Research Article

Technological Anxiety in the Post-Pandemic Era: A Study among Higher Secondary Students of Kerala

Mary Vineetha Thomas[1] & K. Thiyagu[2]

[1]Assistant Professor, Central University of Kerala, Kasaragod

Email: maryvineetha@cukerala.ac.in

[2]Assistant Professor, Central University of Kerala, Kasaragod

Abstract

We live in a world where technology is making a mark in every niche and corner. The educational sector is also evolving along with the changing technological advancements for the sake of betterment. Online education has become an integral part of the educational system. Online courses, online exams, digital textbooks and learning resources have taken over the teaching-learning process. Though this new phase sounds interesting, effective and efficient in strengthening the quality of education, there are still some challenges that need to be addressed. The present paper throws light on these aspects and the technological anxiety of students with respect to online learning, Internet and social media usage, devices and gadgets, general problems and in total. It also attempts to find out if demographic variables influence technological anxiety. A descriptive survey was conducted on a sample of 300 higher-secondary students. It was found that 15.3 per cent of students have a low level, 69.4 per cent have a moderate level, and 15.3 per cent have a high level of technological anxiety.

Keywords: Technological Anxiety, Online Education, Post-Pandemic and Higher Secondary Students

Introduction

Modern Technology has helped people achieve great things in just a short period by making their lives easier. It is simply impossible to ignore the tremendous impact that modern technologies have on the new generation of students. Students start using mobile phones, laptops, tablets, and other digital gadgets from a very young age. They have to use technology to learn and complete their academic tasks. In short, technology has become an integral part of the teaching-learning process. The educational sector has also completely adapted and adjusted to digitising all its activities, especially teaching and learning. However, there are some dark sides of technology too, and one such aspect is the anxiety associated with it, especially among children.

Technology-related anxiety occurs when a person feels fear and anxiety while interacting with a computer, any technology source or gadget that may not be a real threat. It is a person's discomfort or aversion to any technological device or app, especially computers. Technological anxiety is common because everyone experiences tension, fear or anxiety while confronted with new technology or digital devices. It's natural for all to initially feel discomfort or uneasiness while getting introduced to new things. It's just that the levels of this tension, fear, or anxiety might vary. Some might feel higher levels of anxiety, while some might feel less. It is said that approximately one-third of our population is affected by some degree of technological anxiety. Though this term might sound familiar

to many, it gained significance in the 1960s when the information age gained momentum and is now inclining up at a breakneck pace. This anxiety does not just affect the technology-related aspects of learners. Still, learners' overall scholastic and co-scholastic achievements will be negatively affected, so it needs to be addressed with utmost care. According to Bozionelos (2001), the negative emotional state or negative cognition encountered by a person while they use technology or technology devices is what we define as technological anxiety. Hasan & Ahmed (2010) define technological anxiety as a negative emotional response, which can be the fear or discomfort they face or experience while they think about using technology.

Review of Literature

Though technological anxiety is a growing concern, few studies have been conducted explicitly on technological anxiety among school students. A perusal of related studies reveals the following. Kjerulff *et al.* (1992) compared nurses with the highest and lowest technology anxiety. It was found that job satisfaction was lower among nurses with high technology anxiety and more work stress than others. High anxiety also leads to lower adaptability and autonomy and develops a less positive attitude towards computers. It also made them older than those with less anxiety and less favourable towards the people they were working with. Alkhawaja, Halim & Afthanorhan (2021) studied technology anxiety, the instructor's self-efficacy and the e-learning system's actual use in problem-solving. It was found that technology anxiety moderated the relationship. People with low levels of technological anxiety used e-learning systems on a higher basis than those with higher levels of technology anxiety. Bolliger & Halupa (2012) conducted a study on eighty-four online health education doctoral program students. Their anxiety concerning computers, the Internet, and online courses and overall satisfaction were studied. It was found that there was a significant negative correlation between anxiety and student satisfaction with their course.

According to Fuller et al. (2006), computer anxiety plays a substantial role in learning. People with high computer anxiety will mainly continue to be in the same state in the future, which may lead to a higher state of anxiety if they are continuously exposed to computers. There is a chance for such people to develop repellence towards using computer technology and will be unable to gain learning benefits from an e-learning environment. Studies have found that demographic variables, personality and situational variables, along with the cognitive style of learners, influence their computer anxiety. This also affects their attitudes toward computers (Igbaria & Chakrabarti,1990; Igbaria & Nachman, 1990). However, a study by Suryanto et al. (2022) found that only a few lecturers at the NIPA School of Administration felt worried, uncomfortable or doubtful while using technology in distance learning activities. The reason for this was mentioned as the familiarity of lecturers in using technology in work tasks and also because of their technology socialisation and availability of the IT team to assist them always. Studies also show that ICT anxiety will affect individual productivity, welfare, and social relationships (Saadé & Kira, (2009); Bai, 2019).

It can be seen from literature perusal that studies directly related to the variable of the present study are very limited. It was mainly in the health sector and with respect to the work sector. Studies specifically on technological anxiety in schools and its

relation to demographic variables like gender in the Indian context could not be spotted by the investigators. Most of the studies are done at higher levels and abroad. However, existing studies from different sectors and countries indicate that anxiety concerning all aspects of technology affects the productivity and potential of people and enhances their stress. Serious contemplation on the relevant subject and a requirement to engage in research endeavours, particularly at the school level, are necessary. This is crucial due to the dominance of technology in our education system, which has become more pronounced following the advent of the pandemic.

Need & Significance of the Study

The educational sector is one such area that has been under the influence and impact of this rapidly changing technology, especially since the pandemic times. It was pivotal in supporting the educational system during the pandemic and helped carry out all educational activities online. Though people embraced this new change in education, there persist some problems concerning the same. Not all students are well equipped and adapted with the skills to handle technology and its devices. Many have apprehensions and fear towards technology and its instruments, preventing them from giving their best output. It results in poor academic performance and behavioural changes. Adapting to technology is not simple. ICT anxiety is an umbrella term, and technological anxiety studied in the present paper is a part of ICT anxiety. Increased ICT anxiety can increase work disorders since the lack of individual self-confidence and increased fear and discomfort when using technology can hinder work activities (Celik and Yesilyurt, 2013; Meuter et al., 2003). Saadé and Kira (2009) also explain that ICT anxiety will affect individual productivity, welfare, and social relationships. An individual with high ICT anxiety can cause problems in daily work productivity due to ineffective and inefficient performance (Bai, 2019). Therefore, it is essential to understand learners' apprehensions and help them overcome them. The present study is a step taken in this regard and studies the technological anxiety of students with respect to online learning, Internet and social media usage, devices and gadgets and general problems. The variable in the present study forms a part of the umbrella term of ICT anxiety. This study will provide information about the anxiety students face while using technology with respect to its dimensions. It will pave the way for finding measures and remedies for tackling technological anxiety among learners.

Objectives of the Study

The following are the objectives of the study.

1. To study the level of technological anxiety among higher secondary students with respect to dimensions like online learning, Internet and social media usage, devices and gadgets, general problems and in total.
2. To study the statement-wise anxiety level among higher secondary students.
3. To study the significant difference in the mean scores of technological anxieties among higher secondary students with respect to gender.

Research Questions

1. What is the level of technological anxiety among higher secondary students with respect to dimensions like online learning, Internet and social media usage,

devices and gadgets, general problems, and in total?

2. What is the statement-wise anxiety level among higher secondary students?
3. Is there any significant difference in the mean scores of technological anxieties among higher secondary students with respect to gender?

Operational Definition

Technological Anxiety: In the context of this study, technological anxiety refers to the emotional and physiological responses experienced by students when interacting with various technological tools and platforms. It encompasses feelings of tension, fear, and physical uneasiness arising from the use of technology in both educational and personal contexts. The present study focuses on the technological anxiety of students with respect to online learning, Internet and social media usage, devices and gadgets and general problems.

Methodology

A descriptive survey method was used to fulfil the objectives of the study. In this study, all the Higher Secondary students of Kasaragod district form the population for the study. 300 Higher secondary students were selected as the sample from the Kasaragod district through a simple random sampling technique.

Tool of the Study

Technological Anxiety Scale was the tool used for this study. It was developed based on the technological anxiety of students with respect to the six dimensions like online learning, Internet and social media usage, devices and gadgets and general problems. The tool was constructed and validated by the investigator. In the present study, the investigator employed Cronbach's Alpha method to establish the reliability of the tools. Cronbach's Alpha value was 0.82. The tool was validated for its content by various subject experts. The scores were 3 for always, 2 for sometimes and 1 for never. Data was analysed using mean, standard deviation, percentage analysis and t-test.

Analysis and Interpretation of Data

Research Question 1: What is the level of technological anxiety among higher secondary students with respect to dimensions like online learning, Internet and social media usage, devices and gadgets, general problems, and in total?

Table-1: Level of Technological Anxiety with respect to dimensions

Dimensions	Low	Moderate	High
	f(%)	f(%)	f(%)
Tech Anxiety - Online Learning	59 (19.7)	194 (64.7)	47 (15.6)
Tech Anxiety - Internet & Social Media	49 (16.2)	198 (66)	53 (17.7)
Tech Anxiety - Devices & Gadgets	59 (19.7)	181 (60.3)	60 (20)
Tech Anxiety - General Problems	50 (16.7)	196 (65.3)	54 (18)
Tech Anxiety - Total	46 (15.3)	208 (69.4)	46 (15.3)

The above table shows the level of Technological Anxiety with respect to online learning. From the table, it is clear that 19.7 per cent of students offer a low level of Technological Anxiety regarding online learning. About 67.7 per cent of students have shown a moderate level, and 15.7 per cent have demonstrated a high level. The data describes that most students have moderate levels of technological anxiety concerning online learning.

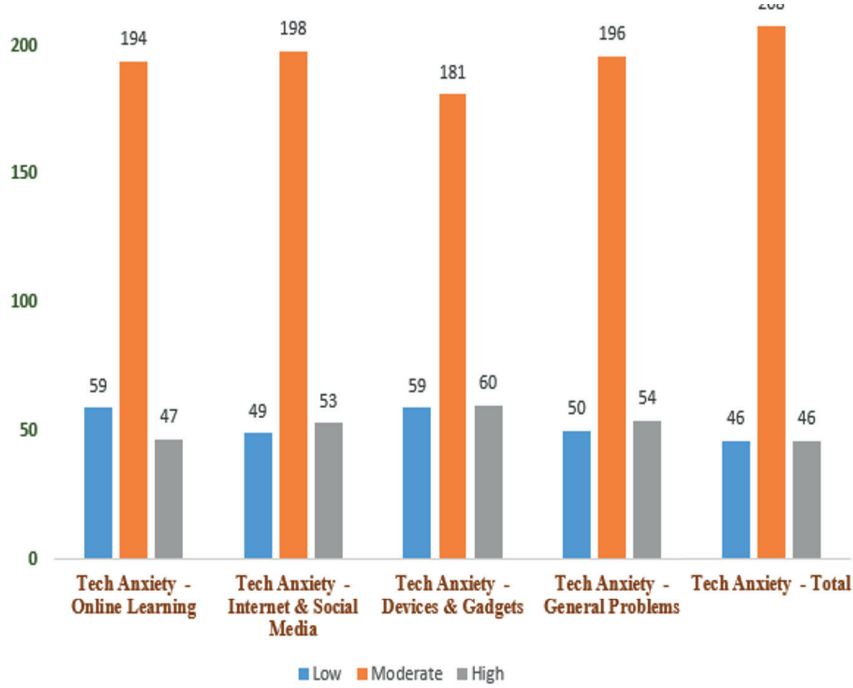
From the above table, it is clear that 16.3 per cent of students have a low level of Technological Anxiety with respect to Internet and Social Media usage. Around 63 per cent of students have a moderate level, and 17.7 per cent have a high level with respect to the same. The above data indicates that most students show moderate levels of Technological Anxiety regarding Internet and social media usage.

From the above table, it is clear that 19.7 per cent of students have shown a low level of Technological Anxiety concerning devices and gadgets, 60.3 per cent of students have a moderate level, and 20 per cent have a high level. The above data indicates that most students show moderate levels of Technological Anxiety concerning devices and gadgets.

From the above table, it is clear that 16.7 per cent of students have a low level of technological anxiety concerning general problems, 65.3 per cent of students have a moderate level, and around 18 per cent have a high level. From the data, it is clear that most students have shown mild technological anxiety concerning general problems.

Table 1.5 and Fig.1 show the level of technological anxiety with respect to all dimensions. From the table, it is clear that 15.3 per cent of students offer a low level of technological anxiety, 69.4 per cent show a moderate level, and 15.3 per cent show a high level of technological anxiety. This indicates that most students have demonstrated moderate technical concern in total.

Figure-1: Pictorial representation of the level of Technological Anxiety



Research Question 2: What is the statement-wise anxiety level among higher secondary students?

Table-2: Statement-wise anxiety level among higher secondary students.

No.	Statement	Never		Always		Sometimes	
		F	%	F	%	F	%
1.	I feel compelled to use online learning platforms.	116	38.7	40	13.3	144	48
2.	I am scared when I use online learning platforms.	232	77.3	12	4	56	18.7
3.	I feel reluctant to turn on the camera in online classes.	16	5.3	208	69.4	76	25.3
4.	My voice does not come out when the teachers ask me to turn on the audio and talk during online classes.	116	38.8	42	14	141	47.2
5.	I am not able to speak during group discussions while working online	91	30.4	44	14.8	164	54.8
6.	I am more comfortable in offline classes.	13	4.3	262	87.4	25	8.3
7.	It is difficult for me to learn from online learning applications and websites.	44	14.7	98	32.6	158	52.7
8.	I find it challenging to take seminars online	64	21.3	152	50.7	84	28
9.	I am unable to submit my school works in online platforms on time.	222	74	7	2.3	71	23.7
10.	I feel discomfort when teachers tell me to submit an assignment online.	111	37	25	8.3	164	54.7
11.	I often neglect reading privacy policies and terms while installing online applications due to fear.	61	20.3	73	24.3	166	55.4
12.	I feel that my friends will avoid me if I stay away from using online gaming apps.	78	26	52	17.3	170	56.7
13.	I am afraid to use the Internet.	61	20.3	91	30.3	148	49.4
14.	I am worried about the complicated form of the Internet.	80	26.7	74	24.6	146	48.7

No.	Statement	Never		Always		Sometimes	
		F	%	F	%	F	%
15.	I am afraid that the use of the Internet could have a negative impact on my academic achievement.	89	29.6	101	33.7	110	36.7
16.	I get a sinking feeling when I think of trying to use ITs.	153	51	27	9	120	40
17.	I fear the genuineness of the content I access through the Internet.	200	66.7	29	9.6	71	23.7
18.	While making internet searches, pop-up links related to pornography, gambling and gaming worry me.	59	19.7	43	14.3	198	66
19.	Cyber-crime news haunts me when I use the Internet.	136	45.3	69	23	95	31.7
20.	I worry about becoming an internet addict and wasting most of my time.	109	36.3	44	14.7	147	49
21.	I have difficulty finding the exact information for academics via search engines.	69	23	103	34.3	128	42.7
22.	I feel that life would be more happy and joyful without the internet and technology devices.	99	33	68	22.7	133	44.3
23.	It's difficult for me to use email as the primary communication tool with my teachers and classmates.	51	17	119	39.7	130	43.3
24.	I get happy when I use the computer.	81	27	110	36.7	109	36.3
25.	I prefer face-to-face communication to communicating with mobile phones.	116	38.7	64	21.3	120	40
26.	I find it challenging to learn how to operate new gadgets.	48	16	85	28.3	167	55.7
27.	I get the feeling that life would be more peaceful without ICT.	49	16.3	144	48	107	35.7
28.	I get scared when I use the computer in front of my parents	169	56.3	22	7.3	109	36.3

No.	Statement	Never		Always		Sometimes	
		F	%	F	%	F	%
29.	I fear sitting alone in front of the computer while the teacher takes IT practical classes.	156	52.2	19	6.4	124	41.5
30.	I am worried about what to do if something goes wrong while using the computer.	150	50	68	22.7	82	27.3
31.	Friends often mock me for not knowing how to use the new game application / social media.	64	21.3	43	14.3	193	64.3
32.	I worry about my family time due to the overuse of social media.	146	48.7	61	20.3	93	31
33.	Internet access attracts me more towards social media usage.	37	12.3	101	33.7	162	54
34.	I am unaware of the privacy terms and conditions of social media and online applications.	45	15	107	35.7	148	49.3
35.	I do not know enough about the technologies to handle it satisfactorily.	21	7	220	73.3	59	19.7
36.	I feel others know more about the technology than I do	144	48	13	4.3	143	47.7
37.	I feel inferior when my friends talk about online games.	31	10.3	137	45.7	132	44
38.	It's difficult for me to communicate using online platforms.	97	32.3	76	25.3	127	42.3
39.	I am afraid about the new technologies emerging every day.	251	83.7	6	2	43	14.3
40.	I often find myself outside the digital world.	211	70.3	28	9.3	61	20.3
41.	I am worried that getting carried away by technology will cause problems in my social relations.	160	53.3	57	19	83	27.7
42.	I feel I need to update my technology skills.	191	63.9	23	7.7	85	28.4

No.	Statement	Never		Always		Sometimes	
		F	%	F	%	F	%
43.	I feel that life would be more stress-free without technological devices.	239	79.7	6	2	55	18.3
44.	I often feel that the use of technology has drained my skills and confidence	52	17.3	50	16.7	198	66
45.	When friends talk about new technologies, I feel like escaping from there.	121	40.3	34	11.3	145	48.3

The above statements comprehensively overview students' perceptions, emotions, and attitudes towards technology across multiple dimensions. These findings shed light on students' complex relationship with technology, revealing both areas of comfort and concern. We can better understand how students navigate the digital landscape and their underlying emotions by investigating these findings. The following factors-based results are discussed below.

Online Learning and Engagement: A sizable proportion of students appear to be drawn to online learning platforms in varying degrees. A moderate majority admits to feeling compelled to use them, while a smaller percentage admits to having a consistent aversion or fear of using these platforms. This reflects the changing dynamics of education in the digital age, with some students welcoming the change while others grappling with it.

Privacy and Security Concerns: Concerns about privacy and security emerge as recurring themes throughout the statements. Students are concerned about turning on cameras during online classes, navigating complicated internet forms, and accessing content of questionable authenticity. This suggests a greater need for increased awareness and education about online privacy, digital literacy, and responsible technology use.

Communication and Interaction: The findings highlight students' preferences for face-to-face communication and offline classes, indicating a desire for more direct and personal interactions. Many students also report having difficulty using digital communication tools such as email and online platforms. This suggests a potential gap in digital communication skills, which may limit their ability to participate effectively in the digital world.

Peer Influence and Social Relations: The data show students' emotions related to peer influence and social acceptance. Some students feel compelled to participate in online games and applications due to fears of social exclusion or ridicule. This highlights the impact of peers on their technology choices and behaviours and the possibility of technology-related anxiety caused by social dynamics.

Balancing Technology Use: The findings show that technology is deeply embedded in students' lives. Despite various concerns, most people do not want to abandon technology entirely, recognising its benefits in communication, information access, and learning. This tension between embracing technology and retaining control suggests that students attempt

to achieve equilibrium in their digital experiences.

Implications and Next Steps: Incorporating these findings into educational strategies is critical. Educators and policymakers must address the identified issues while encouraging positive technological engagement. This includes providing comprehensive digital literacy education to students so they can navigate online spaces safely and confidently. Awareness campaigns can alleviate students' privacy and security concerns, allowing them to use technology responsibly.

Efforts should also be made to create an environment where students feel comfortable discussing their concerns and seeking help. This can aid in the prevention of technology-related stress and the promotion of mental well-being. Encouraging face-to-face interactions in addition to technological interactions can assist students in developing a more comprehensive set of communication skills.

The findings highlight the importance of recognising and responding to students' complex emotions and perceptions of technology. Educators and policymakers can work together to create a digital landscape that empowers students while addressing their concerns, resulting in a generation that can navigate the digital world confidently and resiliently.

Research Question 3: Is there any significant difference in the mean scores of technological anxieties among higher secondary students with respect to gender?

Table-3: t-table of Technological Anxieties among the higher secondary students with respect to Gender

Gender	N	Mean	SD	Df	t	p-value	Remarks
Female	187	88.93	9.858	298	4.714	0.000	Significant
Male	113	83.41	9.795				

The analysis revealed that female students' mean technological anxiety score was88.93, with a standard deviation of 9.858. In comparison, male students had a mean score of 83.41, with a standard deviation of 9.795. The t-value calculated to compare the difference in means was 4.714. The corresponding p-value was found to be 0.00, less than the predetermined significance level of 0.05. The results indicate a statistically significant difference in the mean technological anxiety scores between male and female students. The obtained p-value (0.00) is well below the significance threshold of 0.05, suggesting strong evidence for rejecting the null hypothesis. Therefore, the research question is answered positively: There is indeed a significant difference in the technological anxiety experienced by male and female students.

The findings suggest that female students exhibit higher levels of technological anxiety compared to their male counterparts. This insight has implications for educational institutions and policymakers aiming to create a supportive and inclusive learning environment. Addressing this gender-based disparity in technological anxiety could involve targeted interventions such as providing additional resources, workshops, or counselling to female students to enhance their confidence and comfort with technology.

Major Findings and Discussions of the Study

The study investigated the level of technological anxiety among 300 higher-secondary students across various dimensions. The results revealed notable trends in the distribution of technological anxiety levels within each dimension.

Online Learning Anxiety: In terms of online learning, 19.7 per cent of students exhibited low levels of technological anxiety, while the majority (67.7 per cent) fell within the moderate range. A smaller percentage (15.7 per cent) showed high levels of anxiety related to online learning. This indicates that the majority of students experience moderate levels of anxiety in the context of online learning environments.

Internet and Social Media Usage Anxiety: Regarding internet and social media usage, 16.3 per cent of students reported low levels of technological anxiety, while a significant portion (63.0 per cent) demonstrated moderate anxiety levels. A notable proportion (17.7 per cent) exhibited high levels of anxiety concerning internet and social media usage. This suggests that a substantial number of students experience moderate technological anxiety in their online interactions and activities.

Devices and Gadgets: Concerning devices and gadgets, 19.7 per cent of students indicated low levels of technological anxiety, while a majority (60.3 per cent) reported moderate levels. A notable 20 per cent of students expressed high levels of anxiety related to devices and gadgets. This implies that a considerable portion of students feel moderately anxious when dealing with various technological tools.

General Problems: In the dimension of general problems, 16.7 per cent of students displayed low levels of technological anxiety, while a significant majority (65.3 per cent) fell within the moderate range. Around 18 per cent of students exhibited high levels of anxiety when confronted with general technological challenges. This suggests that a substantial proportion of students experience moderate levels of anxiety when dealing with various technological issues.

Total Technological Anxiety: When considering the overall technological anxiety, 15.3 per cent of students showcased low levels, 69.4 per cent had moderate levels, and 15.3 per cent exhibited high levels of anxiety. The cumulative data indicates that a majority of students experience moderate levels of technological anxiety across various dimensions.

Furthermore, the study identified a significant difference in the mean scores of technological anxieties based on gender. Female students were found to exhibit higher levels of technological anxiety compared to their male counterparts. This finding underscores the need to address gender-related disparities in technology-induced emotions, potentially leading to more inclusive and supportive technological environments.

The study's findings underscore the prevalence of moderate technological anxiety levels among higher secondary students across dimensions such as online learning, internet and social media usage, devices and gadgets, and general problems. The research further highlights the significance of gender in influencing technological anxiety levels. These insights can inform educational strategies and interventions aimed at fostering more confident and well-adjusted technology users, particularly in the context of online learning and digital interactions.

Clark (1997) conducted a study on Computer anxiety and the nursing

informatics needs of graduate nursing students. It was found that these students have mild computer anxiety. Another survey of computer anxiety in e-learning conducted by Saadé & Kira (2009) reported that nearly fifty per cent of adults have computer-related fear. The present study found that most students have a moderate level of technological anxiety with respect to online learning, social media usage, devices and gadgets. Tuncer, Dogan & Tanas (2013) conducted a study on the computer anxiety of Vocational High-School Students. It was found that gender did not make any meaningful difference in computer anxiety. However, their grade, type of education received, prior computer education and having personal computers make meaningful differences in computer anxiety. According to the findings obtained in the present study, there is a significant difference in the mean scores of technological anxiety with respect to gender.

Conclusion

The findings of this study reveal that among higher secondary students, technological anxiety is a nuanced phenomenon influenced by various dimensions of technology use. Across the dimensions of online learning, internet and social media usage, devices and gadgets, and general problems, a consistent pattern emerged. The majority of students displayed moderate levels of technological anxiety, indicating that they experience a certain degree of tension and unease when interacting with technology.

Specifically, within the context of online learning, a significant proportion of students exhibited moderate levels of anxiety, suggesting that adapting to digital learning platforms and tools might evoke mixed emotions. Similarly, internet and social media usage evoked moderate levels of anxiety, underscoring the complexities of navigating the online realm. Concerns related to devices and gadgets, as well as general technological challenges, contributed to similar moderate levels of anxiety among students.

Notably, a gender-based difference in technological anxiety levels was evident. Female students reported higher levels of technological anxiety compared to their male counterparts. This gender discrepancy calls for targeted interventions to create a more inclusive technological environment that supports both genders in their interactions with technology.

In conclusion, this study sheds light on the diverse technological anxieties experienced by higher secondary students. The prevalence of moderate anxiety levels across dimensions underscores the need for educational institutions to address and alleviate these concerns. By implementing strategies that promote digital literacy, provide guidance on technology use, and foster a supportive technological culture, educators and policymakers can empower students to navigate the digital landscape with greater confidence and ease. Additionally, addressing gender-based differences in technological anxiety is crucial for cultivating an equitable and positive technology experience for all students.

Technology has become part and parcel of our lives, so we need to develop a technological anxiety-free environment for our students. Using technology without proper preparation, evaluation and digital skills and the advent of other technology use disorders will cause barriers to implementing online learning systems (Oliveira et al., 2021). In conclusion, this study contributes valuable insights into the prevalence of moderate-level technological anxiety among students and underscores the importance of recognising

and addressing this phenomenon within educational contexts. The predominance of moderate anxiety levels implies academic institutions and policymakers need to design strategies that foster a healthier and more confident relationship with technology. According to Rosen et al. (2018), metacognition in using technology in the classrooms and taking tech breaks will help reduce technological anxiety among students and professors. Furthermore, the gender-based differences in technological anxiety necessitate a more nuanced approach to support and intervention, accounting for diverse perspectives and experiences. Ultimately, this study is a stepping stone for future research and initiatives to cultivate a more harmonious coexistence between students and technology.

References

Alkhawaja, M. I., Halim, M. S. A., & Afthanorhan, A. (2021). Technology Anxiety and Its Impact on E-Learning System Actual Use in Jordan Public Universities during the Coronavirus Disease Pandemic. *European Journal of Educational Research*, *10*(4), 1639-1647.

Bai, J. (2019). The Spectrum of the Divine Order: Goodness, Beauty, and Harmony. *Soundings: An Interdisciplinary Journal*, *102*(1), 1-30.

Bozionelos, Nick. (2001). Computer anxiety: Relationship with computer experience and prevalence. *Computers in Human Behavior*. 17. 213-224. 10.1016/S0747-5632(00)00039-X.

Bolliger, Doris & Halupa, Colleen. (2012). Student perceptions of satisfaction and anxiety in an online doctoral program. *Distance Education - DISTANCE EDUC*. 33. 81-98. 10.1080/01587919.2012.667961.

Celik, V., & Yesilyurt, E. (2013). Attitudes to technology perceived computer self-efficacy and computer anxiety as predictors of computer-supported education. *Computers & Education*, *60*(1), 148-158.

Clark, M.E. (1997). "Computer anxiety and nursing informatics needs of graduate nursing students".*FIU Electronic Theses and Dissertations*. 2374.

Cochran, J. D., Campbell, S. M., Baker, H. M., & Leeds, E. M. (2014). The role of student characteristics in predicting retention in online courses. *Research in Higher Education*, *55*, 27-48.

Fuller, R. M., Vician, C., & Brown, S. A. (2006). E-learning and individual characteristics: The role of computer anxiety and communication apprehension. *Journal of Computer Information Systems*, *46*(4), 103-115.

Hasan, B., & Ahmed, M. U. (2010). A path analysis of the impact of application-specific perceptions of computer self-efficacy and anxiety on technology acceptance. *Journal of Organizational and End User Computing (JOEUC)*, *22*(3), 82-95.

Igbaria, M., & Chakrabarti, A. (1990). Computer anxiety and attitudes towards microcomputer use. *Behaviour & Information Technology*, *9*(3), 229-241.

Igbaria, M., & Nachman, S. A. (1990). Correlates of user satisfaction with end-user computing: an exploratory study. *Information & Management*, *19*(2), 73-82.

Kjerulff, K. H., Pillar, B., Mills, M. E., & Lanigan, J. (1992). Technology anxiety is a potential mediating factor in response to medical technology. *Journal of Medical Systems*, *16*, 7-13.

Meuter, M. L., Ostrom, A. L., Bitner, M. J., & Roundtree, R. (2003). The influence of technology anxiety on consumer use and experiences with self-service technologies. *Journal of Business Research*, *56*(11), 899-906.

Oliveira, G., Grenha Teixeira, J., Torres, A., & Morais, C. (2021). An exploratory study on the emergency remote education experience of higher education students and teachers during the COVID-19 pandemic. *British Journal of Educational Technology*, *52*(4), 1357-1376.

Rosen, L. D., Carrier, L. M., Pedroza, J. A., Elias, S., O'Brien, K. M., Lozano, J., Kim, K., Cheever, N. A., Bentley, J., & Ruiz, A. (2018). The Role of Executive Functioning and Technological Anxiety (FOMO) in College Course Performance as Mediated by Technology Usage and Multitasking Habits. *Psicologia Educativa*, *24*(1), 14–25. https://doi.org/10.5093/psed2018a3

Saadé, R. G., & Kira, D. (2009). Computer anxiety in e-learning: The effect of computer self-efficacy. *Journal of Information Technology Education: Research*, *8*(1), 177-191.

Suryanto, A., Fitriati, R., Natalia, S. I., Oktariani, A., Munawaroh, M., Nurdin, N., & Ahn, Y. H. (2022). Study of working from home: the impact of ICT anxiety and smartphone addiction on lecturers at NIPA School of Administration on job performance. *Heliyon*, *8*(12), e11980.

Tuncer, M., Dogan, Y., & Tanas, R. (2013). Investigation of Vocational High-School Students' Computer Anxiety. *Turkish Online Journal of Educational Technology-TOJET*, *12*(4), 90-95.