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Original article

Comparison of Teachers' Online Technologies Self-Efficacy and Cyberbullying Awareness (Cyprus Sample)

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Abstract

This study aimed to compare teachers' self-efficacy in using online technologies with their students' awareness of cyberbullying behaviors. In this regard, the need to support the opinions obtained through the survey with qualitative data was felt. Therefore, the phenomenological pattern method, a mixed method research in which qualitative and quantitative research methods are used together, was used in the research. For the quantitative data of the research, data were collected using the "Demographic Information Form", "Online Technologies Self-Efficacy Scale" and "Teachers' Cyberbullying Awareness Scale". A semi-structured interview form was used for qualitative data. The study included 256 teachers from Northern Cyprus's secondary and high schools. The Mann-Whitney U Test was used in quantitative data analysis for independent variables with two categories, while the Kruskal-Wallis Test statistic was used for comparisons between more than two independent groups. Content analysis was used in the study of qualitative data. The results showed that there was a significant and positive relationship between teachers' online technology self-efficacy and their students' awareness of cyberbullying behaviors. Female teachers are much more knowledgeable about cyberbullying issues than male teachers. Teachers between the ages of 25 and 44 had higher self-efficacy in online technologies than other age groups. Teachers whose fields are not related to informatics departments stated that training is necessary to increase online technology self-efficacy. It was observed that the majority of teachers stated that the disclosure of personal information was the most common form of cyberbullying occurring in schools. In line with these results, various suggestions were included in the research.

Keywords: Online Technologies Self-Efficacy, Bullying, Cyberbullying, Cyberbullying Behaviors, Teachers' Cyberbullying Awareness.

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INTRODUCTION

Self-efficacy is having different perceptions in different situations and being affected by different variables in different situations. In each situation, variables can have an adverse or beneficial impact on a person. This type of influence could be demonstrated by familiarity with a technology utilized in a learning session. Bandura (1997) found that self-efficacy perception influences task selection, effort, persistence, adaptability, and success. Bandura et al. (1999) found that self-efficacy is critical because individuals with high levels of self-efficacy are more likely to try to change the workplace and continue with their occupations when faced with predictions of negative outcomes. On the other hand, those with low self-efficacy are more likely to feel pessimistic and depressed and are less likely to hold onto their optimism in similar situations. According to Bandura (2001), people who have higher levels of self-efficacy also do better in terms of determination, resilience, and adaptability. This suggests that having a high sense of self-efficacy helps people feel at ease and gives them the willpower to take on difficult activities. It shapes our perspective on life experiences and affects our ideas, feelings, behaviors, and motivation in all of its manifestations, mostly through cognitive and affective processes (Chowdhury, 2020; Kundu, 2020).

According to Woolfolk and Margetts (2012), Bandura's socio-cognitive theory (2001) acknowledges that how people learn depends on a system of 3 factors: social, personal, and behavioral. These factors interact with one another to affect human growth, resulting in a triarchic reciprocal causality cycle. This process's personal domain includes self-efficacy beliefs, which in turn include academic self-efficacy. According to Honicke and Broadbent (2016), teachers' and students' academic performance is affected based on their views on self-efficacy.

Teachers' self-efficacy has a significant impact on their use of interactive technologies in classrooms (Holden and Rada, 2011). However, it is stated that especially if teachers' technology use self-efficacy is increased, their use of technology in the classroom environment to integrate it with the lesson will also increase (Koh and Frick, 2009). Additionally, Abbitt (2011) states in his research that there is a positive relationship between teachers' use of technology at school and their self-efficacy beliefs.

According to Karas (2019), with the collaboration of families, teachers, and professionals, each community can improve the acculturation of digital device integration while improving the sense of online self-efficacy. Communicating and performing in the virtual world requires integrating social, cultural, and technical knowledge. This communication needs to come from people who are educated on the internet and have digital knowledge. Digitally knowledgeable teachers and learners need to set a cyber goal together. Still, they should not lose sight of their journey in the cyber world, and their awareness of negative situations such as cyberbullying should be high. Cyberbullying is deliberately harming others through the use of websites, mobile phones, e-mail, chat rooms, dating sites, and some

other technical resources (Von Marées and Petermann, 2012). Although cyberbullying behaviors can be carried out anywhere through information technologies, the incidence is higher in schools where interaction between students is intense. Considering that one of the most important reasons for cyberbullying is the negative experiences students have at school, even if such events occur outside of school, they appear to be an important problem that needs to be addressed in schools. Teachers' opinions and awareness about cyberbullying are extremely important, as they are the ones who will largely detect cyberbullying incidents in schools and undertake the task of taking precautions against them (Ayas and Horzum, 2011).

According to an increasing body of literature, the quality of the educational experience in schools is significantly compromised by cyberbullying (Olenik-Shemesh, Heiman, & Eden, 2012). This problem has wide-ranging effects that may affect every student's safety, mental health, and psychological well-being. Cyberbullying and other problems associated with online communication have gained international attention as a result of people's rapid and simple adoption of technology at home and in schools. Teachers should be an example of self-efficacy in online technologies, both personally and professionally, and awareness of negative situations that may occur in the cyber world. Prensky (2012) defines this situation as digital wisdom. He states that there is a unifying quest that blends generational boundaries so that everyone is expertly protected and therefore digitally smarter. Various studies show that although cyberbullying cases are increasing in schools, there is a lack of awareness and training of teachers and other school staff on detecting and preventing cyberbullying cases (EIF, 2021; Rajbhandari and Rana, 2022).

Every definition of cyberbullying agrees that there is an imbalance of power, hostility, and misconduct that repeatedly occurs, the victim is harmed, and technology is used to carry out the behavior (Macaulay et al., 2018; Von Marées and Petermann, 2012; Redmond et al., 2018). According to research, one of the things that draws cyberbullies in is the opportunity to stay anonymous by using fictitious usernames, email addresses, or profiles to hide their real identities (Lareki et al., 2023). Both the perpetrators and the victims of cyberbullying can suffer negative consequences in educational environments, regardless of the victim's awareness of the perpetrator.

More research and improvement are needed in the areas of teacher awareness and cyberbullying attitudes. Many studies demonstrate that educators have knowledge of cyberbullying and perceive it as an issue in their schools, yet the majority of them lack the necessary skills and training to deal with it (Anna, 2019; Eden et al., 2013; Fredrick et al., 2023). According to research, educators require additional training to broaden their understanding of social media sites, improve their capacity to deal with instances of cyberbullying, contribute to the development and implementation of school-wide policies aimed at combating cyberbullying, and assist their students and schools in adjusting to a changing environment (Macaulay et al., 2018; Redmond et al., 2020; Von Marées and Petermann, 2012).

As a result of literature scans, although Ayas and Horzum (2011), Serin (2012), Yenilmez and Seferolu (2013), and Horzum and Ayas (2013) have research on cyberbullying awareness, Gürpınar and Oğuz's (2018) research on cyberbullying awareness and online technologies There is also self-efficacy; no similar study has been found in Northern Cyprus examining the comparison of teachers' online technology self-efficacy and their students' awareness levels of cyberbullying behaviors. This study is significant in terms of examining the online technology self-efficacy of teachers working in Northern Cyprus and their awareness levels of their students' cyberbullying behaviors in terms of various variables and contributing to teachers working in schools by comparing teachers' online technology self-efficacy and cyberbullying awareness levels. This study is expected to make a substantial contribution to the literature.

The Present Study

This study aims to compare teachers' online technology self-efficacy and cyberbullying awareness levels, as well as to investigate the online technology self-efficacy of teachers working in Northern Cyprus and their students' awareness levels of cyberbullying behaviors in terms of various variables. Answers to the following questions were sought within the context of this fundamental objective:

1. How self-sufficient are teachers in using online technologies?
2. Does the self-efficacy ratings of teachers regarding online technology vary based on their demographic characteristics?
3. To what extent do teachers recognize the existence of cyberbullying among their students?
4. Do different demographic features have an impact on how aware teachers are of students' cyberbullying behaviors?
5. Does students' understanding of cyberbullying practices correlate significantly with teachers' self-efficacy in using online technologies?
6. What are teachers' views on online technologies self-efficacy and students' cyberbullying behaviors?

MATERIALS and METHODS

A mixed methodological approach

This study aimed to compare teachers' self-efficacy in using online technologies with their students' awareness of cyberbullying practices. In this regard, the need to support the opinions obtained through the survey with qualitative data was felt. Therefore, the phenomenological pattern method, a mixed method research in which qualitative and quantitative research methods are used together, was used in the research. A mixed approach is when a researcher employs both quantitative and qualitative concepts, processes, and techniques in his study, according to Baki and Göçek (2012). The potential of

the mixed method to balance the drawbacks of both quantitative and qualitative approaches gives it its power. The issue with quantitative approaches is their inability to grasp context, while the issue with qualitative methods is their bias. When these techniques are applied exclusively, these issues are frequently criticized. Research using mixed methods involves more than just combining quantitative and qualitative techniques. The strengths of these two methodologies are applied in a way that complements each other in this extensive combination study (Fırat, Yurdakul, and Ersoy, 2014). The goal of the qualitative research method known as the phenomenological approach is to comprehend human experience from multiple perspectives (Tekindal and Uğuz, 2020). This study aimed of this study was to use qualitative data to support quantitative data.

For the portion of the research designed for relational screening and causal comparison types for quantitative data, the "Demographic Information Form," the "Online Technologies Self-Efficacy Scale" (OTSE) by Horzum and Çakır (2009), and the "Teachers' Cyberbullying Awareness Scale" (TCA) by Ayas and Horzum (2011) were used to collect data. Additionally, a semi-structured interview form was used to collect qualitative data.

Research design and data collection procedure

In total, our study involved n = 256 teachers from various middle and high schools in Northern Cyprus. Out of the 256 participants, 45 were middle school teachers, and 211 were teaching in high schools. An overview of the methodology used in this study and the users participating is shown in Table 1.

Table 1. Summary of respondents and data collection techniques.

Profiles	Participants	Method
Middle School	45	Questionnaire
	4	Semi-structured Interview
High School	211	Questionnaire
	17	Semi-structured Interview

The research involved schools that agreed to provide time and space for the study. The study was carried out in middle and high schools in Northern Cyprus for this purpose. To obtain data from teachers who worked in those schools and volunteered for interviews, an intentional sampling method was used. The teachers who participated in the study were chosen at random by the school administration. The cover page of the questionnaire provided an initial group of participants with an explanation of the research's goals and important details. In case they required more information about their involvement or decided to withdraw from the study before it was over, each participant had access to a point of contact within their workplace for guidance.

The semi-structured interviews aided in collecting teachers' and managers' perspectives on the challenges faced by schools in terms of online technology self-efficacy and cyberbullying awareness,

with a specific goal of understanding teachers' perspectives on online technology self-efficacy and students' cyberbullying behaviors. The interviews included 21 teachers' members from Northern Cyprus's middle and high schools. There were 4 middle school teachers and 17 high school teachers among them. On average, the interviews lasted 12 minutes. In total, n = 256 questionnaires were administered as part of the data collection process, and n = 21 semi-structured interviews about teacher awareness of cyberbullying were conducted. Table 2 provides demographic details about the research participants.

Table 2. Participants' demographic characteristics.

Variable	Number (n)	Percent (%)
Gender		
Male	102	39,8
Female	154	60,2
Group of ages		
18-24	10	3,9
25–34	68	26,6
35-44	89	34,8
45-54	78	30,5
55 ve above	11	4,3
Years of teaching		
<5	71	27,7
6-20	115	44,9
21<	70	27,3
Educational Degree		
Associate and undergraduate degree	185	72,3
Postgraduates	71	27,7
Child Status		
No	94	36,7
Yes	162	63,3
Type of school worked		
Secondary School	45	17,6
Community College	45	17,6
Private College	43	16,8
High School	46	18,0
Vocational High School	52	20,3
Other	25	9,8
Participation in Professional Development Seminar on Cyberbullying		
No	204	79,7
Yes	52	20,3
Case in which you become subject to cyberbullying behavior		
No	216	84,4
Yes	40	15,6
Witnessing Cyberbullying Behavior in Your Social Environment		
No	76	29,7
Yes	180	70,3

The study comprised 256 managers and teachers. Of the participants, 102 were men and 154 were women. Of them, 185 had earned a bachelor's degree, making up the majority; 71 had earned postgraduate degrees. Most of the individuals involved had between six and twenty years of work experience. The majority of them were in the age range of 35 to 44. Almost all participants had access to personal computers with internet connections and social media platforms.

Data analysis

Method

Statistical Package for Social Sciences (SPSS) 11.5 software was used to statistically evaluate the data collected within the scope of the investigated variables. Frequency tables were used for general information about the people included in the study and are shown as the number of cases (S) and percentage (%). Information about the scales was examined according to the categories of all independent variables and the scores were given as mean (Mean), standard deviation (SD), Median (Med.), and interquartile range (Q3-Q1).

The Kolmogorov-Smirnov and Shapiro-Wilks tests were used to determine the data's normality, and the homogeneity of the variances was assessed with the Levene Test to examine the statistical analysis technique to be employed in evaluating the hypotheses to compare the TCA and OTSE scale scores included in the study according to the categories of the independent variables. The studies were conducted using nonparametric hypothesis tests as the data set did not satisfy the requirements of the parametric distribution hypothesis. Mann-Whitney U Test was used for two-category independent variables, and the Kruskal-Wallis Test statistic was used for comparisons made for more than two independent groups. In case of differences between groups, pairwise comparisons were made. The relationship between the scales was investigated with the Spearman Correlation Test. Results for $p<0.05$ were considered statistically significant in the context of the research.

The qualitative data was analyzed using the content analysis method. It is possible to identify and contrast preconceptions, attitudes, worldviews, and viewpoints using content analysis. Based on common themes, comparable data is gathered (Marvasti, 2004). The forms in the study were numbered sequentially. Written data was coded in this context, subsequently merged under sub-themes based on semantic similarity, and then categorized under core themes. Finding relationships between the themes that were extracted from the data and providing an explanation of the results were the last steps in the content analysis process. The coding process was completed when another researcher examined the coding list that each separately created for each question to assess the coding's reliability. When the codings of the two researchers were examined, discrepancies were found. Using the formula Agreement Reliability = x100 Agreement + Disagreement developed by Miles and Huberman (1994), the coding

match percentage was determined independently for each question. As a result, the first question's coding match percentage was 82%, and the second question's coding match percentage was 80%.

Questionnaire results

According to TCA scores, there was a statistically significant difference between genders (p = 0.025). Women's scores were found to be higher than men's. TCA scores have been shown to rise as the education level increases (p = 0.003). It was found that those who encountered cyberbullying activity in their social environment had higher TCA ratings than those who did not (p<0.001).

Based on OTSE ratings, there was a statistically significant disparity between the age groups (p = 0.026). It was discovered that those between the ages of 25 and 34, as well as those between the ages of 34 and 44, had greater scores than those aged 55 and up. It was found that people who did not have children scored higher on the OTSE than those who did (p = 0.016). Those who were subjected to cyberbullying displayed higher OTSE scores than those who were not (p<0.001) (see Table 3).

Table 3. Comparison of TCA and OTSE scores according to sociodemographic characteristics.

	TCA_total			**OTSE_total**		
Variable	**Avg. ±SD.**	**Med.**	**p**	**Avg. ±SD.**	**Med.**	**p**
Gender						
Male (n=102)	56,1±7,5	56,0 (51,8;61,0)	0,025*	105,4±20,7	104,0 (94,0;117,0)	0,059
Female (n=154)	57,5±8,4	58,0 (54,0;63,0)		109,6±22,1	109,0 (99,0;123,5)	
Group of ages						
18-24 (n=10)	57,1±9,0	55,5 (51,5;67,3)	0,631	104,8±14,8	107,0 (93,0;117,3)	0,026+A,B
25-34 (n= 68)	58,2±7,2	58,0 (53,5;64,0)		112,7±17,9	109,5 (100,0;126,5)	
35-44 (n=89)	57,2±8,1	58,0 (54,0;63,0)		109,8±21,8	109,0 (100,5;125,0)	
45-54 (n=78)	55,7±8,8	57,5 (53,8;60,0)		103,7±23,2	103,0 (94,0;113,5)	
55 and above (n=11)	55,9±6,8	55,0 (49,0;64,0)		96,5±27,6	93,0 (75,0;113,0)	
Years of teaching						
<5 (n=71)	57,6±8,4	58,0 (52,0;64,0)	0,142	111,2±19,9	112,0 (99,0;125,0)	0,017+C,D
6-20 (n=115)	57,8±6,8	58,0 (54,0;63,0)		110,2±19,8	108,0 (99,0;123,0)	
21< (n=70)	54,9±9,3	56,0 (52,0-59,3)		101,0±24,7	103,0 (87,0;113,5)	
Educational Degree						
Associate degree/Bachelor's degree (n=185)	56,4±7,7	56,0 (53,0;59,5)	0,003*	103,6±19,0	103,0 (96,0;113,0)	<0,001*
Master's degree and above (n=71)	58,5±8,8	60,0 (55,0;64,0)		119,4±23,9	123,0 (109,0;138,0)	
Child Status						
No (n=94)	58,9±7,5	59,0 (55,0;64,0)	0,001*	112,3±20,3	110,5 (100,0;127,5)	0,016*
Yes (n=162)	55,8±8,2	56,0 (53,0;60,0)		105,4±22,0	104,5 (96,0;120,0)	
Type of school worked						
Secondary School (n=45)	58,5±5,6	58,0 (54,0;63,0)	0,845	108,0±13,7	105,0 (100,5;113,5)	0,898
Community College (n=45)	56,6±8,9	58,0 (54,0;62,5)		107,1±21,3	107,0 (100,0;117,0)	

Private College (n=43)	57,0±9,7	58,0 (52,0;64,0)		107,3±27,1	115,0 (91,0;129,0)	
High School (n=46)	56,5±7,7	56,0 (53,5;60,3)		106,7±18,7	104,0 (98,0;123,0)	
Vocational High School (n=52)	56,4±9,1	58,0 (53,3;62,0)		110,2±25,8	109,5 (96,3;130,0)	
Other (n=25)	56,8±5,6	58,0 (53,0;59,0)		107,9±20,4	108,0 (95,5;116,0)	
The socioeconomic status of the community in which your school is located						
Low (n=47)	56,7±6,6	55,0 (52,0;63,0)	0,417	109,3±20,9	108,0 (97,0;123,0)	0,888
Average (n=164)	56,8±8,1	58,0 (54,0;61,8)		107,7±20,6	105,5 (98,3;117,0)	
High (n=45)	57,6±9,5	58,0 (54,5;64,0)		107,6±25,9	109,0 (94,0;125,0)	
Personal computer status connected to the Internet						
Yes (n=241)	57,1±8,2	58,0 (54,0;62,0)	0,222	108,8±21,5	108,0 (99,0;122,0)	0,001*
No (n=15)	55,1±6,3	56,0 (51,0;59,0)		94,5±18,3	93,0 (85,0;122,0)	
Social media account status						
No (n=3)	59,0±6,1	56,0 (55,0;56,0)	0,805	92,3±15,7	87,0 (80,0;87,0)	0,148
Yes (n=253)	56,9±8,1	58,0 (54,0;62,0)		108,1±21,6	107,0 (97,5;121,0)	
Participation in Professional Development Seminar on Cyberbullying						
No (n=204)	56,7±7,8	57,0 (53,0;62,0)	0,092	105,8±20,2	104,0 (96,0;117,0)	<0,001*
Yes (n=52)	58,1±9,0	58,0 (54,0;65,5)		116,3±24,8	116,0 (104,3;137,3)	
Case in which you become subject to cyberbullying behavior						
No (n=216)	56,8±7,5	57,0 (54,0;61,0)	0,082	106,4±19,5	105,0 (97,0;117,0)	<0,001*
Yes (n=40)	57,7±10,9	59,0 (54,0;66,0)		116,4±29,4	123,0 (103,3;142,0)	
Witnessing Cyberbullying Behavior in Your Social Environment						
No (n=76)	54,7±7,1	55,0 (50,0;59,0)	<0,001*	103,0±21,9	102,0 (91,3;116,0)	0,006*
Yes (n=180)	57,9±8,3	58,0 (54,3;64,0)		110,0±21,2	108,0 (99,3;122,8)	

*,+<0,05;*Mann Whitney U Test; +Kruskal Wallis Test; A=55 and above with 25-34; B= 55 and above with 35-44; C:21 and above with 6-20; D: 21 and above with 5 and below.

According to both TCA and OTSE scores, using Facebook and TikTok platforms, receiving and sending e-mails, reading news, using e-government applications, playing games, and other internet uses (publishing a personal website, participating in discussion groups, etc.) demonstrated no statistically significant variation across users ($p > 0.05$). Except for other messaging channels (Snapchat, Skype, etc.) that had statistically significant scores, it was found that the scores of individuals who used OTSE were higher in every messaging medium ($p < 0.05$) (see Table 4).

Table 4. TCA and OTSE score comparison based on Internet usage objectives

	TCA _total			**OTSE _total**		
	Avg. ±SD.	**Med.**	**p**	**Avg. ±SD.**	**Med.**	**p**
A. Social Media Applications in Use						
Facebook						
No (n=14)	56,7±7,5	57,0 (53,5;60,0)	0,721	108,0±21,9	102,0 (91,0;123,5)	0,565
Yes (n=242)	57,0±8,1	58,0 (54,0;62,0)		107,9±21,6	107,0 (97,8;121,0)	
Instagram						
No (n=38)	53,4±7,8	54,0 (49,8;58,0)	0,001*	93,7±21,5	92,0 (79,5;105,3)	<0,001*
Yes (n=218)	57,6±8,0	58,0 (54,0;63,0)		110,4±20,7	109,0 (100,0;123,0)	
Youtube						

No (n=120)	57,3±6,5	57,0 (54,0;60,8)	0,606	103,4±16,8	103,0 (96,0;110,0)	<0,001*
Yes (n=136)	56,6±9,2	58,0 (54,0;63,0)		111,9±24,5	113,0 (100,0;129,0)	
Tik Tok						
No (n=234)	56,9±8,2	58,0 (54,0;62,0)	0,974	107,4±21,8	106,0 (97,0;121,0)	0,337
Yes (n=22)	57,4±6,9	57,0 (52,0;62,0)		113,4±19,1	114,0 (97,8;126,8)	
Twitter						
No (n=142)	56,0±7,7	56,0 (52,3;60,3)	0,004*	103,3±20,5	103,0 (93,0;115,5)	<0,001*
Yes (n=114)	58,2±8,4	58,0 (55,0;64,0)		113,7±21,7	113,0 (101,8;130,5)	
Linkedln						
No (n=201)	56,7±7,4	57,0 (53,5;61,0)	0,072	106,3±20,6	104,0 (96,0;119,0)	0,001*
Yes (n=55)	58,0±10,2	58,0 (54,0;65,0)		114,1±24,2	114,0 (104,0;130,0)	
B. Most Used Messaging Application						
Whatsapp						
No (n=6)	54,7±9,5	51,0 (47,5;64,0)	0,285	84,7±24,0	83,5 (61,3;106,0)	0,018*
Yes (n=250)	57,0±8,1	58,0 (54,0;62,0)		108,5±21,3	107,0 (98,0;121,3)	
Messenger						
No (n=76)	55,9±9,0	56,5 (53,0;61,5)	0,315	103,7±20,7	103,0 (95,3;112,8)	0,016*
Yes (n=180)	57,4±7,6	58,0 (54,0;63,0)		109,7±21,8	109,5 (99,0;123,0)	
Viber						
No (n=196)	56,1±8,0	57,0 (53,0;61,0)	0,001*	107,0±22,3	106,0 (96,0;122,0)	0,276
Yes (n=60)	59,8±7,8	59,0 (56,0;66,8)		111,2±18,8	107,0 (101,3;117,8)	
Telegram						
No (n=201)	56,6±7,8	57,0 (53,0;62,0)	0,050*	106,6±21,5	105,0 (96,0;120,0)	0,015*
Yes (n=55)	58,2±9,0	58,0 (56,0;64,0)		113,0±21,3	114,0 (102,0;125,0)	
Other						
No (n=216)	56,5±8,2	57,0 (53,0;62,0)	0,059	106,7±22,3	105,0 (96,0;119,8)	0,028*
Yes (n=40)	59,2±6,7	58,5 (56,0;64,0)		114,6±15,8	116,5 (100,5;125,0)	
C. Most Used Messaging Experienced Online Application						
Moodle						
No (n=158)	56,6±7,7	56,0 (53,0;62,0)	0,058	101,5±16,9	102,0 (94,0;110,0)	<0,001*
Yes (n=98)	57,5±8,6	58,0 (55,0;63,0)		118,3±24,2	122,0 (106,8;138,0)	
Microsoft Teams						
No (n=172)	56,5±7,4	56,0 (53,0;60,0)	0,013*	102,8±17,6	103,0 (95,0;112,8)	<0,001*
Yes (n=84)	57,8±9,3	59,0 (54,3;64,0)		118,5±25,1	122,0 (105,0;138,0)	
Google Classroom						
No (n=158)	56,0±6,8	56,0 (53,0;59,0)	<0,001*	104,1±18,1	103,0 (95,8;114,0)	<0,001*
Yes (n=98)	58,4±9,7	59,0 (54,8;66,0)		114,1±25,2	114,5 (103,0;135,3)	
Other						
No (n=70)	57,2±8,7	58,0 (53,0;63,0)	0,283	114,3±24,6	119,5 (101,8;133,0)	<0,001*
Yes (n=186)	56,9±7,9	57,0 (54,0;62,0)		105,5±19,9	104,0 (96,8;115,0)	
D. The Purpose of Internet Use						
Education, training, and research						
No (n=93)	55,1±6,7	56,0 (52,5;59,0)	<0,001*	98,0±16,5	99,0 (92,0;105,0)	<0,001*
Yes (n=163)	58,0±8,6	58,0 (54,0;64,0)		113,6±22,1	113,0 (102,0;129,0)	

Receive/Send E-mail						
No (n=37)	54,8±10,1	56,0 (59,0;63,0)	0,177	102,1±25,2	103,0 (87,0;119,5)	0,134
Yes (n=219)	57,3±7,6	58,0 (54,0;62,0)		108,9±20,8	107,0 (98,0;121,0)	
Online News						
No (n=98)	56,2±7,8	57,5 (52,8;60,3)	0,204	104,8±20,7	105,0 (96,0;116,3)	0,035
Yes (n=158)	57,4±8,2	58,0 (54,0;63,0)		109,9±22,0	108,0 (99,0;125,0)	
Using social networks						
No (n=43)	55,8±8,8	56,0 (51,0;62,0)	0,318	99,1±20,4	101,0 (84,0;108,0)	0,001*
Yes (n=213)	57,2±7,9	58,0 (54,0;62,0)		109,7±21,4	109,0 (99,0;123,0)	
Downloading Files						
No (n=168)	56,7±7,7	57,0 (53,061,0)	0,235	104,3±19,2	104,0 (96,0;115,0)	<0,001*
Yes (n=88)	57,4±8,8	58,0 (54,0;63,0)		115,0±24,2	114,5 (101,0;138,0)	
Watching Videos						
No (n=149)	56,2±8,2	57,0 (52,5;60,0)	0,033*	101,9±19,1	103,0 (94,0;112,5)	<0,001*
Yes (n=107)	58,0±7,8	58,0 (54,0;63,0)		116,4±22,2	118,0 (101,0;138,0)	
Listen to music						
No (n=134)	56,7±8,1	57,0 (53,0;60,3)	0,395	103,4±19,6	104,0 (94,0;113,0)	<0,001*
Yes (n=122)	57,2±8,1	58,0 (54,0;63,0)		113,0±22,6	113,0 (100,0;130,3)	
Online Banking						
No (n=106)	56,2±8,4	57,0 (52,3;61,3)	0,238	101,5±19,5	101,5 (93,0;112,0)	<0,001*
Yes (n=150)	57,5±7,8	58,0 (54,0;63,0)		112,5±22,0	112,5 (101,0;127,3)	
Transportation Procedures						
No (n=184)	56,9±7,2	57,0 (53,0;61,8)	0,171	105,9±19,5	104,0 (96,0;117,0)	0,001*
Yes (n=72)	57,1±10,0	58,5 (54,0;64,0)		113,2±25,6	113,0 (102,0;132,5)	
Using Learning Management Systems						
No (n=207)	56,7±7,5	57,0 (53,0;61,0)	0,027*	106,1±19,1	104,0 (96,0;117,0)	0,001*
Yes (n=49)	58,1±10,1	58,0 (56,0;65,0)		115,8±28,9	121,0 (102,0;138,5)	
Online Shopping						
No (n=146)	55,9±7,9	56,5 (53,0;60,0)	0,003*	102,5±20,1	102,0 (93,8;114,0)	<0,001*
Yes (n=110)	58,3±8,1	59,0 (54,8;64,0)		115,1±21,5	113,0 (103,0;132,0)	
Using E-Government Applications						
No (n=199)	57,0±7,9	58,0 (53,0;62,0)	0,996	108,7±20,1	107,0 (98,0;121,0)	0,377
Yes (n=57)	56,7±8,8	57,0 (54,0;62,5)		105,2±26,2	104,0 (91,0;126,0)	
Play a game						
No (n=205)	56,9±7,9	58,0 (53,5;62,0)	0,783	106,8±21,2	105,0 (97,0;120,0)	0,098
Yes (n=51)	57,0±8,8	58,0 (54,0;64,0)		112,3±22,9	112,0 (99,0;133,0)	
Other						
No (n=213)	57,0±7,8	58,0 (53,0;62,0)	0,890	107,5±21,1	106,0 (97,0;121,0)	0,360
Yes (n=43)	56,6±9,3	57,0 (54,0;63,0)		109,9±24,0	110,0 (99,0;125,0)	

*,+<0,05;*Mann Whitney U Test.

The OTSE scale and the TCA scale were shown to have a significant positive correlation of 42.9% ($p<0.001$). Accordingly, it can be said that teachers' online technologies self-efficacy levels have a positive effect on their cyberbullying awareness (see Table 5).

Table 5. Relationship between OTSE and TCA scores.

Variable		TCA
OTSE	**r**	0,429
	p	<0,001*

*,+<0,05; Spearman Correlation Test

Semi-structured interviews and results

Table 6. Teachers' views on online technologies self-efficacy.

Theme	Sub Themes	Sample views of teachers
Online technologies self-efficacy	Sometimes	T9 “I feel that there are times when I cannot follow technological developments. Because children are more advanced than us in technological matters. “From time to time, I get help from my children in this regard.” T10 “Sometimes I find it inadequate until I adapt to changing applications after updates.” T16 "Online Technologies are developing very quickly and we sometimes have difficulty keeping up with it." T17 “Online Technology is advancing very quickly, and as those who learn technology later, rather than those who were born into it, we sometimes have difficulty in keeping up with technological developments.”
	Insufficient	T5 "Because we did not receive the necessary training for online technologies, only what we learned ourselves." T3 “We need to receive more training on online technologies and education.” T21 "Online technology is developing so fast that we cannot keep up." "A new application is released every day and I feel inadequate."
	Sufficient	T1 "My education has already been influenced by technology." That is why I am continually striving to improve myself." T15 "I graduated from a department related to informatics, I do not have any difficulties"

* The views were arranged in descending order of frequency.

As shown in Table 6, one-third of the teachers who participated in the study (f =7) stated that they sometimes felt adequate in terms of online technology skills. It was also discovered that these participants claimed they were unable to keep up with technology because it advanced so quickly and online technology applications were frequently updated. One-third of the other interviewees (f=7) claimed that they were insufficient at using online technologies. Teachers responded that they feel inadequate because they do not receive relevant training, technology is continuously changing, they have difficulties keeping up, and they constantly try to learn on their own. Furthermore, it was revealed that they indicated a desire to be supported with education on online technologies. The remaining participants (f = 7) argued that they had no issues with online technologies because they graduated from informatics-related departments and that they readily adapted to using these technologies and subsequently followed the technological developments.

Table 7. Teachers' views on students' cyberbullying behaviors.

Theme	Sub Theme	Sample views of teachers
Teachers' views of students' cyberbullying behaviors	Dissemination of Private Information	T1 "There has been an increase in the number of cases where a person has shared information and photographs about himself or herself in front of others against his will and awareness." T9 "Dissemination, ongoing dissemination of offensive content, threat." We've seen the student's posts exposed numerous times, and even after they were suppressed with the help of the police after going through the legal process, they were shared again at every opportunity." T17 "When I think about the types of cyberbullying done through technology, the first thing that comes to my mind is spreading a rumor about someone."
	Online lynch and jealousy	T19 "We see cases of lynching, jealousy, and dissemination of private information without permission." T4 "In general, there are cases of jealousy, dislike, or misunderstanding among students." "In particular, female students."
	Threats and Blackmail	T16 "When we observe children, the first thing that comes to mind is threats, blackmail, abusive messages and humiliation." T10 "After name-calling and threats, we experienced a case of making fun of the student with posts in groups."
	Spreading incorrect or unpleasant information about another person.	T15 "I see some fake news being spread around me via video and social media."
	Identity Theft	T21 "In fact, one of the most common is identity theft." We've noticed that students with different identities sometimes harass each other."
	Humiliation	T18 "The most common thing we encounter, especially among female students, is sharing humiliating images of each other and trying to lynch each other in the virtual world."
	Excluding somebody from an online group	T12 "In school WhatsApp groups, students exclude and make fun of children they see as other or different."

* The views were arranged in descending order of frequency.

As shown in Table 7, almost fifty percent of the teachers (f = 8) stated that the most common cyberbullying behavior involving their students was the dissemination of private information. They also claimed that despite all of the barriers, the dissemination of private information is a big concern in schools. Other cyberbullying activities reported by participants included online lynching and jealousy, threats, and blackmail, spreading erroneous or unpleasant information about another person, identity theft, humiliation, and exclusion from a community of people online. They also alleged that some cyberbullying actions went outside the school administration's control and that they sought support from the police.

RESULT and DISCUSSION

This is, we believe, the first empirical study of cyberbullying and online technology self-efficacy with participants from a developing country's middle and high schools. It is also one of a few mixed-method studies on cyberbullying in schools. These elements, coupled with the systematic step-by-step development of an assessment of online technology self-efficacy, contribute significantly to the

knowledge. The study's main goal was to increase understanding of the difficulties that exist today in addressing cyberbullying in schools by examining teachers' online technologies self-efficacy and awareness levels of students' cyberbullying behaviors. This issue is clarified by the examination of survey data that was gathered from 256 teachers.

The first noteworthy finding concerns teachers' awareness of cyberbullying issues in schools and the education system. There was a significant positive association between the OTSE and the TCA scales ($r = .429$, $p < .05$). The findings indicate that teachers' levels of self-efficacy in online technologies have a significant effect on their cyberbullying awareness. As in the current study, Gürpınar and Oğuz (2018) indicated that teachers' self-efficacy in online technologies has a positive effect on their levels of awareness of cyberbullying, but a lower level compared to our results.

Second, gender showed a statistically significant difference in teachers' awareness levels of cyberbullying, according to the study's findings ($p = 0.025$). Females were far more informed about cyberbullying issues than men. This finding was consistent with a study by Eden et al. (2013), which found that female instructors were more concerned about cyberbullying than male teachers, had a stronger belief in the school's dedication to dealing with it, and believed in the necessity of learning about cyberbullying.

Third, there was a statistically significant difference between the age ranges based on OTSE scores ($p = 0.026$). Overall, teachers aged 25 to 44 exhibit greater self-efficacy in online technologies than other age groups. Therefore, it can be stated that teachers between the ages of thirty and forty years in general are the main forces behind digital instruction. Building the capacity of both younger and older teachers must be given top priority when offering training to improve digital technology abilities (Peng et al., 2023).

Fourth, teachers whose areas are not related to informatics-related departments stated that education is essential for increasing online technology self-efficacy. According to earlier studies, teachers believe they lack the necessary resources and that their professional training has not adequately equipped them to handle concerns regarding cyberbullying (Fredrick et al., 2023). This result can be critical for creating and improving the technological basis in schools. Teachers with higher levels of digital proficiency are more adept at incorporating technology and using digital tools. To successfully utilize online technologies in the classroom and improve teaching quality, schools and legislators must create adequate regulations that motivate teachers to enhance their digital capabilities, actively participate in training related to digital technology, improve their views and self-efficacy in using it, and promote the development of digital skills.

Lastly, our findings indicated that the majority of teachers believed that disclosing personal information is the most frequent form of cyberbullying that happens in schools. For students to develop

their sense of safety and their understanding of the dangers of sharing personal information online, schools and instructors play a crucial role. According to a survey on how teachers inform students about the risks of sharing personal information on social media, 65.6% of participants claimed teachers don't plan any classes or activities that will reduce the risk of revealing personal information. On the other hand, 8,7% of respondents think that teachers deliver lessons to teach students about the dangers of revealing personal information online, and 25,7% agree that certain extra activities are provided (Mliless and Larouz, 2015). This finding is consistent with the current study's result found in semi-structured interviews' results.

Conclusion and recommendations

With students using the Internet and other mobile communication devices in increasing numbers, parents as well as educators are finding that one of the most difficult problems they face is cyberbullying. Despite providing significant insights and understanding into educators' perspectives on cyberbullying, it is vital to acknowledge the limitations of the article. First, the study only includes school managers and teachers. Therefore, future research should examine how teens and their parents view the problem.

Despite the limitations, we are convinced that our current research adds to the growing body of knowledge about the role of the school system in the prevalence of cyberbullying. Future research should include students from a variety of educational settings. The legitimacy of the school's commitment appears to be an important concern that school administrators should be aware of and that should be studied explicitly in future studies. Other school personnel, such as investigators, administrators, educational professionals, psychologists, and educational coordinators, should be included in future studies.

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