1% of the behavior intention variants could be explained by perceived ease of use, perceived usefulness, technology self-efficacy, and technostress, in which perceived usefulness was designated as the main predictor ($\beta = 0.411$). Perceived

Table 1. Demographic Information of the Participants

		Frequency	Percentage
Gender	Female	107	58.2%
	Male	77	41.8%
Generation	X	106	57.6%
	Y	70	38%
	Others	8	4.4%
Teaching online experience	More than 18 months	103	56%
	13 – 18 months	70	38%
	Less than 13 months	11	6%

ease of use, perceived usefulness and technology self-efficacy could explain 21.4% of the variance of technostress. And moreover, perceived ease of use could explain 43.3% of the variance of perceived usefulness.

Bootstrap procedure on Smart-PLS was run to specify the importance of hypotheses in the conceptual model. The relationship between constructs is declared significant if the $p \leq 0.05$ or $t \geq 1{,}96$ [53]. The result of the Smart-PLS bootstrap is shown in Fig. 2.

It can be seen that perceived ease of use has a positive impact on perceived usefulness ($t = 13.065$; $p = 0.000$) and a negative effect on technostress ($t = 1.973$; $p = 0.049$), but had no consequential effect on behavior intention ($t = 1.167$; $p = 0.244$). Perceived usefulness negatively impacted technostress ($t = 2.512$; $p = 0.012$) and positively impacted behavior intention ($t = 5.245$; $p = 0.000$). Technology self-efficacy exerted. a positive effect on behavior intention ($t = 3.808$; $p = 0.000$) but had no effect on technostress ($t =$

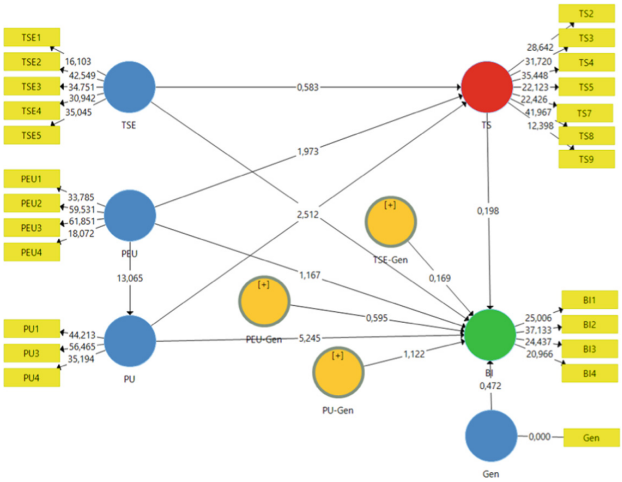

Fig. 2. Bootstrap procedure on Smart-PLS

Table 2. Path Coefficient of The Hypothesized Relationships

Hypotheses	Path	T Statistics (|O/STDEV|)	p-Values	Decision
H1	PEU → PU	13.065	0.000	Supported
H2	PEU → TS	1.973	0.049	Supported
H3	PEU → BI	1.167	0.244	Not supported
H4	PU → TS	2.512	0.012	Supported
H5	PU → BI	5.245	0.000	Supported
H6	TSE → TS	0.583	0.560	Not supported
H7	TSE → BI	3.808	0.000	Supported
H8	TS → BI	0.198	0.843	Not supported
H9	TSE-Gen → BI	0.169	0.866	Not supported
H10	PU-Gen → BI	1.122	0.262	Not supported
H11	PEU-Gen → BI	0.595	0.552	Not supported

0.583; p = 0.560). The effect of technostress on behavior intention was not observed (t = 0.198; p = 0.843). Generational cohort was found to have no effect to the relationship between perceived ease of use, perceived usefulness and technology self-efficacy. Table 2 shows the summary of the hypotheses testing.

It was discovered that perceived ease of use had a statistically significant indirect effect on technostress through perceived usefulness (t = 2.423; p = 0.016) and on behavior intention through perceived usefulness (t = 4.816; p = 0.000). The indirect effects result is outlined in Table 3.

Table 3. Indirect Effect Result

	T Statistics (|O/STDEV|)	*p* Values
PEU → PU → BI	4.816	0.000
PEU → TS → BI	0.183	0.855
PU → TS → BI	0.179	0.858
PEU → PU → TS → BI	0.177	0.860
TSE → TS → BI	0.089	0.929
PEU → PU → TS	2.423	0.016

4 Discussion

This research was carried out to investigate the effect of technostress experienced by teachers on the intention of using e-learning amid the Covid-19 pandemic by applying the TAM model and extending it with technology self-efficacy and technostress moderated by generation.

A. Perceived Ease of Use

Based on the results of the research, it can be seen that perceived ease of use had a positive influence on perceived usefulness, indicating that teachers who perceived that e-learning can be learned easily, understood easily, interactive and used easily, will consider it to be useful while using it. This finding supports the results of previous research [10, 17, 45, 46, 54–57]. It was confirmed that perceived ease of use could lower the technostress level, in line with the results of previous research [12]. Furthermore, it is evident that perceived ease of use had a significant indirect effect on technostress through perceived usefulness, which means that if teachers feel that e-learning can be used easily and is of great help in the learning process, the tendency to experience technostress will decrease.

No direct positive effect of perceived ease of use on teachers' behavior intention in using e-learning was observed, which supports the previous results [17, 54, 58, 59]. This is understandable because even if a device or system can be used easily, if it is not effective in increasing performance and productivity, no one will use it. On the other hand, it was discovered that perceived ease of use had a significant indirect effect on behavior intention through perceived usefulness, and this is parallel with previous findings [16, 17, 58, 59]. This means that if teachers find that e-learning can be used easily and they perceive it to be an effective tool, they are significantly more likely to implement e-learning as a learning system even after the pandemic ends.

B. Perceived Usefulness

Aligning with previous research [12], this study found that perceived usefulness significantly decreased technostress level. If teachers experience the benefits of using e-learning, find it useful for improving their performance and productivity, their technostress level will decrease. In addition, it is evident that perceived usefulness had a significant positive effect on behavior intention, which supports the previous results [11, 14, 16, 17, 22, 35, 36, 45, 47, 60, 63]. The perception that e-learning is of great help will lower the stress level and increase the intention to use it. While perceived ease of use and technology self-efficacy impacts behavior intention, perceived usefulness is the main predictor of behavior intention of how likely a teacher would take up online learning. The benefits of e-learning become significant when face-to-face learning is not possible.

C. Technology self-efficacy

The desire to use e-learning is significantly influenced by technology self-efficacy, which supports previous findings [12, 34, 44–48]. Contrary to most previous studies [13, 23, 43] it was discovered that technology self-efficacy had no impact on technostress.

However, these results were consistent with results of research from Panisoara et al. [12].

D. Technostress

Technostress was found to have no effect on behavior intention which supports previous results [22]. This is because the research was carried out when teachers had undergone the online teaching process and used e-learning for approximately one and a half years. During that time, teachers had received appropriate training that increased their technological self-efficacy. Teachers experienced technostress especially in the beginning of the outbreak when remote teaching was the only option, but by the passing of time, the level of technostress gradually faded and teachers became used to it.

E. Generational Differences

Contrary to our hypothesis, this study proved that generation does not serve as a moderator for the correlation between perceived ease of use, perceived usefulness and technology self-efficacy on behavior intention in using e-learning, which supports recent results [64], [66]. The pandemic conditions have forced teachers, regardless of age, to conduct online learnings simultaneously on a wide scale despite online and e-learning being a relatively new concept at that time. During the pandemic, it can be said that all teachers, regardless of age and generation, shared the experience of using e-learning equally. This finding also broke the stigma where it is often assumed that age is the reason for someone avoiding new technologies.

5 Conclusions

This study revealed several factors that influenced the behavior intention of teachers in implementing e-learning amid the Covid-19 pandemic. Perceived usefulness was the main determinant of teachers in using e-learning, followed by technology self-efficacy. It was observed that perceived ease of use had an indirect effect on behavior intention and technostress through perceived usefulness. Perceived usefulness would reduce the level of technostress and increase the behavior intention. As many restrictions were imposed due to the pandemic, conducting in-person learning was not possible, which necessitate the emergence of e-learning. E-learning allowed online learning to take place.

The conclusion that can be drawn from the findings is that to create a conducive online educational environment, it is essential for teachers to understand how e-learning platforms can enhance the learning process (perceived usefulness). Furthermore, by believing that e-learning is a robust learning method, teachers are less likely to be stressed, encouraging them to continue using the method in conjunction with face-to-face learning after the pandemic ends (behavioral intention). It is also concluded that regardless of generation, teachers' perception toward the usefulness of e-learning in the teaching process is the factors that affect teachers' intention to use e-learning.

A. Limitations

The purposive sampling method became a limitation in the study. It would be better if the research was conducted on a larger scale with random samples. Besides, this

research only covered Jakarta, where the internet connection and teachers' capabilities were not a big problem. Thus, further research is needed for conditions in other regions in Indonesia.

Furthermore, it is recommended for future study to specify the e-learning platform for the scope of the research as it may impact the perceived ease of use and perceived usefulness. There are various e-learning platforms currently used widely in Indonesia, including but not limited to Google Classroom, Microsoft Teams, Edmodo, Schoology, Moodle, and RuangKelas, each with its own characteristics, specifications and varying levels of difficulty.

This research also showed that there are many other factors related to technostress and behavior intention that can be explored for future study. Gender, organizational support and technological pedagogical content knowledge can be explored to predict technostress [43], as well as subjective norms, experience and attitude towards technology acceptance [18, 54].

Another limitation was the Covid-19 restrictions imposed during the execution of the research. The pandemic conditions have forced teachers and educational organizations to use e-learning with no other choice. Therefore, it is recommended to conduct further studies when the pandemic is over, at which time teachers have the choice of whether or not they will use e-learning.

B. Managerial Implications

An important managerial implication to consider is that educational organizations should continue encouraging teachers to participate in dissemination and various training programs concerning the implementation of e-learning, so that teachers can experience the convenience and benefits of using it. With the perception that e-learning can be used easily and is of great help, the level of technostress will be reduced and this will further encourage teachers to implement e-learning in the educational process. With the advancement of technology, the educational process is no longer limited by classroom walls. Even if the pandemic ends, online learning, which was initially a compulsion, remains to be an option. Furthermore, teachers who master e-learning and technology will have a competitive advantage, turning them into valuable assets for organizations, nations and countries.

The government's role in providing training and coaching is essential in improving teachers' familiarity in using e-learning, as well as improving supporting infrastructure in the less-developed regions, so that training and coaching programs can be accessed more evenly throughout the country.

References

1. J. Abbas, A. Muzaffar, H. K. Mahmood, M. A. Ramzan, S. Sibt, and U. H. Rizvi, "Impact of Technology on Performance of Employees (A Case Study on Allied Bank Ltd, Pakistan)," World Appl. Sci. J., vol. 29, no. 2, pp. 271–276, 2014, https://doi.org/10.5829/idosi.wasj.2014.29.02.1897.
2. K. Schwab and N. Davis, Shaping the Future of the Fourth Industrial Revolution. New York: Currency, 2018.

3. W. Tangahu, "Modern Education in Revolution 4.0," Int. J. Innov. Eng. Res. Technol., vol. 8, no. 1, pp. 3–7, 2021.
4. M. C. Kim and M. J. Hannafin, "Scaffolding problem solving in technology-enhanced learning environments (TELEs): Bridging research and theory with practice," Comput. Educ., vol. 56, no. 2, pp. 403–417, 2011, https://doi.org/10.1016/j.compedu.2010.08.024.
5. T. Vandeyar, "Policy intermediaries and the reform of e-Education in South Africa," Br. J. Educ. Technol., vol. 46, no. 2, pp. 344–359, 2015, https://doi.org/10.1111/bjet.12130.
6. M. Turugare and N. Rudhumbu, "Integrating technology in teaching and learning in universities in Lesotho: opportunities and challenges," Educ. Inf. Technol., 2020, https://doi.org/10.1007/s10639-019-10093-3.
7. A. Aisa and L. Lisvita, "Penggunaan Teknologi Informasi dalam Pembelajaran Online Masa Covid-19," JoEMS (Journal Educ. Manag., vol. 3, no. 4, pp. 47–50, 2020, [Online]. Available: http://ojs.unwaha.ac.id/index.php/joems/article/view/308.
8. Zulfitria, Ansharullah, and R. Fadhillah, "Penggunaan Teknologi dan Internet sebagai Media Pembelajaran di Masa Pandemi Covid-19," in Seminar Nasional Penelitian LPPM UMJ, 2020, p. 171.
9. E. Surahman, R. Santaria, and E. I. Setiawan, "TANTANGAN PEMBELAJARAN DARING DI INDONESIA Pendahuluan Pembelajaran daring adalah proses pembelajaran yang dilakukan," J. Islam. Educ. Manag., vol. 5, no. 2, pp. 94–95, 2020.
10. E. S. Park and M. S. Park, "Factors of the technology acceptance model for construction IT," Appl. Sci., vol. 10, no. 22, 2020, https://doi.org/10.3390/app10228299.
11. F. A. A. Eksail and E. Afari, "Factors affecting trainee teachers' intention to use technology: A structural equation modeling approach," Educ. Inf. Technol., vol. 25, no. 4, pp. 2681–2697, 2020, https://doi.org/10.1007/s10639-019-10086-2.
12. I. O. Panisoara, I. Lazar, G. Panisoara, R. Chirca, and A. S. Ursu, "Motivation and continuance intention towards online instruction among teachers during the COVID-19 pandemic: The mediating effect of burnout and technostress," Int. J. Environ. Res. Public Health, vol. 17, no. 21, 2020, https://doi.org/10.3390/ijerph17218002.
13. Y. Dong, C. Xu, C. S. Chai, and X. Zhai, "Exploring the Structural Relationship Among Teachers' Technostress, Technological Pedagogical Content Knowledge (TPACK), Computer Self-efficacy and School Support," Asia-Pacific Educ. Res., vol. 29, no. 2, pp. 147–157, 2020, https://doi.org/10.1007/s40299-019-00461-5.
14. M. C. Lee, "Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation-confirmation model," Comput. Educ., vol. 54, no. 2, pp. 506–516, 2010, https://doi.org/10.1016/j.compedu.2009.09.002.
15. X. Wu and Y. Gao, "Applying The Extended Technology Acceptance Model To The Use Of Clickers In Student Learning : Some Evidence From Macroeconomics Classes," Am. J. Bus. Educ., vol. 4, no. 7, pp. 43–50, 2011
16. T. Teo, "Factors influencing teachers' intention to use technology: Model development and test," Comput. Educ., vol. 57, no. 4, pp. 2432–2440, 2011, https://doi.org/10.1016/j.compedu.2011.06.008.
17. S. H. Purnomo and Y.-H. Lee, "E-learning adoption in the banking workplace in Indonesia: an empirical study," Inf. Dev., vol. 29, no. 2, pp. 138–153, 2012, https://doi.org/10.1177/0266666912448258.
18. F. Abdullah and R. Ward, "Developing a General Extended Technology Acceptance Model for E-Learning (GETAMEL) by analysing commonly used external factors," Comput. Human Behav., vol. 56, pp. 238–256, 2016, https://doi.org/10.1016/j.chb.2015.11.036.
19. Nursiah, "Pengaruh Perceived Ease of Use dan Preceived Usefulness Terhadap Behaviour Intention to Use," J. Elektron. Sist. Inf. dan Komput. STMIK Bina Mulia, vol. 3, no. 2, pp. 39–47, 2017.

20. C. Monica and V. Briliana, "Faktor - Faktor yang mempengaruhi Continuance Intention Pengguna Go-Food di Jakarta," J. Wira Ekon. Mikroskil, vol. 9, pp. 115–126, 2019
21. A. M. Fuglseth and Ø. Sørebø, "The effects of technostress within the context of employee use of ICT," Comput. Human Behav., vol. 40, pp. 161–170, 2014, https://doi.org/10.1016/j.chb.2014.07.040.
22. J. B. Vesga, X. Xu, H. He, G. Sadanala, S. Li, and F. Yu, "Technostress and Student ' s Intention to use VR for Learning," SITE 2020, no. 2005, pp. 1005–1010, 2020.
23. C. Liu, T. Cheng, and C. Chen, "Exploring the factors that influence physician technostress from using mobile electronic medical records," Informatics Heal. Soc. Care, vol. 44, no. 1, pp. 92–104, 2019, https://doi.org/10.1080/17538157.2017.1364250.
24. M. G. Morris and V. Venkatesh, "Age differences in technology adoption decisions: Implications for a changing work force," Pers. Psychol., vol. 53, no. 2, 2000.
25. R. K. Jena, "Technostress in ICT enabled collaborative learning environment: An empirical study among Indian academician," Comput. Human Behav., vol. 51, pp. 1116–1123, 2015, https://doi.org/10.1016/j.chb.2015.03.020.
26. L. K. Sami and N. B. Pangannaiah, "'Technostress': A literature survey on the effect of information technology on library users," Libr. Rev., vol. 55, no. 7, pp. 429–439, 2006, https://doi.org/10.1108/00242530610682146.
27. V. Grover and R. Purvis, "Technostress: Technological antecedents and implications," MIS Q., vol. 35, no. 4, pp. 831–858, 2011
28. L. Li and X. Wang, "Technostress inhibitors and creators and their impacts on university teachers' work performance in higher education," Cogn. Technol. Work, vol. 23, no. 2, pp. 315–330, 2020, https://doi.org/10.1007/s10111-020-00625-0.
29. M. Tarafdar, C. L. Cooper, and J. F. Stich, "The technostress trifecta - techno eustress, techno distress and design: Theoretical directions and an agenda for research," Inf. Syst. J., vol. 29, no. 1, pp. 6–42, 2019, https://doi.org/10.1111/isj.12169.
30. T. S. Ragu-Nathan, M. Tarafdar, B. S. Ragu-Nathan, and Q. Tu, "The consequences of technostress for end users in organizations: Conceptual development and validation," Inf. Syst. Res., vol. 19, no. 4, pp. 417–433, 2008, https://doi.org/10.1287/isre.1070.0165.
31. M. Salo and H. Pirkkalainen, "Technostress and social networking services : Explaining users ' concentration , sleep , identity , and social relation problems," Inf. Syst. J., no. June, pp. 1–28, 2018, https://doi.org/10.1111/isj.12213.
32. X. Wang, S. C. Tan, and L. Li, "Technostress in University Students' technology-enhanced learning: An investigation from multidimensional person-environment misfit," Comput. Human Behav., vol. 105, p. 106208, 2020, https://doi.org/10.1016/j.chb.2019.106208.
33. S. J. Lee, S. H. Jin, and B. J. Choi, "The influence of technostress and antismart on continuous use of smartphones," Lect. Notes Eng. Comput. Sci., vol. 1, pp. 303–308, 2012
34. Y. Lee, "Impacts of Digital Technostress and Digital Technology Self-Efficacy on Fintech Usage Intention of Chinese Gen Z Consumers," Sustain., vol. 13, p. 5077, 2021.
35. H. Lee and J. Kim, "The Effects of Technostress from using Blockchain on the Technology Acceptance Model (TAM)," J. Converg. Inf. Technol., vol. 9, no. 8, pp. 27–34, 2019.
36. F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, "Extrinsic and Intrinsic Motivation to Use Computers in the Workplace," J. Appl. Soc. Psychol., vol. 22, no. 14, pp. 1111–1132, 1992, https://doi.org/10.1111/j.1559-1816.1992.tb00945.x
37. R. M. Ryan and E. L. Deci, Self Determination Theory. The Guilford Press, 2017.
38. A. Bandura, "Self-Efficacy," Encycl. Hum. Behav., vol. 4, no. 1994, pp. 1–65, 1998.
39. R. Agarwal, V. Sambamurthy, and R. M. Stair, "Research Report: The Evolving Relationship between General and Specific Computer Self-Efficacy - An Empirical Assessment," Inf. Syst. Res., vol. 11, no. 4, pp. 418–430, 2000, https://doi.org/10.1287/isre.11.4.418.11876

40. H. Holden and R. Rada, "Understanding the influence of perceived usability and technology self-efficacy on teachers' technology acceptance," J. Res. Technol. Educ., vol. 43, no. 4, pp. 343–367, 2011, https://doi.org/10.1080/15391523.2011.10782576
41. F. Siddiq, R. Scherer, and J. Tondeur, "Teachers' emphasis on developing students' digital information and communication skills (TEDDICS): A new construct in 21st century education," Comput. Educ., vol. 92–93, pp. 1–14, 2016, https://doi.org/10.1016/j.compedu.2015.10.006
42. R. H. Kay, "Exploring the relationship between emotions and the acquisition of computer knowledge," Comput. Educ., vol. 50, no. 4, pp. 1269–1283, 2008, https://doi.org/10.1016/j.compedu.2006.12.002.
43. H. Ozgür, "Relationships between teachers ' technostress , technological pedagogical content knowledge (TPACK), school support and demographic variables : A structural equation modeling," Comput. Human Behav., vol. 112, no. June, 2020, https://doi.org/10.1016/j.chb.2020.106468.
44. A. R. Alenezi, A. M. A. Karim, and A. Veloo, "An Empirical Investigation Into The Role of Enjoyment, Computer Anxiety, Computer Self-Efficacy and Internet Experience in Influencing The Students' Intention to Use E-Learning: A Case Study," Turkish Online J. Educ. Technol., vol. 9, no. 4, pp. 22–34, 2010
45. M. Chow, D. Kurt, T. Choo, and K. Chan, "Extending the technology acceptance model to explore the intention to use Second Life for enhancing healthcare education," Comput. Educ., vol. 59, no. 4, pp. 1136–1144, 2012, https://doi.org/10.1016/j.compedu.2012.05.011.
46. H. A. Alfadda and H. S. Mahdi, "Measuring Students' Use of Zoom Application in Language Course Based on the Technology Acceptance Model (TAM)," J. Psycholinguist. Res., vol. 50, no. 4, pp. 883–900, 2021, https://doi.org/10.1007/s10936-020-09752-1.
47. A. Suzianti and S. A. Paramadini, "Continuance Intention of E-Learning: The Condition and Its Connection with Open Innovation," J. Open Innov. Technol. Mark. Complex., vol. 7, 2021, https://doi.org/10.3390/joitmc7010097.
48. E. Moreira-Fontán, M. García-Señorán, Á. Conde-Rodríguez, and A. González, "Teachers' ICT-related self-efficacy, job resources, and positive emotions: Their structural relations with autonomous motivation and work engagement," Comput. Educ., vol. 134, no. May 2018, pp. 63–77, 2019, https://doi.org/10.1016/j.compedu.2019.02.007.
49. V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User Acceptance of Information Technology: Toward a Unified View," MIS Q., vol. 27, no. 3, pp. 425–478, 2003.
50. P. Turner, S. E. Turner, and G. Van de Walle, "How older people account for their experiences with interactive technology," Behav. Inf. Technol., vol. 26, no. 4, pp. 287–296, 2007, https://doi.org/10.1080/01449290601173499.
51. F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," MIS Q. Manag. Inf. Syst., vol. 13, no. 3, 1989, https://doi.org/10.2307/249008
52. J. F. Hair, M. Sarstedt, L. Hopkins, and V. G. Kuppelwieser, "Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research," Eur. Bus. Rev., vol. 26, no. 2, pp. 106–121, 2014, https://doi.org/10.1108/EBR-10-2013-0128.
53. G. D. Garson, Partial Least Squares: Regression & Structural Equation Models. 2016.
54. M. Mailizar, "Examining Teachers ' Behavioral Intention to Use E-learning in Teaching of Mathematics : An Extended TAM Model," Contemp. Educ. Technol., vol. 13, no. 2, 2021
55. M. Mailizar, D. Burg, and S. Maulina, "Examining university students' behavioural intention to use e-learning during the COVID-19 pandemic: An extended TAM model," Educ. Inf. Technol., pp. 7057–7077, 2021, https://doi.org/10.1007/s10639-021-10557-5.
56. T. Sugihartono, R. R. C. Putra, Laurentinus, P. Romadiana, H. A. Pradana, and D. Wahyuningsih, "The Impact of Ease of Use and Attitude Toward Using Document Submission System Application on Behavior Intention," in 2020 8th International Conference on Cyber and IT Service Management (CITSM), 2020, pp. 21–24.

57. R. Nadlifatin, B. Ardiansyahmiraja, and S. F. Persada, "The measurement of university students' intention to use blended learning system through technology acceptance model (tam) and theory of planned behavior (TPB) at developed and developing regions: Lessons learned from Taiwan and Indonesia," Int. J. Emerg. Technol. Learn., vol. 15, no. 9, pp. 219–230, 2020, https://doi.org/10.3991/ijet.v15i09.11517.
58. J. Wu and S. Wang, "What drives mobile commerce? An empirical evaluation of the revised technology acceptance model," Inf. Manag., vol. 42, pp. 719–729, 2005, https://doi.org/10.1016/j.im.2004.07.001
59. H. M. Selim, "An empirical investigation of student acceptance of course websites," Comput. Educ., vol. 40, pp. 343–360, 2003.
60. J. C. Roca and M. Gagné, "Understanding e-learning continuance intention in the workplace: A self-determination theory perspective," Comput. Human Behav., vol. 24, no. 4, pp. 1585–1604, 2008, https://doi.org/10.1016/j.chb.2007.06.001
61. M. C. Hung, I. C. Chang, and H. G. Hwang, "Exploring academic teachers' continuance toward the web-based learning system: The role of causal attributions," Comput. Educ., vol. 57, no. 2, pp. 1530–1543, 2011, https://doi.org/10.1016/j.compedu.2011.02.001.
62. R. Scherer, F. Siddiq, and J. Tondeur, "The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education," Comput. Educ., vol. 128, pp. 13–35, 2019, https://doi.org/10.1016/j.compedu.2018.09.009.
63. V. Venkatesh and F. D. Davis, "A model of the antecedents of perceived ease of use: Development and test," Decis. Sci., vol. 27, no. 3, pp. 451–481, 1996, https://doi.org/10.1111/j.1540-5915.1996.tb00860.x.
64. R. Chocarro, M. Cortiñas, and G. Marcos-Matás, "Teachers' attitudes towards chatbots in education: a technology acceptance model approach considering the effect of social language, bot proactiveness, and users' characteristics," Educ. Stud., vol. 00, no. 00, pp. 1–19, 2021, https://doi.org/10.1080/03055698.2020.1850426