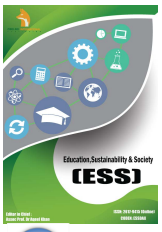
ZIBELINE INTERNATIONAL PUBLISHING

ISSN: 2617-9415 (Online)
CODEN: ESSDAX

Education, Sustainability & Society (ESS)

DOI: http://doi.org/10.26480/ess.01.2020.15.19



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RESEARCH ARTICLE

CYBERBULLYING: IDENTIFICATION OF FACTORS AFFECTING THE QUALITY OF HIGHER EDUCATION IN INDONESIA

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ARTICLE DETAILS

Article History:

Received 15 November 2019
Accepted 26 December 2019
Available online 24 January 2020

ABSTRACT

The use of cell phones has undergone a rapid change and will continue to change. Previously used for voice communication in the 1980s, now mobile phones have various functions so that they are known as smartphones. The various functions of this smartphone are not only used for a positive purpose, but also create new problems, such as cyberbullying. Cyberbullying is a type of social abuse by utilizing electronic gadgets such as smartphones. The growing population of smartphone owners among students raises new problems in the classroom. Misuse of smartphone use, especially in the perspective of cyberbullying, can result in disruption of the quality of learning in the classroom and the academic atmosphere on campus. Compared to traditional bullying, cyberbullying can happen anywhere and anytime. Text, photo or video information used in cyberbullies can be delivered directly to the target person. This research aims to study the factors why students conduct cyberbullying and the effects of cyberbullying. The result of analysis shows enough evidence that there is a misuse in the use of smartphones when in the classroom. Various factors have been identified such as high frequency of smartphone usage which is not related to lessons in class, chatting in social media and bullying for fun or joke. The negative effect of cyberbullying is mostly feel humiliated followed by worried and isolated. The results of this research help higher education institutions to anticipate the impact of smartphone use among students earlier and take appropriate steps or policies to maintain the learning process and quality learning atmosphere.

KEYWORDS

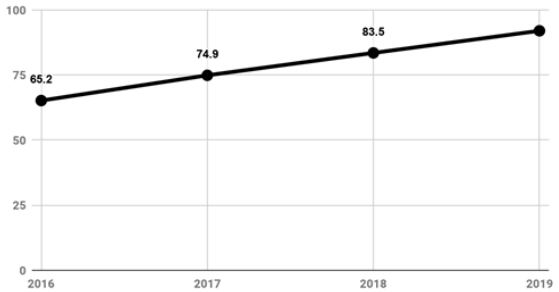
Cyberbullying, higher education, cell phones, student behavior.

1. INTRODUCTION

Information technology has become a part of student life. Laptops, PCs, smartphones, and tablets (such as Apple Ipad and Samsung Galaxy Tab) are used to surf the internet, access e-mail, send SMS, social networking sites, and chat. Research identified 99% of students have cellular phones with the minimum ability to send text messages (Tindell and Bohlander, 2012). A large number of students (95%) said that they always carried their cell phones in the classroom. Another interesting research is that 97% of students realize that they classmates use cell phones in the classroom without being noticed by the lecturer.

The use of cell phones has undergone rapid changes and will continue to change. In the 1980s people used cell phones to facilitate business communication. In the 1990s the use of cellular phones began to be used by families to communicate with each other or family with their friends. SMS (short message service) is a new type of cellular communication that began to be known and then continued in the 2000s with cellular phones and video cameras as a means of exchanging information. The newest generation of cell phones, fourth generation (4G) wireless systems, is not just for talking; it provides multimedia messaging and direct Internet access. This cell phone with various functions became known as a smartphone. Behavior in cell phone use will continue to change along with the increase in smartphone features, especially among young people (Haverila, 2011).

As seen in Figure 1, users of smartphones in Indonesia increases every year. It is reasonable to predict the number of smartphone user will reach 100 million users in the near future. Glenn found that young people that ages 18 to 25 like to use smartphone for social media, chatting and games (Glenn, 2019). Facebook, Instagram, YouTube, Google+, and Twitter are popular social media among young user. Listening to music and watch movies are other popular usage of smartphone.



Source: katadata.co.id (Katadata, 2019)

Figure 1: Smartphone Users in Indonesia

Quick Response Code	Access this article online	
	Website: www.educationsustability.com	**DOI:** 10.26480/ess.01.2020.15.19

Cite the Article: Eliot Simangunsong (2020). Cyberbullying: Identification Of Factors Affecting The Quality Of Higher Education In Indonesia. *Education, Sustainability & Society, 3(1): 15-19.*

The growing population of smartphone owners among students raises new problems in class. For example, a study found data that the use of cell phones in the school environment had distracted students from the teaching-learning process (Obringer and Coffey, 2007). Cell phone ringing in class has caused disruption, cell phones are also used to cheat during exams or quizzes, and of course cyberbullying, for example cell phones that have camera features are used to take photos in private areas and then be used as a harassment tool. Cyberbullying is a new form of intimidation among young people.

1.1 Objectives

There are two types of bullying; traditional and cyber. Although similar, there are several aspects that make cyberbullying different from traditional bullying. Traditional bullying generally occurs in certain locations and the theme of bullying used usually is physical disorders such as being overweight, disabled, and one's unique behavior. Cyberbullying can occur anywhere and anytime. Information about text, photos or videos used in cyberbullying can be delivered directly to the target person (Dilmac, 2009).

The purpose of this research is to identify misuse of smartphone use, especially in the perspective of cyberbullying, which results in and affects the quality of learning in the classroom. This research also aims to study the reasons why students conduct cyberbullying and the effects of cyberbullying. The results of this study will help higher education institutions to anticipate the impact of using smart phones among students earlier and take appropriate steps or policies to maintain a learning process and a quality learning atmosphere.

1.2 Problem Statement

Having a cellular telephone, especially a smartphone type, has become a trend among higher education students. Initial research conducted shows the potential of cyberbullying among students, and if this is not responded to appropriately, it can result a decline in a conducive learning atmosphere at higher education institutions.

Therefore, a comprehensive scientific study is needed to fully understand the influence of smartphone use in higher education on the emergence of student problems, especially on the perspective of cyberbullying. This research is important because the progress of information and communication technology cannot be prevented so identifying changes in student behavior and the learning environment on campus is important.

2. Literature Review

Smartphone has "*interactive communication function includes sending or receiving oral or written messages, sending or receiving facsimile documents, sending or receiving still or moving images, providing access to the internet*" (Horsman and Conniss, 2015). A cell phone has a basic function for making calls and sending text messages. A new generation of cellular telephones, called smartphones, can also be used to send e-mail, video conference, browse the internet, or access social networks such as micro-blogs, chat on social media (Facebook, WhatsApp, Google plus), video and image sharing sites (YouTube, Vimeo, Instagram). Smartphones offer this function for all their owners whenever and wherever they want.

Knowing that the number of people who own smartphones is increasing, the smartphone functions can influence their beliefs, attitudes, and behavior. Students as a community group that generally owns a smartphone, in contrast as a learning tool, can abuse smartphone use. For example to disturb and other inconveniences thing in the classroom (Zalaquett and Chatters, 2014). Almost all students have cellular phones with the minimum ability to send text messages (Tindell and Bohlander, 2012). Students also generally take their cell phones into the classroom and use cell phones in the classroom without being noticed by the lecturer. Study by van revealed that habitual smartphone use is an important contributor to addictive smartphone behavior (Van Deursen et al., 2015). People who extensively use their smartphones for social purposes develop smartphone habits faster, which in turn might lead to addictive smartphone behavior.

Cyberbully is a person who intentionally bullying others electronically (Zalaquett and Chatters, 2014). It causes harms such as defamation, public disclosure of private facts, and intentional emotional distress (Watts et al., 2017). There are four smartphone functions that can be used for cyberbullying activities such as: chat rooms, instant messaging, e-mail and sms. Increasing the number of smartphone uses among students can also increase cyberbullying. There are some adverse effects that students get from using a smartphone in class. A student, for example, who is bored paying attention to the teacher, tends to check their smartphone, so they can use social media features from the smartphone to disturb other students. Experiences of boredom can lead to off-task behaviors such as the use of cell phones in class, and because the use of cell phones in class can lead to detriments in student learning, it may be important for scholars to articulate the behaviors that teachers can employ to reduce this negative emotional experience (Bolkan and Griffin, 2017).

There are two types of bullying; traditional and cyber. Although similar, there are several aspects that make cyberbullying different from traditional bullying. Traditional bullying generally occurs in certain locations and the theme of bullying used usually is physical disorders such as being overweight, disabled, and one's unique behavior. Cyberbullying can occur anywhere and anytime. Information about text, photos or videos used in cyberbullying can be delivered directly to the target person (Dilmac, 2009). Cyberbullying is a misuse of electronic gadgets, such as smartphones, against someone who cannot protect himself from receiving electronic messages. Cyberbullying is believed to have a negative impact on student learning performance (Froese, 2012). Many studies have found that using a cell phone in the classroom will reduce students' concentration in learning and it will cause bad grades.

A literature found that based on several previous studies, cyberbullying among college students ranged from 9% to 42% (Zalaquett and Chatters, 2014). They also identified that research on cyberbullying, that is, the causes and characteristics of cyberbullying with student population analysis units is still needed. Another literature study conducted also showed a surge interest in cyberbullying research even though a comprehensive survey, support from empirical data, and further analysis is still needed to understand the phenomenon of cyberbullying (Mishna et al., 1997). There are factors that encourage someone to do cyberbullying such as anonymity, psychological needs, social dominance theory, poor interpersonal child / adult relationships, and other social cues (Watts et al., 2017). Cyberbullying may make the victim feeling extremely hurt and rejected.

3. Methodology

This research consists of stages: first, defining the scope of relevant research in the perspective of cyberbullying in higher education. Second, conduct literature studies to understand the development of current research for the scope of the research set. Third, identify gaps in existing research to create research designs. Fourth and the last stage is to carry out research design. Research design is an activity of compiling and implementing research consisting of making research instruments, data collection, data analysis, making research reports, and publication of research reports.

In accordance with the research purposes and from the results of the literature study conducted, empirical research in the form of surveys is a suitable research instrument to be applied in this study. Empirical research is a popular research method in past studies. For example, Obringer & Coffey surveyed cell phones used in America High Schools, Dilmac did cyberbullying statistical analysis on College Student, Tindell & Bohlander surveyed the use and of cell phones abused of college students, and recent study by Bolkan & Griffin that used surveyed data to analyse students off-task behaviors in class (Obringer and Coffey, 2007; Dilmac, 20069; Tindell and Bohlander, 2012; Bolkan and Griffin, 2017).

Survey-based research is a systematic activity in collecting data, information and opinions from data samples or populations (Filippini, 1997). Surveys are quantitative research methods that use standard formats, such as questionnaires, which are used to define or explain variables, and to analyze relationships between variables (Malhotra and Grover, 1998).

The survey questionnaire prepared in this study will be shared with the main respondents, such as young people aged 19-25 years (students) from a University. The survey data obtained will be analyzed using descriptive and parametric statistical analysis using IBM SPSS to identify dominant factors, see the relationship between variables or factors, and test statistics to get answers to the research questions set at the purpose of this research.

4. Results

Our data consists of 367 responses from both male and female participants of one private tertiary institution located in South Tangerang. Table 1 shows gender of respondents. It can be seen that male respondents are slightly more than female, with frequency for male as much as 189 and for female as much as 178. Statistic test of Chi-Square proportion test shows that the difference is not significant or the proportions are the same. Chi-Square value equal 0.33 with p-value (sig) = 0.566, which is greater than 0.05 (critical value). This means that we can do comparative behavior analysis of cyberbullying between male and female.

Table 1: Gender of respondents

No	Gender	Frequency	Percentage	
1	Male	189	51.5%	Chi-Square = 0.330
2	Female	178	48.5%	Asympt. Sig. = 0.566
	Total	**367**	**100%**	

There is a diversity of respondents ages ranging from 17 to 22 years. The age profile of respondents suits the unit of analisis in this study, i.e., higher education students. Ages between 18 to 20 years represented nearly 75% of respondents.

Table 2: Age of respondent

No	Age	Frequency	Percentage
1	17	7	1.9%
2	18	106	28.9%
3	19	88	24.0%
4	20	107	29.2%
5	21	53	14.4%
6	22	6	1.6%
	Total	**367**	**100%**

Table 3 shows the purpose of using smartphone in class. Social Media usage which is not related to lessons is the most popular followed by messaging (SMS / Chat), and search engine. The search engine itself, is used to find answers from lecturers.

Table 3: The main function of the smartphone used in the class of respondents

No	Function of Smartphone	N	Percentage Total	Male	Female
1	Calculator	39	10.6%	10.1	11.2
2	Search engine	79	**21.5%**	**23.8**	19.1
3	Dictionary	15	4.1%	4.8	3.4
4	E-book	15	4.1%	3.7	4.5
5	Social Media related lessons	12	3.3%	3.7	2.8
6	Social Media is not related to lessons	91	**24.8%**	23.8	25.8
7	Messaging (SMS/chat)	84	**22.9%**	19.0	**27.0**
8	Games	31	8.4%	10.6	6.2
9	Lainnya	1	0.3%	0.5	0
	Total	**367**	**100%**	**100%**	**100%**

This study finds that almost half of respondents may have consciously or unconsciously committed cyberbullying in class. Based on the data contained in Table 4, it can be seen that up to 45.6% of the total respondents may do cyberbullying in class.

Table 4: Do Cyberbullying in Class

No	Have you ever done cyberbullying in class	Frequency	Percentage
1	Ever	69	18.8%
2	Doubtful	105	28.6%
3	Never	193	52.6%
	Total	**367**	**100%**

The media used to do cyberbullying are social media (30.82%) followed by group chat (27.04%) and personal chat (6.29%). Table 5 shows that about 25% of respondents have been victims of cyberbullying.

Table 5: Victims of Cyberbullying

No	Gender	Frequency	Percentage	Male	Percentage	Female	Percentage
1	Ever	93	25.4%	48	25.39%	45	25.42%
2	Never	273	74.6%	141	74.61%	132	74.58%
	Total	**366**	**100%**	**189**	**100%**	**177**	**100%**

Table 6 below shows the effect of cyberbullying. It can be seen that the effect of cyberbullying that gets the largest percentage is humiliated by 23%, followed by worried and feel isolated (11%). Half of the respondents also believe that cyberbullying happens when students intimidate other students using the internet. Other ways of doing cyberbullying include: when students send pictures and / or messages that are inappropriate to other students, when students misuse other student gadgets, and use other student names in cyberspace for negative purposes.

Tabel 6: Result of cyberbullying

No	The Effects of Cyberbullying	N	Percentage
1	Humiliated	39	23%
2	Worried	18	11%
3	Afraid	11	7%
4	Feel Isolated	18	11%
5	Others	82	49%
	Total	168	100%

5. Discussion

Data analysis from 367 respondents showed that 58.4% use their smartphones to browse the internet, social media, and exchange messages. Only 17.5% use it as a calculator or read e-books. As many as 69 respondents (18.8%) admitted that they had carried out cyberbullying while 105 other respondents (28.6%) doubted whether their actions included cyber bullying. Some of the reasons for cyberbullying include mischievous, joining in, for fun, or because of annoyance. The detail of analysis is discussed as follows.

The purpose of using smartphone in class mostly for social media which is not related to learning, messaging (SMS / Chat), and as a search engine. This finding needs to be considered by lecturers in class because students who use smartphones in the classroom are likely to abuse it for other purposes. Based on existing data, it is indicated that quite a lot of people use smartphone when in class but are not used for lessons with a percentage of almost 50%. It is interesting to note that men often use smartphone as search engines, while women use more smartphone for messaging (SMS / Chat). The search engine itself, is used to find answers from lecturers. For social media, there is little difference between female and male students. From Table 3, it is reasonable to conclude that smartphone is not used for learning.

Students who abuse the use of smartphones in the classroom are likely to consciously or unconsciously engage in cyberbullying activities. For example, this study found that almost half of respondents said they might experience cyberbullying in class. We can assume that for those who

doubt, or who answer don't know, they might not understand cyberbullying. Based on comments in the survey, there are respondents who make cyberbullying consciously and aim to play games, other respondents who did cyberbullying for the purpose of having fun, fad, joke, or humor and carried out consciously. This study finds that the proportion of men and women who are victims of cyberbullying is relatively similar. One student does not respond to the question whether they have been victims of cyberbullying. Probably for them this is a sensitive question and do not answer because of the possibility of being embarrassed.

The next analysis is the hypothesis test. The first test is to test the effect of using a smartphone frequently on the possibility of becoming a victim of cyberbullying. Here, the null hypotheses is whether *victims of cyberbullying* (as the dependent variable) can be explained by *frequency of smartphone usage*. A binary logistic regression was performed to find out the effects of smartphone usage on the likelihood of victims of cyberbullying. Binary logistics regression is selected because dependent variable has nominal value (0 = ever, 1 = never). 366 samples (1 missing data) used for analysis.

The result is presented below. The Hosmer & Lemeshow test (Table 7) of the goodness of fit suggests the model is a good fit to the data as (sig) p-value=0.242 (>.05). The Hosmer-Lemeshow statistic indicates a poor fit if the significance value is less than 0.05. The coefficient of determination, R^2 - the proportion of variance in the dependent variable associated with the predictor (independent) variables - is approximated with Cox and Snell's R^2 (R^2 = 3%) or Nagelkerke's R^2 (R^2 = 4%). Therefore, the explained variation in the dependent variable based on our model ranges from 3% to 4.

Table 7: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.472	4	.242

Table 8: Classification Table

	Predicted		
Observed	Victims of Cyberbullying		Percentage Correct
Victims of Cyberbullying	Ever	Never	
Ever	0	93	.0
Never	0	273	100.0
Overall Percentage			**74.6**

The cut value is .500

The Classification Table (See above) shows the practical results of using the logistic regression model. As you can see our model is now correctly classifying the outcome for 74.6% of the cases or 3 out of 4 cases are correctly predicted.

Table 9: Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Frequency Use of Smartphone	.071	.068	1.098	1	.295	1.073
Constant	.673	.400	2.828	1	.093	1.960
Variable(s) entered on step 1: Frequency Use of Smartphone						

The "Variables in the Equation" table shows the contribution of each independent variable to the model and its statistical significance. This table provides the regression coefficient (B), the Wald statistic (to test the statistical significance) and the all-important Odds Ratio (Exp (B)) for each variable category. The Wald test ("Wald" column) is used to determine statistical significance for each of the independent variables. The statistical significance of the test is found in the "Sig." column. From these results you can see that Frequency Use of Smartphone (p = .295) > 0.05 means the variable is not significant to the model/prediction.

The next hypothesis test is to test the null hypothesis whether *concentration is disturbed* (as the dependent variable) can be explained by *frequency of smartphone usage*. A binary logistic regression was performed to find out the effects of frequency of smartphone usage on the likelihood of concentration is disturbed. Binary logistics regression is selected because dependent variable has nominal value.

The Hosmer & Lemeshow test (Table 10) of the goodness of fit suggests the model is a good fit to the data as (sig) p-value=0.653 (>.05). The Hosmer-Lemeshow statistic indicates a poor fit if the significance value is less than 0.05. The coefficient of determination, R^2 ranges from 1.3% (Cox & Snell R^2) to 1.7% (Nagelkerke's R^2).

Table 10: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.456	4	.653

Table 11: Classification Table

	Predicted		
Observed	Concentration is disturbed		Percentage Correct
Concentration is disturbed	Yes	No	
Yes	134	57	70.2
No	110	66	37.5
Overall Percentage			**54.5**

The cut value is .500

The Classification Table (See above) shows the practical results of using the logistic regression model. As you can see our model is now correctly classifying the outcome for 54.5% of the cases.

Table 12: Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Frequency Use of Smartphone	-.134	.061	4.757	1	.029	.875
Constant	.687	.368	3.480	1	.062	1.988
Variable(s) entered on step 1: Frequency Use of Smartphone						

The "Variables in the Equation" table shows the contribution of each independent variable to the model and its statistical significance. The Wald test ("Wald" column) is used to determine statistical significance for each of the independent variables. The statistical significance of the test is found in the "Sig." column. From these results you can see that Frequency Use of Smartphone (p = .029) < 0.05 means the variable is significant to the model/prediction, i.e., Concentration is disturbed.

The third hypothesis test is to test the null hypothesis whether do cyberbullying (as the dependent variable) can be explained by *frequency of smartphone usage*. A linear regression was performed to find out the effects of frequency of smartphone usage on the likelihood of do cyberbullying.

It can be seen in Table 12 below that the global value of the test (F-test) = 7.109 and p-value (sig) = 0.008 < 0.05 indicates the regression model is a good fit to the data.

Table 13: ANOVA Result

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.205	1	4.205	7.109	.008b
Residual	215.899	365	.592		
Total	**220.104**	**366**			

Table 14: Coefficients Result

	Unstandardized Coefficients		Standardized Coefficients		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
Constant	2.694	.140		19.305	.000
Frequency of smartphone usage	-.062	.023	-.138	-2.666	.008

It can be seen that p-value for independent variable equal to 0.008 < 0.05 which means enough evidence to reject the null hypothesis, Frequency of smartphone usage can make people do cyberbullying. A negative Beta value of -0.062 means that the more a person uses a gadget less often, the less chance they do cyberbullying.

To sum up, this study presents sufficient evidence that the purpose of using a smartphone in the classroom is largely unrelated to classroom learning content. The purpose of using smartphones in class is mostly for social media which raises concerns about the misuse of their use. These findings confirm an earlier study that suggested young people aged 18 to 25 like to use smartphones for social media. There is no difference in the use of social media between women and men. As Tindell and Bohlander suggested, students often use cellphones in classrooms without being noticed by the lecturer. Therefore, it is important for lecturers to observe smartphone usage in class because students who use smartphone in class tend to misuse it for other purposes.

Students who abuse the use of smartphones in the classroom are likely to consciously or unconsciously engage in cyberbullying activities. For example, this study found that almost half of respondents said they might experience cyberbullying in class. There is sufficient evidence that the use of a smartphone is abused for the purpose of fun, fad, joking, or humor and this is done consciously. A study by Zalaquett and Chatters emphasized that students generally have smartphones and that they might abuse smartphone use, creating other distractions and discomfort in the classroom. Our hypothesis test results also confirm that concentration in the class is disrupted due to the frequency of smartphone usage.

This study found that there was an equal proportion of men and women who were victims of cyberbullying. Similar to research cyberbullying caused harm to the victims because most of them felt humiliated, increased feelings of worry and isolation. It should be noted that in this study there was not enough evidence that frequent use of a smartphone would increase the likelihood of becoming a victim of cyberbullying. Conversely, the more frequent use of a smartphone will increase the likelihood of doing cyberbullying. Study revealed that the habit of using a smartphone is an important contributor to smartphone addiction behavior.

6. Conclusion

The purpose of this research is to identify misuse of smartphone use, especially in the perspective of cyberbullying, which results in and affects the quality of learning in the classroom. The result of analysis shows enough evidence that there is a misuse in the use of smartphones when in the classroom. It is evident that the highest percentage in smartphone use is for social media and chatting which is not related to lessons or learning in class. Ideally, smartphones are useful in class as a calculator, e-book, and other relevant things.

There is also enough evidence to support that most cyberbullying is done using a smartphone. The reasons for cyberbullying other students consciously are for fun, fad, joke, or humor. Test statistics shows that concentration in class is disturbed can be explained by frequency of smartphone usage. High frequency of smartphone usage increase probability of students do cyberbullying. The negative effect of cyberbullying is mostly feel humiliated followed by worried and isolated.

Acknowledgement

The author gratefully acknowledges that Universitas Prasetiya Mulya supports the present research.

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