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Strengthening digital citizenship behavior to reduce cyberbullying through learning outcome mediation

Elisa Ika Yuniawati[*)1], **Sri Tiatri**[2], **Jap Tji Beng**[3]

[1, 2] Department of Master of Science in Psychology, Universitas Tarumanagara, Jakarta, Indonesia

[3] Department of Information Systems, Universitas Tarumanagara, Jakarta, Indonesia

*) Corresponding author, e-mail: elisa.707231010@stu.untar.ac.id

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Abstract

This study aims to examine the role of digital citizen behavior towards negative online cyberbullying behavior with learning outcomes as a mediator. Cyberbullying has a serious impact on students' psychology and learning outcomes. Victims of cyberbullying will psychologically experience anxiety, stress and depression. Therefore, internet use that does not pay attention to digital ethics can trigger an increase in negative online behavior such as cyberbullying among students. Cyberbullying behavior as negative online behavior has a very serious impact not only on individual psychology but also on learning outcomes so that strategies or programs are needed that can be used to prevent and reduce these impacts. Digital Citizenship is a concept of positive behavior when using the internet which includes ethics, responsibility, and using the internet properly and correctly. In addition to digital citizenship behavior, learning outcomes also play a role in reducing negative online cyberbullying behavior. The approach used is quantitative, the survey was distributed to 353 participants consisting of students in grades 1 to 3 of junior high school aged 11 to 16 years with male and female genders in two public junior high schools in Bali. The results of the study indicate that there is a role of digital citizenship towards cyberbullying, but learning outcomes do not mediate the relationship between digital citizenship and cyberbullying. Therefore, there needs to be an education or training program that focuses on developing digital citizenship competencies that need to be strengthened as the main preventive measure, without relying entirely on increasing learning outcomes. Then, it is necessary to consider other approaches that may be able to complement the role of digital citizenship to be more effective in minimizing the risk of cyberbullying.

Keywords: Digital Citizenship, Negative Online Cyberbullying Behavior, Learning Outcomes, Preventive Strategies

Abstrak

Studi ini bertujuan untuk mengkaji peran perilaku kewargaan digital terhadap perilaku negatif cyberbullying online dengan hasil belajar sebagai mediator. Cyberbullying memiliki dampak serius terhadap psikologi dan hasil belajar siswa. Korban cyberbullying secara psikologis akan mengalami kecemasan, stres, dan depresi. Oleh karena itu, penggunaan internet yang tidak memperhatikan etika digital dapat memicu peningkatan perilaku negatif online seperti cyberbullying di kalangan siswa. Perilaku cyberbullying sebagai perilaku negatif online memiliki dampak yang sangat serius, tidak hanya pada psikologi individu tetapi juga pada hasil belajar, sehingga diperlukan strategi dan program untuk mencegah dan mengurangi dampak tersebut. Kewargaan digital adalah konsep perilaku positif dalam penggunaan internet yang mencakup etika, tanggung jawab, dan penggunaan internet secara bijak. Selain perilaku kewargaan digital, hasil belajar juga berperan dalam mengurangi perilaku negatif cyberbullying online. Pendekatan yang digunakan dalam penelitian ini adalah kuantitatif, dengan survei yang didistribusikan kepada 353 peserta yang terdiri dari siswa kelas 1 hingga 3 SMP berusia 11 hingga 16 tahun dengan jenis kelamin laki-laki dan perempuan di dua Sekolah Menengah Pertama Negeri di Bali. Hasil penelitian menunjukkan bahwa terdapat peran kewargaan digital terhadap cyberbullying, namun hasil belajar tidak memediasi hubungan antara kewargaan digital dan cyberbullying. Untuk itu, diperlukan program pendidikan yang berfokus pada pengembangan kompetensi kewargaan digital yang perlu diperkuat sebagai langkah pencegahan utama, tanpa sepenuhnya mengandalkan peningkatan hasil belajar. Selanjutnya, pendekatan lain yang dapat melengkapi peran kewargaan digital perlu dipertimbangkan agar lebih efektif dalam meminimalkan risiko cyberbullying.

Keywords: Kewargaan Digital, Perilaku Negatif Cyberbullying Online, Hasil Belajar, Strategi Pencegahan

INTRODUCTION

Currently, human civilization has entered the 21st century and the industrial revolution 4.0. In this century, science and technology have developed very rapidly, one of which is shown by the advancement of information and communication technology (ICT). The development of information and communication technology has made a real contribution to human civilization and welfare. Through existing technological advances, it is able to eliminate the limitations of distance and interaction between humans in any part of the world. This is in accordance with the opinion of Castells (2010) in his book The Rise of the Network Society which states that the advancement of information and communication technology, especially the internet, has eliminated geographical limitations and allowed human interaction around the world without the barriers of time and space, besides that it is also said that the internet is a platform that connects individuals in various parts of the world. allowing quick access to knowledge and information from multiple sources.

The internet is one of the digital technologies that is used as a space to socialize, communicate, play and also learn. The public not only feels the positive impact of the internet but also has the potential to pose various threats and dangers to its users. Currently, there is a huge increase in internet use among both young people, teenagers, and adults, this of course does not rule out the possibility that internet users can also be exposed to a negative behavior online. Fuchs (2017) mentioned that the internet and social media have become digital spaces used to communicate, socialize, play, and learn, but there will also be potential threats that arise from the use of the internet, such as hoaxes, cybercrime, and cyberbullying, which can negatively affect its users. The results of Heng et al., (2020) found that the use of social networks was mostly carried out by early adolescents in junior high and high school.

Finkelhor et al., (2000) in their research report on internet safety for adolescents stated that online negative behavior is very broad in scope and risks not only online sexual solicitation but also threats with the aim of shaming someone through posts or messages that others can see online. Negative online behavior with the aim of shaming someone refers to harmful, offensive or disruptive actions carried out by individuals or groups on the internet through online platforms and communication channels, namely cyberbullying and online harassment (Mccosker & Johns, 2014). Cyberbullying is a bullying or bullying carried out using digital technology, according to Smith et al. (2008) Cyberbullying referred to as online social cruelty or electronic bullying, is a form of aggressive and deliberate action carried out or issued by a group or individual, by using electronic form contact repeatedly and from time to time against the victim who cannot easily defend himself.

Hinduja & Patchin (2008) and Kowalski & Limber (2007) define cyberbullying as aggressive behavior that is carried out repeatedly as bullying behavior against a person by using electronic platforms including text, instant messaging, email, chat rooms, websites, online games, and social networking sites. Donnerstein

(2012) and Willard (2007) also mentioned several examples of behaviors that can be categorized in cyberbullying, namely sending unsolicited emails or by threatening emails (sending threatening emails); spreading rumors; making inflammatory comments in the public discussion area (flaming); impersonating a victim in cyberspace that causes others to respond negatively to the individual (impersonating); harassing someone during a discussion and leaving derogatory messages on the web page (online harassment); leaving insulting messages; Sending offensive graphic material (unwanted exposure to pornography).

The rise of cyberbullying cases that occur in Indonesia is also inseparable from the lack of knowledge and understanding of parents or teachers regarding the dangers of bullying https://www.cnnindonesia.com/ so that this behavior is often considered a simple matter or a joke. Based on preliminary data conducted by researchers through a survey of 369 participants in four public schools in Palembang junior high schools, it was found that as many as 14.6% of students had received harsh words and negative comments through social networks. From this percentage, it shows that teenagers tend to have been involved in cyberbullying. The same thing is also described in a previous study by Agatston et al. (2007), which mentioned three common factors that affect high school children to be involved in cyberbullying, namely demographic factors (age and gender); media (Pohan et al., 2024). Digital literacy factor (satisfaction at school and confidence in the real world) where it is emphasized that if only one is found that marks the answer choice, it has been categorized as being involved in cyberbullying, both as a victim and a perpetrator. The results of the study Al-rahmi et al. (2019) stated that more than 50% of students reported having experienced cyberbullying, online harassment and stalking, so a special strategy is needed for universities to reduce this number.

Another phenomenon is shown in a survey conducted by Amanda Lenhart. (2016) stated that in the United States it was found that as many as 47% had a bad experience of 20 types of harassment behavior on the internet, one of which was bullying, this finding was further aggravated by the results of research from Modecki et al. (2014) that there was an increase in the prevalence of 15% of adolescents as victims of cyberbullying. A survey conducted by UNICEF U-Report 2021 stated the same thing that as many as 45% of 2,777 young people aged 14-21 years experienced cyberbullying. Research by Williams et al. (2010) stated that adolescents who are involved in cyberbullying, both perpetrators and victims, experience academic and psychosomatic difficulties compared to their peers who are not involved.

Cyberbullying as a form of negative online behavior has a serious impact on individual mental health such as anxiety, depression, feeling alone, so that if left unchecked, it will affect their well-being and interfere with their cognition which is characterized by a decrease in learning achievement. In the realm of school authority and responsibility, Willard's (2007) research found that cyberbullying carried out both outside and inside the school resulted in the disruption of students' ability to participate in school activities and programs. Thus, policy makers are required to take firm strategies and efforts as well as policies to overcome these problems. One of the efforts that can

be applied is through the application of ethical behavior in the digital world to prevent individuals from exposing inappropriate behavior through technology. Based on references in research journals, it is stated that the role of morality in digital citizenship is related to negative online cyberbullying behavior.

Digital Citizenship according to Ribble (2011) is defined as a concept and norm of responsible behavior in using and communicating online safely, ethically, to prevent negative online behaviors such as cyberbullying, sexual harassment, and threats, so that technology can be used properly. Digital citizenship is not only related to the procedures or techniques of using internet devices, but also involves the ability to think critically, creatively and inspirationally in utilizing digital technology. Digital citizenship focuses on the use of online tools to encourage young people to be more involved in civic activities and exemplify polite, respectful, and tolerant behavior towards others to avoid bad behaviors such as cyberbullying (Jones & Mitchell, 2016). Hollandswort et al. (2011) stated that to foster positive behavior online, it is necessary to teach digital citizenship from an early age.

This is in line with the results of research by Cortesi et al., n.d. (2020) on the effectiveness of digital citizenship programs to reduce cyberbullying behavior and also increase children's positive behavior when interacting with others online. The rise of cyberbullying cases indicates that the level of digital citizenship is still low and needs to be encouraged. Therefore, digital citizenship needs to be applied in schools, campuses, work environments, and in social communities. This activity can improve the cognitive ability of implementing digital citizenship behavior. A person with good digital citizenship behavior will have a deep understanding of ethics, responsibility, and security when interacting in cyberspace. This concept is closely related to digital literacy, which is the ability to access, understand, and use information from various digital sources wisely and critically. With the high level of digital literacy possessed, the individual will be more aware of ethics and rules in the digital world. So the lower the likelihood that they will be involved in cyberbullying.

Research from Zhong, B., Huang, Y., & Liu, (2021) and Kaluarachchi, C., Warren, M., & Jiang, (2020) supports the important role of digital literacy in reducing involvement in cyberbullying by raising awareness of digital ethics and responsibility. This is also supported by the results of research (Willard, 2007).stating that students with high levels of digital literacy tend to have greater awareness of the negative impact of cyberbullying and are more likely to engage in proactive behavior against cyberbullying (Willard, 2007). In addition, according to Patchin & Hinduja, (2010) that effective digital ethics training can improve students' understanding of the consequences of cyberbullying, which in turn can reduce their involvement in the act. Thus, students who apply digital citizenship will be responsible for every use of technology, understanding related to digital literacy is not only able to find information in the digital world, but is also expected to be able to filter and organize the right information to avoid hoaxes, cybercrime and cyberbullying.

Digital citizenship behavior can be grouped into five categories according to Jones & Mitchell (2016), namely respectful behavior online, behavior of helping others, behavior when engaging in online sexual

harassment. Hollandsworth et al., (2017) also provided recommendations on two focuses in the area of digital citizenship including online behavior to respect each other and practice online digital citizenship involvement through social skills online. Choi (2016) mentioned four main categories in developing instruments to measure individual behavior in the internet-based community of digital citizenship, namely ethics (ethics in using technology, awareness in digital, responsibility in digital), media and information literacy (skills in using technology, access to digital use, psychological skills), involvement in citizenship (participation in advancing politics, economy, culture), and critical resistance (social and political activities).

Ribble et al. (2004) also explained the nine elements contained in digital citizenship, namely digital access, digital trade, digital communication, digital literacy, digital ethics, digital law, digital rights and obligations, digital health and welfare, and digital security. The nine elements of digital citizenship behavior are not only useful, but also provide understanding and awareness for users to behave well in using new technology. In addition, the core goal of the nine elements of digital citizenship is also to improve learning outcomes and prepare students to become citizens in the 21st century.

Against the background of the definition of negative influence online (cyberbullying) and digital citizenship behavior, it is known that there is an indirect relationship with learning outcomes. However, from some of the articles that are used as references, it is still very limited in terms of learning outcomes as a mediator of the relationship between digital citizenship behavior and negative influences online (cyberbullying). Therefore, further research is needed on these variables. The same thing is also stated by the findings of Kowalski & Limber (2013) regarding the limitations of research that examines the relationship between cyberbullying and academic problems.

Learning outcomes, according to the European Commission ECTS, (2015) are defined as statements about what individuals know, understand, and can do as a result of the learning process used as a European and national qualification framework to describe the level of individual qualifications. Dodridge (1999) defines learning outcomes as a statement in learning achievement from the acquisition of knowledge, understanding, intellectual skills, and practical skills. Learning outcomes in educational institutions are based on each minimum completeness criterion that can be the basis for a person to measure student achievement in the dimensions of knowledge, skills and application. Popenici & Millar (2015) stated that learning outcomes are reports or final products of what students get after completing the learning process.

Through this definition, it can be concluded that learning outcomes are the entire accumulation of learning obtained by students during the learning process in knowing, understanding and applying the knowledge they receive in learning process activities. From the definition above, learning outcomes are a measure of what students have learned or achieved after following the learning process. High student learning outcomes reflect good achievement in the cognitive, affective, and psychomotor domains. This shows that students not only have good knowledge but also a positive attitude and the skills necessary to interact with others constructively. So that students with high

learning outcomes tend to have better cognitive abilities to understand the social and moral impacts of cyberbullying, as well as affective abilities to respond to situations with empathy and a sense of responsibility.

Students will also make greater use of the social skills they have to promote a safe and supportive learning environment. This is in accordance with the results of Rigby's (2005) research which showed that students with a good understanding of the social consequences of their actions, which are part of cognitive abilities, are less likely to engage in bullying behavior. This is consistent with the findings from Ellis, L. K., & Shute (2007) which showed that high cognitive abilities help students understand the negative impact of bullying and encourage them to stay away from such behaviors. The results of the study of Caravita, S. C. S., Di Blasio, P., & Salmivalli, (2009) stated that students with a high level of empathy were more likely to resist involvement in bullying and even act to stop the behavior. This supports the argument put forward by (Jolliffe, D., & Farrington, 2006) about the importance of affective abilities, specifically empathy, in preventing student involvement in bullying. This is also in accordance with the opinion (Bandura, 1997) which states that students with good psychomotor skills tend to have higher self-efficacy, which is related to better self-control. The development of psychomotor skills can help students avoid aggressive behaviors such as bullying (Schunk, 2012) about learning theories and educational psychology.

In the context of education, digital citizenship also plays a role in developing a person's knowledge and abilities regarding certain subject matter by encouraging students' curiosity and creativity. Against the background of this discovery, Finkelhor et al., (2021) proposed the need for positive behavior in cyberspace and also digital literacy in the focus of school-based digital citizenship education. Arató et al., (2022) stated that family, parents, peer support, and emotional regulation play an important role as an effort to protect involvement in cyberbullying, especially cybervictimisation. Li et al. (2023) in their research findings stated that the use of the internet in excessive amounts as entertainment does not have a bad impact on mental health, but schools must direct to include the attitude of responsibility of adolescents in using the internet through a curriculum that contains an anti-cyberbullying program. Alotaibi (2019) in his research stated that behavior, norms, and parental controls regarding regulations affect the involvement of cyberbullying have an impact on students' academic achievement, therefore it is used as a basis to make further policies related to the theory of planned behavior (TPB). Arpaci et al. (2020) conducted a study on students aged 17-19 years in the health domain about the influence of internet addiction related to cyberbullying behavior. The results of his research indicate that there is a significant relationship between the two. Sarwar et al., (2019) conducted a study using cooperative learning techniques based on constructivism theory to test learning outcomes with cyberbullying moderators. The use of this learning can be an anti-cyberbullying program to reduce this behavior.

Based on the description of previous research, it was found that most of the research is only limited to measuring the impact of cyberbullying on several psychological aspects, so it is recommended to expand the impact such as learning outcomes so that later it can be used as a

program as a strategy to prevent and reduce negative online cyberbullying behavior. One of the strategies is through the implementation of digital citizenship behavior as an increase in morale and good behavior online. Many participants in previous studies took the elementary and high school levels. Meanwhile, in junior high school, research is still rare, even though at this level it needs to be studied more deeply because of the tendency of adolescents who are in the period of identity search and tend to be reluctant to convey to others when involved in cyberbullying. In addition, the implementation of education on digital citizenship behavior in school institutions by policy makers as a strategy or program in reducing negative online behavior has not been so maximized.

Tao et al. (2022) examined the involvement of elementary school-age children in cyberbullying with the variable role of parents to monitor the duration of gadget use and digital literacy as an effort to prevent such actions. Future research will focus on collecting data on devices and social media used. The results of the study on the sample cannot be generalized to all countries. Other studies have taken a lot of loci in several countries such as Europe and America. There are still few studies conducted in Indonesia. Therefore, the results of previous findings have not been generalized to its application in Indonesia. Safaria et al., (2016) only discussed the influence of forgiveness level on involvement in cyberbullying and the methods used with a qualitative approach through qualitative data collection. Another gap is by adding several internet networking sites and other platforms to identify which uses are more frequently used because they are adjusted to the conditions that currently have changed a lot on social networking sites.

The problems in this study include several things related to the scope limiter so that in this study it is necessary to avoid difficulties due to the subject matter, object and scope of the research area that is too wide. So this is important to do so that researchers do not fall into a lot of data that they want to research. So, the scope of the problem or scope related to the subject matter includes the problems being researched and is a research variable while the research object is students who are involved as victims or perpetrators in negative online cyberbullying behavior in junior high schools in Denpasar. Based on this, the scope of the problems in this study includes problems related to (1) digital citizenship behavior; (2) negative online cyber bullying behavior; (3) learning outcomes.

The existence of the Internet, and its increasing use around the world, can give rise to negative online behavior. If negative online behavior will interfere with students' attention, this affects psychological conditions such as anger and fear (Watts et al., 2017). When the psychological (emotional) condition is disturbed, students' focus on lessons decreases, thus having an impact on student learning outcomes. On the other hand, if the behavior is positive, it will also have a positive effect on students' cognitive outcomes (learning outcomes). This positive emotional psychological condition will encourage conditioning and reinforcement in good behavior. The involvement of digital citizenship and the involvement of positive online behavior will be able to arouse students' motivation and confidence. When students have high motivation and trust, students will easily accept the subject matter delivered by the

educator because the focus of attention and psychological condition are not disturbed. In addition, the higher the positive impact of digital citizenship on high learning outcomes implies that the likelihood of cyberbullying and other negative online behaviors will be reduced.

Digital citizenship refers to the concept of responsible use of technology. Teaching digital citizenship is very important, because it can help students achieve and understand digital ethics, as well as as prevent cyberbullying, and digital responsibility. This statement is in accordance with the results of Ribble research (2011) which states that digital citizenship is able to equip students to be able to participate in a good and responsible digital world. In addition, it can also teach students about how to interact with mutual respect, both in communicating and interacting and being ethical online. This condition will help build a strong foundation for students to become responsible citizens in navigating the real and digital world with kindness and empathy. This is also in line with the opinions (Hollandsworth, et al., 2017; Searson, et al., 2015).

Based on the background of the phenomenon and studies in several research journals described, the gap between this study and previous research is the factors that affect cyberbullying, the specific role of digital citizenship in the context of preventing cyberbullying at the junior high school education level is still rarely researched. Then the latest of this study is to explore the role of learning outcomes as a mediator in the relationship, provide additional understanding of the effectiveness of formal education in instilling digital citizenship values that aim to prevent cyberbullying behavior. Then this study aims to test the role of digital citizenship behavior on negative online cyberbullying behavior with learning outcomes as a mediator. It is predicted that the role of digital citizenship behavior can reduce negative cyberbullying behaviors mediated by learning outcomes.

METHODS

This research is a quantitative research using a survey method. The instrument used for data collection in this study was using a questionnaire. The collected data is then analyzed quantitatively using descriptive statistics so that it can be concluded that the hypothesis formulated is proven or not. The tool used to test the hypothesis is the procedure for testing the role of the mediator proposed by Baron and Kenny (1986) through the Hayes process program in SPSS software. The sampling technique used in this study is the probability sampling technique, using proportionate random sampling. In determining the number of samples used in the study, the researcher used the Krejcie table. Krejcie in calculating the sample size is based on a 5% error. So the sample obtained has 95% confidence in the population. There are three variables in this study, namely the free variable, the bound variable, and the mediator variable. The independent variable in this study is Digital Citizenship, the bound variable is negative online behavior, and the mediator variable is learning outcomes.The following is the relationship between the variables that will be examined.

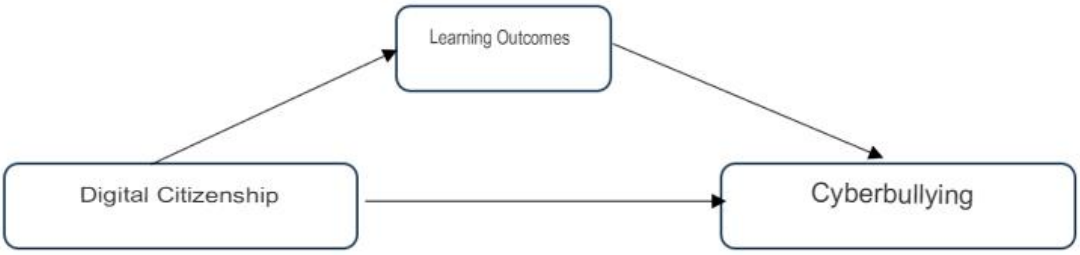

Figure 1. Causality Relationship of the Variables studied

The scoring guidelines used in this study use a likert scale using four alternative answers, which are as Table 1 & 2:

Table 1. Guidelines for Scoring Cyberbullying Victims & Perpetrators

Statement	Score
Never	3
Once	2
Several times a month	1
Every day of the month	0

Table 2. Digital Citizenship Scoring Guidelines

Statement	Score
Strongly agree	3
Agree	2
Disagree	1
Strongly disagree	0

For student learning outcomes, it is obtained from the report card score given by the teachers in each class. The learning outcome instruments used are taken from three main domains, namely cognitive, affective, and psychomotor. The combination of these three domains provides a comprehensive picture of student learning outcomes. The high achievement in each domain shows that students not only understand the material intellectually, but also internalize positive values and have good practical skills. This can affect student behavior, including in preventing involvement in negative behaviors such as cyberbullying.

This study uses descriptive statistical data processing and inferential statistical data processing. Descriptive statistics aim to describe the state of variables in the study, while inferential statistics aim to verify the truth whether there is a positive and significant relationship between digital citizenship, negative online behavior and learning outcomes. The data processing uses the help of the SPSS computer program. The inferential statistical test includes a prerequisite test and a hypothesis test. The prerequisite tests used are:

1) CFA (Confirmatory Factor Analysis) Internal Structure Validity Test
2) Reliability Test With SPSS
3) Descriptive Test of Respondent Descriptions
4) Categorization of Respondents
5) Normality Test
6) Correlation Test
7) Meanwhile, the mediator role hypothesis test (learning outcomes) using Process V 4.2 Hayes.

Participants

Participants were taken from a sample of two public junior high schools, namely SMP N 14 Denpasar and SMP N 6 Nusa Penida, with the characteristics of being located in the middle of Denpasar and on the outer island of Bali. The province of Bali as one of the provinces in Indonesia that still upholds tolerance and local wisdom so that it attracts researchers to conduct current research. The total population in this study was 1159 with a sample of 384 students, the number of participants after removing outliers was 353 participants. The description of the participants involved in this study consisted of students in grades one to three in junior high school aged 11 to 16 years with female and male genders. This study uses a random sampling system. The researcher also pays attention to research ethics in examining problems through the ethical review process by the University. There is no compulsion to participate in this study because the researcher first sends permission letters both for the school and to parents related to this research through informed consent which contains consent given by the parents of students. After getting a complete explanation of this research, the students have the right to participate or refuse to participate in this research.

Measurement

The method to be used is quantitative through the collection of questionnaire data containing individual reports on demographic aspects and additional information on internet use. The instrument used and adopted is based on Hinduja & Patchin (2008) on cyberbullying which is defined as intentional and repetitive negative behavior through the medium of electronic texts with the subject of the victim and the perpetrator. In a search through google scholar, this instrument has also been cited by 2437 scholars to measure the involvement of adolescents in cyberbullying. It will also be combined with other instruments by Finkelhor (2000), Raskauskas & Stoltz (2007) on demographic information and additional information on internet usage. The cyberbullying instrument of the victim and the perpetrator to find out the duration of how often they engage in this behavior uses a likert scale of 0-3 with four alternative answers (0=never; 1=once or twice; 2=several times a month; 3=every day of the month). The reliability of the adaptation of the measuring tool in cyberbullying as a victim using Alpha Cronbach is in the range of 0.867-0.935 while as a perpetrator is between 0.763-0.969.

The instrument to measure the second variable of digital citizenship from the research of Jones and Mitchell (2016) regarding the concept of digital citizenship is used to improve skills in polite online behavior and engagement as a good citizen when online and also (Choi et al. 2017) based on the analysis of the concept of digital citizenship is used to measure four elements of digital citizenship such as in the description of digital citizenship in the introduction, namely ethics, media and information literacy, critical involvement and resistance. However, in the current

study, the researcher only limited to three aspects related to the age of the participants were still adolescents through previous instruments, which included first, digital citizenship as an ethics that refers to good manners and internet responsibility, namely the dimension of self-respect and others; responsibility, namely in the dimension of educating oneself and relating to others; internet security, which is the dimension of protecting yourself and others; M. S. Ribble et al., (2004) in Al-Zahrani (2015) and Fernández-Prados et al., (2021). The results of reliability statistics on this digital citizenship measurement tool obtained through Cronbach's alpha coefficient show that the level of internal consistency exceeds 0.7. The details of the elements outlined in the statement on the questioner will be placed in the attachment. The three dimensions in the variable of digital citizenship as information media literacy contain the concept of a person's ability to utilize digital information technology such as accessing, using, creating and looking for additional information, using a 4-point likert scale with four alternative answers, namely (0 = strongly disagree to 3 = strongly agree).

In measuring learning outcomes, as mentioned in the definition of learning outcomes, Dodridge (1999) states that learning outcomes are learning outcomes obtained through the development of knowledge, understanding, intellectual abilities or practices in the learning process. Therefore, the final report of the average score of the semester exam in the learning process or student learning outcomes after completing a series of learning will be used as a measuring tool in measuring student learning outcomes.

RESULTS

The results of data analysis on the victim cyberbullying instrument (CBK) obtained through the validity test of the internal structure of CFA (Confirmatory Factor Analysis) through the JASP application found that the fit model data on the measuring tool was obtained SRMR data of 0.080 (<0.08), this shows a fit model which means that the data obtained is in accordance with the theoretical concept made. Meanwhile, the MSA (Measure Sampling Adequacy) of each item is close to 1 and the significance of the Bartlett test is <0.05 (p=<0.001), therefore the data can be processed by factor analysis. In Figure 1, the value of the factor loading item to the factor shows >0.300 and p<0.001 so all items are valid items for factors or dimensions.

In the perpetrator cyberbullying measurement tool (CBP), the results were obtained that based on the fit model data on the measuring tool, namely GFI 0.912 (>0.912) shows a fit model which means that it has met one of the fit tests, then the data obtained is in accordance with the theoretical concept made. Meanwhile, the MSA (Measure Sampling Adequacy) of each item is close to 1 and the significance of the Bartlett test <0.05) (p=<0.001), therefore the data can be processed with analysis factors. Based on the value of the factor loading item to the factor, it shows that there are three items below <0.300 so that the three items are declared invalid to the factor or dimension. The three items are in CBP1 item of 0.144; CBP2 of 0.048; and CBP3 of 0.009.

The results of the validity test on the digital citizenship (DC) measuring instrument were obtained from the results of the fit model data on the measuring instrument, namely SRMR 0.069 (>0.05), RMSEA 0.068 (<0.08), GFI 0.958 (>0.912), so that it shows that the fit model means that it has met one

of the fit tests, then the data obtained is in accordance with the theoretical concept made. Based on these results, it can be seen that the MSA (Measure Sampling Adequacy) of each item is close to 1 and the significance result of the Bartlett test is <0.05 (p=<0.001), therefore the data can be processed by factor analysis. Based on the loading factors obtained, it shows that as many as 7 items out of the total are <0.300 dimensions DC115=0.295, DC203=-0.178, DC205=0.296, DC207=0.132, DC208=0.248, DC210=0.287, DC303=0.225 so that the seven items are declared invalid for factors and dimensions.

Reliability testing using SPSS Alpha Cronbach CBK Cronbach Alpha value of .796 or 0.796 means reliable because it is above the standard of 0.6, this also shows that the CBK measuring tool has excellent reliability or reliable. Meanwhile, in CBP, the Cronbach Alpha value of .731 or 0.731 means reliable because it is above the standard of 0.6, this also shows that the CBP measuring tool has excellent reliability or reliable. A Cronbach Alpha value of .918 or 0.918 means rreliable because it is above the standard of 0.6, this also indicates that the DC measuring instrument has excellent reliability or reliability. In table 3 corrected item-total correlation indicates the reliability or consistency of the item's internal or item's alignment. The test of the alignment of the function of the item with the test measure function is carried out by calculating the correlation coefficient between the distribution of the score on each item and the distribution of the total score of the test itself. This procedure will produce a total item correlation coefficient (r it/item discrimination parameter. According to Azwar (2012), as a criterion for the limit of the coefficient >0.30. All items that achieve a correlation coefficient of at least 0.30 for their differential data are declared to meet the psychometric requirements as part of the test.

Table 3. Reliability and Validity Results Data

Measuring Instruments	**Reliability (α)**	**Fit Model**	**Loading Factor**	**Total Number of Items**	**Discarded Items**
CBK	.796	SRMR 0.080	0.415-0.696	9	None
CBP	.731	GFI 0.912	0.048-0.834	9	1,2,3
DC	.918	RMSEA 0.068	-0.178-0,667	46	115,203,205,207,208,210,303

Note: CBK (cyberbullying victim), CBP (Cyberbullying perpetrator), DC (Digital Citizenship)

Based on the descriptive test of the respondents' description, the results were obtained that this study used 353 participants with male sex (N=147; 41.6%) and women (N=206; 58.4%), with an age range of 11-16 years and the majority of participants aged 14 years (N=126; 35.7%). Participants are currently sitting in grades 7-9 with the description of grade 7 (N=129; 36.5), grade 8 (N=123; 71.4%), grade 9 (N=101; 100.0%). The majority of the participants' parents' jobs were in the self-employed sector (N=160; 45.3%). In addition to the demographic aspect, this study also contains seven additional items of information about internet use, the first is

the total duration of internet usage per day from the range of 0-1/2 hours to more than 7 hours which is dominated by the time range of internet use of 5-6 hours (N=55.15.6%), and the minimum use of 0-1/2 hours (N=11; 3.1%). Second, regarding the ownership of gadgets, it was shown that as many as 343 participants had gadgets while 10 participants did not have them. Third, the frequency of online activities shows that as many as (N=202.57.2%) often do online activities. Fourth, as many as (N=205; 58.1%) participants often carry out activities on social networks. Fifth, it was found that the majority of participants (N=217; 61.5%) uploaded or shared content online several times. Sixth, related to the frequency of online comments, participants responded several times to online peer content as many as (N=191; 54.1%). Seventh, namely about the intensity of internet use, it was found that participants used the internet very often (N=240; 68.0%). The description of demographic conditions and additional information in Table 4.

Table 4. Participant characteristics and additional information about Internet usage

Variable	**Category**	**Frequency**	**Percentage (%)**
Gender	Man	147	41.6
	woman	206	58.4
Age	11 years	-	-
	12 years	12	3.4
	13 years	114	32.3
	14 years	126	35.7
	15 years	94	26.6
	16 years	7	2.0
Class	Grade 7	129	36.5
	Grade 8	123	71.4
	Grade 9	101	100.0
Parental Occupation	Nurse	3	.8
	Housewives	7	2.0
	Civil servants	26	7.4
	Consultant	2	.6
	Lawyer	1	.3
	Farmer	97	27.5
	Driver	17	4.8
	Architect	3	.8
	TNI	1	.3
	Teacher	10	2.8
	Lecturer	2	.6
	Police	15	4.2
	Tour Guide	7	2.0
	Laborer	1	.3
	Self employed	160	45.3
	Ojek Online	1	.3
Total duration of internet usage per day	0-1/2 hours	11	3.1
	1/2-1hr	24	6.8
	1-2 hours	33	9.3

Variable	Category	Frequency	Percentage (%)
	2-3 hours	44	12.5
	3-4 hours	51	14.4
	4-5 hours	54	15.3
	5-6 hours	55	15.6
	6-7 hours	40	11.3
	>7 hours	41	11.6
Ownership of gadgets	Yes	343	97.2
	Not	10	2.8
Doing online activities	Often	202	57.2
	Several times	111	31.4
	Very	14	4.0
	Never	26	7.4
Social media activities	Often	205	58.1
	Several times	118	33.4
	Very	10	2.8
	Never	10	5.7
Uploading online content	Often	70	19.8
	Several times	217	61.5
	Very	23	6.5
	Never	43	12.2
Responding to content	Often	62	17.6
	Several times	191	54.1
	Very	44	12.5
	Never	56	15.9
High-intensity internet users	Yes	240	68.0
	Not	113	100.0

Based on the data collected, the next step is to categorize participants on each variable. The majority of participants had a moderate level of victim cyberbullying (CBK) of 86.7% (N=306). Meanwhile, the variable of cyberbullying perpetrators (CBP) is at a low level, which is as much as 100% (N=353). Meanwhile, participants had a moderate level of digital citizenship (DC) behavior of 63.5% (N=224). The learning outcomes of the participants showed that they were at a moderate level of 46.5% (N=164). Table 5 shows the results of the participant categorization test.

Table 5. Participant Categorization Data

Variable	Category	Score Range	Frequency	Percentage
DC	Low	94.835	56	15.9
	Keep	94.835-116.505	224	63.5
	Tall	≥ 116,505	73	20.7
CBK	Low	-0.634	-	-
	Keep	-0.634-6.274	306	86.7
	Tall	≥ 6,274	47	13.3
CBP	Low	39.848	353	100
	Keep	39.848-42.152	-	-
	Tall	42.152	-	-

Variable	Category	Score Range	Frequency	Percentage
HB	Low	600.91	153	43.3
	Keep	600.91-8303.084	164	46.5
	Tall	8303.084	36	10.2

Note: DC (*Digital Citizenship*), CBK (*Cyberbullying* Victim), CBP (*Cyberbullying* Perpetrator), HB (Learning Outcomes)

After the use of the normality test on the three test tools, the distribution has not been normal, then after being tested using residual data it becomes normal. Based on the normality test data on the CB and DC variables, it shows the value of asymp.sig. (2-tailed) 0.110, this shows that the variable data is normal using the asymptot method because the normal data condition is >0.05 shown in Table 6.

Table 6. Normality Test

Variable	Method	Sig Value (>0.05)	Information
Residual CBK & CBP	Asymptotic sig.2 tailed	.110	Nornal Distribution

Note: CBK (*Cyberbullying* Victim), CBP (*Cyberbullying* Perpetrator)

The results of the correlation test showed that DC was significantly negatively related to the victim's CB (r=-118, p<0.05), meaning that the higher the DC, the lower the occurrence of CBK. DC is negatively correlated significantly with the CB of the perpetrator (r=-276, p<0.01), meaning that the higher the DC, the lower the CB of the perpetrator. Learning outcomes were significantly negatively related to CBK (r=-.144, p<0.01) and CBP (r=-.199, p<0.05) meaning that the higher the student's learning outcome, the lower the CBK and CBP behavior. The results of the correlation test can be seen through Table 7.

Table 7. Results of Digital Citizenship Correlation Test, Victim Cyberbullying, Perpetrator Cyberbullying

It	Variable	Mean	SD	1	2	3	4	5	6	7
1	Cyberbullying victims	.313	.384	1						
2	Cyberbullying perpetrators	.168	.192	.440**	1					
3	Digital Citizenship	2.710	.278	-.118*	-.276**	1				
4	DC1_menghargai self & other orgs	2.693	.302	-.093	-.254**	.954**	1			
5	DC2_mendidik Yourself	2.733	.334	-.106*	-.187**	.795**	.665**	1		
6	DC3_Melindungi self & other orgs	2.734	.317	-.133*	-.269**	.825**	.649**	.630**	1	
7	Learning outcomes	4451.997	3851.087	-.144**	-.119*	.551**	.568**	.532**	.301**	1

Note **. Correlation is significant at the 0.01 level (2-tailed) *. Correlation is significant at the 0.05 level (2-tailed)

In order to find out the role of the mediator, a test of the role of the mediator was carried out on both victim *cyberbullying* (CBK) and *perpetrator cyberbullying* (CBP) using a process program through the channel. The following is the interpretation of the results of the mediation role test *of digital citizenship* (DC), learning outcomes (HB), *victim cyberbullying* (CBK) Path a is the influence of X (DC) to M (HB) From the output above, the coefficient of path a is 7633.159 and is significant at the level of p<0.05 (0.000). The c' pathway is the influence of X (*digital citizenship*) to Y (*cyberbullying* of the victim**)** or the direct effect of X to Y without intermediaries. The coefficient of the c' pathway is -0.077, p 0.382 so it is not significant at the level of p<0.05. This means that there is no direct influence/effect of DC to CBK. Path b is the effect of M (HB) to Y (CBK), the coefficient of path b is 0.000 and p 0.074 (>0.05) so it is not significant at the level of p<0.05.

This means that there is no influence/effect of learning outcomes on CBK. The c path is the total effect X (DC) to Y (CBK), The total effect can also be calculated by adding the direct effect minus the indirect effect, or the sum of the c path + the path (a*b). The total effect coefficient is -0.163, LLCI -0.307 and ULCI -0.019 so that it does not go through O can be interpreted that DC plays a role/influence on CBK and is significant at the level of p<0.05 (0.027). Because pathway a is significant while pathway b is not significant, if referring to the guidelines of Baron and Kenny (1986) it is said that HB does not play a role as a mediator because it is said to play a role if both pathways a and b play a role or have a significant effect. In Hayes' concept, the output of the indirect effect X to Y part is used to see if there is a mediation effect or not. It is written that the indirect coefficient is -0.086. The internal confidence interval (CI) of the bootstrap results is written BootLLCI lower level for CI) =-0.183 and BootULCI (upper level for CI) =0.006. Based on these data, it can be concluded that the estimation is not significant and there is no mediation because the BootLLCI and BootULCI ranges pass the zero (0) value, then it can be concluded that the estimation is not significant and there is no mediation effect, learning outcomes do not play a role in the X(DC) to Y(CBK) relationship. The path analysis in the DC-HB-CBK mediator role test is shown in Figure 2.

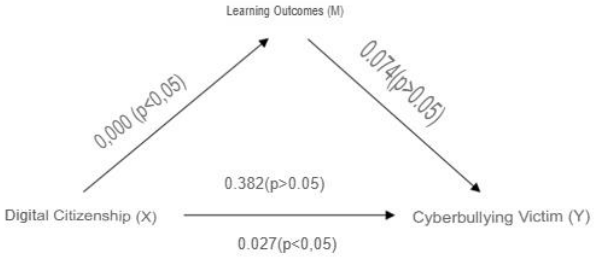

Figure 2. Direct Effect of DC, HB, CBK Mediator Models

In the mediator role test DC, HB, CBP also uses the Hayes process program with the interpretation that path a is the influence of X (DC) to M (HB), from the output obtained, the coefficient of path a is 7633.159 and p 0.000 is significant at the level of p<0.05. This means that there is an influence of DC on learning outcomes. The c' pathway is the influence of X (digital citizenship) to Y (Cyberbullying victims) or the direct effect

of X to Y, the coefficient of the c' pathway is -0.309 with p 0.000 so that it is significant at the level of p<0.05. This means that there is a direct influence of DC on CBP. Path b is the effect of M (HB) to Y (CBP), the coefficient of line b is 0.000 and p=0.446 (>0.05) so it is not significant at the level of p<0.05. This means that there is no effect between HB and CBP. The c path is the total effect X (DC) to Y (CBP), The total effect can also be calculated by adding the direct effect minus the indirect effect, or the sum of the c path + the path (a*b). The total effect coefficient is -0.191, LLCI -0.261 and ULCI -0.121 so through O it can be interpreted that DC plays a role to CBP through intermediaries and is significant at the level of p<0.05 (0.000). Because path a is significant while path b is not significant, if referring to the guidance of Baron and Kenny (1986) it is said that Hb does not play a role as a mediator because it is said to play a role if both pathways a and b play a role. In Hayes' concept, the output of the indirect effect X to Y part is used to see if there is a mediation effect or not. It is written that the indirect coefficient is 0.018 Internal confidence (Confidence interval / CI) from the results of the bootstrap written BootLLCI lower level for CI) =-0.036 and BootULCI (upper level for CI) =0.090. Based on these data, it can be concluded that the estimate is not significant and there is no mediation because the BootLLCI and BootULCI ranges because they cross the zero (0) value, then it can be concluded that the estimate is not significant and there is no mediation effect, the mediator does not play a role in the X(DC) to Y(CBP) relationship. The analysis of the path is seen through Figure 3.

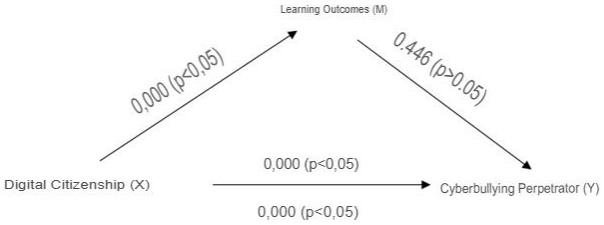

Figure 3. Direct Effect of DC, HB, CBP Mediator Models

From the results of the total influence in figure 1, DC (0.027, p<0.05) can be scr effectively predicting HB. Learning outcomes (0.074, p>0.05) so that they are not predictors of CBP. Based on table 8, it is described that it does not support the research hypothesis, namely HB does not mediate the relationship between DC and CBK (p<0.05, 95% CI [-0.183, 0.006]) and HB does not mediate the relationship between DC and CBP (p<0.05.95% CI [-0.036,0.090]).

Table 8 Mediator Test Results

Indirect Effect	Coefficience	LCCI	ULCI	Information
DC-HB-CBK	-0,086	-0,183	0,006	does not play the role of mediator
DC-HB-CBP	0,018	-0,036	0,090	does not play the role of mediator

Note: LCCI (Lower Level for Confidence Interval), ULCI (Upper Level for Confidence Interval), DC (Digital citizenship), HB (Learning Outcomes), CBK (Cyberbullying victim), CBP (Cyberbullying perpetrator)

DISCUSSION

Adolescence is one of the crucial stages of human development in the age range of 10-18 years which can be seen from motor skills, thinking development, emotional development and other aspects into stages of self-discovery by doing several ways such as reading, joining the community, discussing with others so that they tend to begin to separate themselves from their parents and expand relationships with peers both in the real and virtual world with various The influence in it so that several strategies are needed so as not to fall into negative online cyberbullying behavior, one of which is through digital citizenship behavior.

Digital Citizenship is a definition that encourages a person to participate online and also as an ethical behavior in cyberspace described through nine elements Ribble et al., (2004) which contains how responsible and ethical the use of technology is good. Digital citizenship can be elaborated on the curriculum in schools, this is in accordance with the results of research by Isdendi et al., (2023) that through an emphasis on the younger generation, as good Indonesian citizens, it is necessary to introduce the importance of ethics in cyberspace which aims to create digital ethical responsibilities for citizens and actively contribute positively to the online environment. Agustin et al., (2023) in their research found that civic education learning is one that contains the values of good citizens in shaping the character of adolescents who are good, tolerant, and intelligent in dealing with social issues so that they can be used to overcome bullying behavior. If associated with negative online cyberbullying behavior, this learning is also contained in digital citizenship which can be recommended to be applied to the school curriculum to reduce the number of these behaviors.

Regarding digital citizenship, Lauricella et al., (2020) stated that three-quarters of teachers in grades 3 to 5 have implemented digital citizenship in the classroom which contains online security and privacy, cyberbullying, and digital literacy as an effort to prevent students from behaving negatively online. Research by Doumas & Midgett, (2020) conducted on junior high school students suggests implementing strategies through a program for students involved in cyberbullying to reduce the risk of mental health disorders that can affect learning outcomes. Research by Zhong et al., (2021) stated that although the involvement of cyberbullying in students is at a low level, it still requires attention to prevent cyberbullying through the implementation of digital citizenship. Therefore, this research was conducted to find out more about the relationship between digital citizenship, cyberbullying, and the role of learning outcomes as mediators.

Giumetti et al., (2022) through the results of their research mentioned the need to identify individuals involved in cyberbullying in order to provide intervention as an effort to prevent this behavior, in addition to the need for counseling programs to maintain student mental health to reduce the number of student involvement in cyberbullying. Al-Rahmi et al., (2022) through their research on cyberbullying as a moderator stated that collaborative learning on constructivism theory by utilizing social media has an effect on learning outcomes, stating that the use of social media can prevent cyberbullying behavior among students (Widyarto et al., 2024). Arnon et al., (2022) in their research

stated that due to cyberbullying, there is a potential risk of suicide and it is possible for the victim to be the next perpetrator, so policies are needed in the world of education to implement strategies through control of adolescents involved in cyberbullying. Halliday et al (2023) stated that victims of cyberbullying showed lower academic achievement compared to those who had never been a victim, but further in this study, the relationship between learning achievement and cyberbullying perpetrators has not been explored (Silitonga & Batubara, 2023).

The results of this study stated that adolescents very often use the internet with an intensity of 5-6 hours per day, this result is also in line with the previous findings of Hermanto et al., (2023) based on the duration of internet use among Surabaya high school students for 4-5 hours a day with a percentage of 83.9%. Regarding the relationship between digital citizenship behavior as a respectful behavior and also as the application of digital ethics has produced significant data so that it is concluded that digital citizenship behavior education is important to be applied as the key in guiding students to be more responsible and understand online ethics in using technology. This is also in accordance with the findings of the Doumas & Midgett (2020) research conducted on junior high school students suggesting implementing strategies through a program for students involved in cyberbullying to reduce the risk of mental health disorders that can affect learning outcomes.

The results of this study explain that there is a correlation between cyberbullying and negative learning outcomes, which means that the higher the tendency to become a victim or perpetrator of cyberbullying, the more it will have an impact on learning outcomes. As has been explained in several studies from (Torres Cortés et al., 2019) that there is a negative relationship between cyberbullying and learning outcomes, namely victims of cyberbullying can reduce academic achievement. Meanwhile, the results of the correlation in the findings of the study by Zhong et al., (2021) with student participants in China stated that the level of knowledge of digital citizenship of students was significantly negatively related to cyberbullying of perpetrators but not significantly with cyberbullying of victims, this indicates that through increasing digital citizenship in students can significantly help the tendency to cyberbullying others. Therefore, digital citizenship is essential to be applied as an ethical provision when using technology so as not to become a victim or perpetrator of cyberbullying.

Likewise, the impact of digital citizenship on cyberbullying is a strategy that can be used to reduce cyberbullying behavior. The findings in this study that digital citizenship is negatively related to victim cyberbullying means that when you have good digital citizenship behavior, it means that the victim cyberbullying is lower. The results showed that the learning outcomes were negatively related to the victim's cyberbullying and the perpetrator's cyberbullying, which meant that the higher the learning outcome, the lower the victim's cyberbullying behavior and the perpetrator's cyberbullying. In accordance with the findings in the research conducted by Al-Rahmi et al (2020), one of the other strategies, namely social media collaborative learning, is effectively used to reduce cyberbullying.

The findings of this study are in line with previous research by Charoenwanit (2018) on Thai adolescents who stated that

there is a positive relationship between cyberbullying victims and cyberbullying perpetrators with learning outcome problems, the group of cyberbullying victims and cyberbullying perpetrators get low learning outcomes after or while being bullied or bullied while the group that is not involved in cyberbullying has higher academic scores. Based on this data, it was also found that the cause of the decline in academic grades was also due to the victim's embarrassment so that he did not want to meet other people and was absent from school which resulted in a decrease in learning results. In the additional information item, it is also mentioned that early adolescents spend their time on the internet and use social networking systems such as Facebook, Google, and Line.

This is in line with Ezewulu & Ebenebe (2022), through the results of their research, it was also concluded that there was no significant difference in the average academic achievement score for adolescents who were victims and perpetrators of cyberbullying with the implication that both victims and perpetrators did not differ significantly in their average academic achievement scores (Pohan, Khadijah, et al., 2024). However, the research cannot be generalized to the overall score of the main subjects because it only takes Mathematics and English subjects, while this study includes an average of 11 subjects set by the government in the final achievement report, namely Hindu religious education, PPKn, Indonesian, Mathematics, Science, Social Studies, English, PJOK, ICT, Arts, Balinese language.

This research is in line with the findings of Liu et al (2021) who stated in their research on 3rd and 4th grade elementary school participants in China that the relationship between cyberbullying and significant learning outcomes is on a small scale so that cyberbullying cannot predict low learning achievement in Chinese, Mathematics, and English subjects in each semester. The results of the findings also stated that academic achievement through direct channels predicted the occurrence of victim cyberbullying, but the perpetrator's cyberbullying was not further researched. Until now, research on the relationship between learning outcomes and victim cyberbullying and perpetrator cyberbullying still has diverse and varied evidence, therefore further research is still needed.

Through the mediator role test using SPSS, the process program resulted in learning outcomes that did not mediate the relationship between digital citizenship behavior and victim cyberbullying, as well as victim cyberbullying with scores of ($p<0.05$, 95% CI [-0.183, 0.006) and ($p<0.05$, 95% CI [-0.036,0.090]). The results of this study answer the hypothetical question that learning outcomes do not play a mediator role between the relationship between digital citizenship behavior and cyberbullying behavior for both victims and perpetrators. Therefore, the results in this study are not in line with the results of previous research conducted by Duneway & Macharia (2021) which was mentioned in the results of the mediator role test through the PLS-SEM approach method, bootstrap analysis shows that the influence of indirect effects is significant ($\beta=.758, p<.05$), while the direct effect ($\beta=.768, p<.05$) so that it can be said that the learning outcomes play a role as a mediator of the relationship between digital citizenship and cyberbullying perpetrators and In other words, learning outcomes play an important role in cyberbullying behavior. Learning outcomes do not mediate the relationship between

digital citizenship and cyberbullying behavior, this can be due to the magnitude of the dimensions measured in learning outcomes that are not fully relevant to explain negative online behaviors, especially the affective and social aspects that play a role in cyberbullying. The measurement of learning outcomes is not comprehensive enough to be able to capture relevant elements such as empathy or self-control.

Some differences between this study and the Duneway & Macharia (2021) research can be seen through the participation of 184 college students majoring in Information Engineering, a five-dimensional digital citizenship behavior measurement tool, namely technical skills (TS), Local/global awareness (LGA), Internet political Activism (IPA), Critical perspective (CP), and nertworking agency (NA) with a likert scale of 7 points in the range of 1 strongly disagree and 7 strongly agree; learning outcomes using direct and indirect assessment methods on the perception of students' abilities on a Likert scale of 1-5 (1 strongly disagrees to 5 strongly agrees); Meanwhile, the measuring tool used to measure cyberbullying behavior uses frequency but only on cyberbullying perpetrators in the last 12 months from a scale of 1 (not at all) to 7 (very rare).

In this study, there are many limitations of the study, such as participants only taking two populations in one place so that they cannot be generalized in other places. Based on these results, future research is expected to be able to measure the cyberbullying victim to find out the role of mediators, in addition to that additional measuring tools are needed in measuring learning outcomes by combining academic achievements written in the final learning outcome report and also the perception of learning outcomes of each individual, and also using more participants from several levels of education so that it can be generalized to all ages. Although there are differences in the results of these two studies, it emphasizes the need to apply digital citizenship behavior education as an ethics in using technology to recommend the prevention of cyberbullying behavior.

CONCLUSION

The results of the research conducted on junior high school students Show that although there is a role of digital citizenship behavior in cyberbullying behavior. However, the mediator of learning outcomes cannot mediate the relationship between the two variables. This research contributes to the literature on both digital citizenship, cyberbullying, and also learning outcomes by including the supporting dimensions of each variable. The implications of this study include that schools, parents, and the government should be able to include this digital citizenship behavior education as a recommendation in an effort to prevent negative online cyberbullying behavior. The implications for adolescents, it is very important to understand positive digital citizenship behaviors, such as respecting the rights and privacy of others and thinking critically before interacting online. This will help prevent involvement in negative online cyberbullying behavior. By understanding, improving, and applying digital literacy skills and understanding of the social consequences of their actions, adolescents will become responsible digital citizens and avoid negative online cyberbullying behaviors.

The results of this study show that although there is a role of digital citizenship

behavior on cyberbullying behavior, learning outcomes do not succeed in mediating the relationship between the two variables. This indicates that efforts to improve learning outcomes are not strong enough to reduce cyberbullying behavior through increasing digital citizenship. Thus, other factors beyond learning outcomes may be more relevant as mediators, such as support from the social environment, supervision from parents, or increased awareness of the negative impact of cyberbullying. Further research is needed to explore the variables that can more effectively mediate the relationship between digital citizenship and cyberbullying in junior high school students.

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CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

Elisa Ika Yuniawati: Conceptualization, Data curation, Funding, Writing-original draft, Writing-review & editing, **Sri Tiatri**: Writing-review & editing, **Jap Tji Beng**: Conceptualization, Writing-review & editing.

DECLARATION OF COMPETING INTEREST

The Authors Declare No Conflict of Interest in This Paper.

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