



The Role of Educational Policy in Mitigating Cyberbullying and Its Impact on Students' Cognitive Development

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Abstract

The rapid development of information and communication technology has significantly transformed students' social interactions, particularly through digital platforms, which has also increased the risk of cyberbullying. This study aims to examine the role of educational policy in mitigating cyberbullying and its impact on students' cognitive development. A quantitative approach with an ex post facto design was employed, involving elementary school students as research participants. Data were collected using Likert-scale questionnaires measuring educational policy implementation, cyberbullying experiences, and cognitive development, and were analyzed using descriptive statistics, multiple regression, and path analysis. The findings indicate that educational policy has a significant negative effect on cyberbullying, suggesting that better policy implementation contributes to reducing cyberbullying incidents. Furthermore, cyberbullying has a significant negative impact on students' cognitive development, particularly in terms of concentration, critical thinking, and problem-solving abilities. The mediation analysis reveals that cyberbullying acts as an intervening variable in the relationship between educational policy and cognitive development. This means that educational policy not only has a direct influence on cognitive outcomes but also indirectly affects them through the reduction of cyberbullying. These results highlight the importance of strengthening educational policies that integrate digital literacy, character education, and preventive strategies to create a safe learning environment. Effective policy implementation can minimize the negative impact of cyberbullying and support optimal cognitive development among students. This study contributes to the existing literature by providing empirical evidence on the interconnected relationship between educational policy, cyberbullying, and cognitive development in the context of digital education.

Introduction

The development of information and communication technology has transformed the social interaction patterns of students, particularly through the use of digital media in everyday life (Tila & Cera, 2021; Suherman et al., 2026; Kaissi & Abdelghanie, 2026). While technology offers significant benefits in supporting the learning process, it also creates new problems, one of which is cyberbullying. This phenomenon is increasing along with the high use of social media by children and adolescents, and has even become a global issue in education (Marín-Suelves et al., 2023; Bautista, 2024; Samala et al., 2024; Samala et al., 2024; Lahti et al., 2024). The anonymous nature, unlimited time and space, and broad reach of cyberbullying make it more complex than conventional bullying, requiring serious attention from various parties,

particularly educational institutions (Ng et al., 2022; Cretu & Morandau, 2024; Sabrin, 2022; Saleh & Hanum, 2025).

The impact of cyberbullying is not limited to psychological aspects, such as anxiety, depression, and low self-confidence, but also impacts students' cognitive aspects (Aseeri, 2026; Zayed, 2026; Agustiningsih et al., 2024). The psychological distress experienced by victims can disrupt concentration, reduce learning motivation, and hinder critical thinking and problem-solving skills (Ferreira et al., 20223; Yang & Lu, 2024; Mulyana et al., 2026). Research shows that victims of cyberbullying tend to have lower cognitive abilities and metacognitive strategies than students who are not bullied (Solas-Martínez et al., 2025). Furthermore, involvement in cyberbullying is also associated with impaired emotional regulation, which impacts thinking processes and decision-making (Liang et al., 2026). Thus, cyberbullying is not only a social issue but also directly impacts the quality of learning and cognitive development of students (Awaah et al., 2024; Long et al., 2026; Alismaiel, 2023; González-Cabrera & Machimbarrena, 2023; Güçlü-Aydoğan et al., 2025).

In the context of education, policy plays a strategic role as an instrument for creating a safe and conducive learning environment (Sher & Inamullah, 2025). In Indonesia, protecting students from violence is regulated in Law Number 20 of 2003 concerning the National Education System, which emphasizes that education must be conducted democratically, fairly, and uphold human rights. Furthermore, Law Number 35 of 2014 concerning Child Protection affirms children's right to protection from all forms of violence, including those occurring in the digital space. This policy is reinforced by derivative regulations that emphasize the prevention and handling of violence in educational institutions as part of efforts to create a safe learning environment (Alhalalmeh & Al-Tarawneh, 2025; Nursyifa et al., 2026; Kisbiyanto, 2025).

Conceptually, education policy functions not only as a regulatory tool but also as a preventive and curative strategy in mitigating cyberbullying. Effective policy implementation, such as integrating digital literacy, character education, and strengthening a positive school culture, can reduce the risk of cyberbullying (Marín-Suelves et al., 2023; Nurhayati et al., 2026; Nadiyah et al., 2025). Research also shows that digital literacy and cognitive emotion regulation skills act as protective factors in mitigating the negative impacts of cyberbullying (Liang et al., 2026; Golchoobi & Nooripour, 2025; Vo et al., 2026; Tao et al., 2024). However, various studies reveal that policy implementation in the field is still suboptimal, both in terms of understanding, school readiness, and the availability of systematic handling mechanisms.

Several previous studies have focused more on the psychological impact of cyberbullying or strategies for dealing with it from the perspective of the individual and the social environment. For example, research by Knauf and Eschenbeck (2025) highlighted the link between the role of cyberbullying and students' socio-cognitive responses, while other studies emphasized its impact on psychological well-being (Carvalho et al., 2021; Heiman & Olenik-Shemesh, 2022; Varela et al., 2022; Kwan et al., 2020; Aliyu et al., 2025). However, studies that comprehensively link educational policies, cyberbullying mitigation, and their impact on students' cognitive development are still relatively limited. This indicates a research gap that requires further exploration, particularly in examining the role of educational policies as structural factors that can influence both the learning environment and student learning outcomes.

Based on this description, this study begins with the premise that educational policies are closely related to cyberbullying mitigation efforts and students' cognitive development. Effective policies are believed to be able to suppress cyberbullying, create a safe learning environment, and support the optimization of students' cognitive abilities. Conversely, weak

policy implementation has the potential to increase the risk of cyberbullying, resulting in a decline in the quality of learning. Therefore, this study seeks to examine the role of educational policy in mitigating cyberbullying, how this phenomenon impacts students' cognitive development, and the extent to which educational policy can contribute to minimizing these negative impacts. Thus, the purpose of this study is to analyze the role of educational policy in mitigating cyberbullying, identify its impact on students' cognitive development, and examine the policy's contribution to reducing the negative impact of cyberbullying on students' cognitive abilities.

Methods

This study employed a quantitative approach with an ex post facto research design. This design was used because the study examined relationships among variables that had already occurred naturally and did not involve manipulation or experimental treatment. The study focused on analyzing the role of educational policy in mitigating cyberbullying and its impact on students' cognitive development. Educational policy was positioned as the independent variable, cyberbullying as the mediating variable, and students' cognitive development as the dependent variable.

The population of this study consisted of elementary school students in grades four, five, and six. These grade levels were selected because students at this stage have begun to interact with digital media and are also developing important cognitive skills such as concentration, comprehension, critical thinking, and problem solving. The sample consisted of 85 students selected using proportionate stratified random sampling based on grade level. This sampling technique was used to ensure that each grade level was proportionally represented in the study sample.

The variables in this study consisted of educational policy, cyberbullying, and students' cognitive development. Educational policy refers to students' perceptions of school policy implementation related to cyberbullying prevention and digital behavior regulation. This variable includes school rules, policy socialization, teacher supervision, and preventive actions implemented by the school. Cyberbullying refers to students' experiences or observations of online bullying, including online teasing, negative comments, the spread of harmful information, and exclusion in digital interaction. Students' cognitive development refers to students' learning related cognitive abilities, including concentration, comprehension, critical thinking, and problem solving.

Data were collected using a structured questionnaire developed based on the indicators of each variable. The questionnaire used a four point Likert scale to avoid neutral responses and to encourage respondents to provide clearer answers. The scale ranged from 1 to 4, where higher scores indicated stronger agreement or higher intensity based on the nature of each item. For educational policy and cognitive development, higher scores indicated better perceived policy implementation and better cognitive development. For cyberbullying, higher scores indicated higher exposure to cyberbullying experiences.

The research instrument consisted of three variable groups. The educational policy variable was measured through items related to the existence of school rules, policy socialization, teacher supervision, reporting mechanisms, and student involvement in cyberbullying prevention. The cyberbullying variable was measured through items related to online teasing, negative digital comments, exclusion in online interaction, the spread of harmful information, and students' perceived exposure to cyberbullying. The cognitive development variable was

measured through items related to concentration, comprehension, critical thinking, problem solving, and learning engagement.

Before being used in the main analysis, the research instrument was tested for validity and reliability. The validity test was conducted using Pearson Product Moment correlation. An item was considered valid when the calculated r value was higher than the r table value and the significance value was lower than 0.05. With 85 respondents, the r table value used in this study was 0.213 at the 0.05 significance level. The reliability test was conducted using Cronbach's Alpha. A variable was considered reliable when the Cronbach's Alpha value was equal to or higher than 0.70. These tests were conducted to ensure that the instrument was both empirically valid and internally consistent before being used for further statistical analysis.

The data analysis was conducted in several stages. First, descriptive statistical analysis was used to describe the general tendency of each variable. The descriptive analysis included the number of respondents, mean, standard deviation, minimum score, maximum score, and category. Because the questionnaire used a four point Likert scale, the interpretation of mean scores was based on the following score range. A mean score of 1.00 to 1.75 was categorized as low, 1.76 to 2.50 as fair, 2.51 to 3.25 as moderate, and 3.26 to 4.00 as good. This classification was used to interpret the descriptive condition of educational policy, cyberbullying, and students' cognitive development.

Second, assumption tests were conducted before regression analysis. The normality test was conducted using the Kolmogorov Smirnov test to determine whether the residual data were normally distributed. The data were considered normally distributed when the significance value was higher than 0.05. The linearity test was conducted to determine whether the relationship between variables followed a linear pattern. A relationship was considered linear when the linearity significance value was lower than 0.05 and the deviation from linearity value was higher than 0.05. The multicollinearity test was conducted using tolerance and Variance Inflation Factor values. The regression model was considered free from multicollinearity when the tolerance value was higher than 0.10 and the VIF value was lower than 10.

Third, regression analysis was used to test the direct effects among the variables. Simple regression analysis was used to examine the effect of educational policy on cyberbullying and the effect of cyberbullying on students' cognitive development. Multiple regression analysis was used to examine the simultaneous effect of educational policy and cyberbullying on students' cognitive development. The regression coefficients were interpreted using the unstandardized coefficient, standard error, standardized beta, t value, and significance value. A hypothesis was accepted when the significance value was lower than 0.05.

Fourth, the model summary and ANOVA test were used to determine the explanatory strength and overall significance of the regression model. The model summary reported the R value, R^2 value, adjusted R^2 value, and standard error of estimate. The R^2 value was used to determine the proportion of variance in students' cognitive development explained by educational policy and cyberbullying. The ANOVA test was used to determine whether the regression model was statistically significant as a whole. The model was considered significant when the F test significance value was lower than 0.05.

Fifth, mediation analysis was conducted to examine whether cyberbullying mediated the relationship between educational policy and students' cognitive development. The mediation effect was examined through path analysis by calculating the direct effect, indirect effect, and total effect. The indirect effect was obtained by multiplying the path coefficient from educational policy to cyberbullying with the path coefficient from cyberbullying to cognitive

development. To strengthen the mediation conclusion, the Sobel test was used to determine whether the indirect effect was statistically significant. Mediation was considered significant when the Sobel test significance value was lower than 0.05. If both the direct effect and indirect effect were significant, the mediation was interpreted as partial mediation. If the indirect effect was significant but the direct effect became non significant after the mediator was included, the mediation was interpreted as full mediation.

Through these analytical procedures, the study was able to examine the relationship between educational policy, cyberbullying, and students' cognitive development in a systematic manner. The method was designed to provide empirical evidence not only on the direct effect of educational policy on students' cognitive development, but also on the indirect effect that operates through the reduction of cyberbullying. This methodological structure is consistent with the purpose of the study, which is to analyze the role of educational policy in mitigating cyberbullying and supporting students' cognitive development in the digital era.

Results and Discussion

The results of this study are presented systematically to provide clear empirical evidence regarding the role of educational policy in mitigating cyberbullying and its impact on students' cognitive development. The analysis begins with instrument validity and reliability testing, followed by descriptive statistics, assumption testing, regression analysis, model summary, ANOVA testing, and mediation analysis. This structure was used to ensure that each statistical conclusion is supported by complete and verifiable quantitative data. Before conducting the main analysis, the validity of the questionnaire items was examined using the Pearson Product Moment correlation. This test was conducted to determine whether each questionnaire item was able to measure the intended construct. The instrument measured three main variables, namely educational policy, cyberbullying, and students' cognitive development. With 85 respondents, the r table value at the 0.05 significance level was 0.213. An item was considered valid when the calculated r value was higher than the r table value and the significance value was lower than 0.05. The validity test results are presented in Table 1.

Table 1. Validity Test Results of the Research Instrument

Variable	Item Number	Calculated r Value	r Table Value	Sig.	Decision
Educational Policy	EP1	0.641	0.213	0.000	Valid
Educational Policy	EP2	0.688	0.213	0.000	Valid
Educational Policy	EP3	0.724	0.213	0.000	Valid
Educational Policy	EP4	0.603	0.213	0.000	Valid
Educational Policy	EP5	0.697	0.213	0.000	Valid
Cyberbullying	CB1	0.672	0.213	0.000	Valid
Cyberbullying	CB2	0.736	0.213	0.000	Valid
Cyberbullying	CB3	0.781	0.213	0.000	Valid
Cyberbullying	CB4	0.695	0.213	0.000	Valid
Cyberbullying	CB5	0.714	0.213	0.000	Valid
Cognitive Development	CD1	0.658	0.213	0.000	Valid
Cognitive Development	CD2	0.701	0.213	0.000	Valid
Cognitive Development	CD3	0.745	0.213	0.000	Valid

Cognitive Development	CD4	0.692	0.213	0.000	Valid
Cognitive Development	CD5	0.719	0.213	0.000	Valid

Based on Table 1, all questionnaire items had calculated *r* values higher than the *r* table value of 0.213 and significance values below 0.05. This indicates that all items used to measure educational policy, cyberbullying, and students' cognitive development were valid. Therefore, all items were retained for further reliability testing and statistical analysis. After the validity test, reliability testing was conducted using Cronbach's Alpha. This test was used to examine the internal consistency of the items in each variable. A variable was considered reliable when the Cronbach's Alpha value was equal to or higher than 0.70. The reliability test results are presented in Table 2.

Table 2. Reliability Test Results

Variable	Number of Valid Items	Cronbach's Alpha	Reliability Criterion	Decision
Educational Policy	5	0.837	≥ 0.70	Reliable
Cyberbullying	5	0.861	≥ 0.70	Reliable
Cognitive Development	5	0.848	≥ 0.70	Reliable

The reliability test results show that all variables had Cronbach's Alpha values above 0.70. The educational policy variable obtained a Cronbach's Alpha value of 0.837, the cyberbullying variable obtained 0.861, and the cognitive development variable obtained 0.848. These results indicate that the research instruments had acceptable internal consistency and were reliable for measuring the constructs examined in this study. Descriptive statistical analysis was then conducted to describe the general condition of each research variable. The analysis involved 85 elementary school students as respondents. The variables were measured using a four point Likert scale. The score range used for interpretation was 1.00 to 1.75 as low, 1.76 to 2.50 as fair, 2.51 to 3.25 as moderate, and 3.26 to 4.00 as good. The descriptive statistics are presented in Table 3.

Table 3. Descriptive Statistics of Research Variables

Variable	N	Mean	Std. Deviation	Minimum	Maximum	Category
Educational Policy	85	3.21	0.46	2.20	4.00	Moderate
Cyberbullying	85	2.67	0.52	1.60	3.80	Moderate
Cognitive Development	85	3.05	0.49	2.00	4.00	Moderate

The descriptive results show that the educational policy variable obtained a mean score of 3.21, which falls into the moderate category. This indicates that educational policy related to cyberbullying prevention had been implemented in schools through school regulations, teacher supervision, and socialization regarding digital behavior. However, the moderate category also suggests that policy implementation was not yet fully optimal, particularly in terms of consistency, monitoring, and active student involvement in prevention programs.

The cyberbullying variable obtained a mean score of 2.67, which is also categorized as moderate. This finding indicates that cyberbullying still occurred among students, although it was not at a high level. The forms of cyberbullying experienced or observed by students

included online teasing, negative comments, the spread of harmful information, and exclusion in digital interaction. This result confirms that cyberbullying remains a relevant issue in the elementary school context, especially as students increasingly interact through digital media.

The cognitive development variable obtained a mean score of 3.05, which is categorized as moderate. This indicates that students' cognitive development was generally adequate, particularly in terms of concentration, comprehension, critical thinking, and problem solving. However, the moderate score also suggests that students' cognitive development still requires stronger support from a safe and conducive learning environment. Students who are exposed to cyberbullying may experience difficulties in focusing on lessons, understanding learning materials, and engaging in higher order thinking activities. Before regression analysis was conducted, assumption tests were performed to ensure that the data met the requirements for parametric analysis. The assumption tests included normality, linearity, and multicollinearity tests. The normality test was conducted using the Kolmogorov Smirnov test.

Table 4. Normality Test Result

Test Type	Statistical Value	Sig.	Decision
Kolmogorov Smirnov	0.074	0.200	Normally distributed

The normality test showed a significance value of 0.200, which is higher than 0.05. This means that the data were normally distributed and met the normality assumption for regression analysis. Therefore, the data were appropriate for further inferential testing. The linearity test was conducted to determine whether the relationships between the variables followed a linear pattern. The results are presented in Table 5.

Table 5. Linearity Test Results

Relationship Between Variables	Linearity Sig.	Deviation from Linearity Sig.	Decision
Educational Policy and Cyberbullying	0.000	0.318	Linear
Cyberbullying and Cognitive Development	0.000	0.276	Linear
Educational Policy and Cognitive Development	0.000	0.241	Linear

The linearity test results show that the relationships among the research variables were linear. The linearity significance values were 0.000, which are lower than 0.05, while the deviation from linearity values were higher than 0.05. This indicates that the relationships between educational policy and cyberbullying, cyberbullying and cognitive development, and educational policy and cognitive development followed a linear pattern. Therefore, the data were suitable for regression analysis. The multicollinearity test was conducted to ensure that the independent variables did not have excessive correlation that could interfere with the regression model. The results are presented in Table 6.

Table 6. Multicollinearity Test Results

Independent Variable	Tolerance	VIF	Decision
Educational Policy	0.742	1.348	No multicollinearity
Cyberbullying	0.742	1.348	No multicollinearity

The multicollinearity test showed that both independent variables had tolerance values above 0.10 and VIF values below 10. Educational policy and cyberbullying each obtained a tolerance

value of 0.742 and a VIF value of 1.348. These results indicate that there was no multicollinearity problem in the regression model. Therefore, educational policy and cyberbullying could be included together as predictor variables in explaining students' cognitive development. The first regression analysis was conducted to examine the effect of educational policy on cyberbullying. The result showed that educational policy had a negative and significant effect on cyberbullying, with an unstandardized coefficient of minus 0.482 and a significance value of 0.000. This means that stronger educational policy implementation was associated with lower levels of cyberbullying among students. The second regression analysis was conducted to examine the effect of cyberbullying on students' cognitive development. The result showed that cyberbullying had a negative and significant effect on cognitive development, with an unstandardized coefficient of minus 0.536 and a significance value of 0.000. This indicates that higher cyberbullying experiences were associated with lower cognitive development.

The regression coefficient results are presented in Table 7.

Table 7. Regression Coefficients

Variable Relationship	Unstandardized Coefficient B	Std. Error	Standardized Beta	t	p	Hypothesis Decision
Educational Policy → Cyberbullying	-0.482	0.083	-0.538	-5.807	0.000	Supported
Cyberbullying → Cognitive Development	-0.536	0.091	-0.558	-5.890	0.000	Supported
Educational Policy → Cognitive Development	0.324	0.087	0.351	3.724	0.000	Supported

Table 7 confirms that educational policy significantly reduced cyberbullying, while cyberbullying significantly reduced students' cognitive development. The negative coefficient of educational policy toward cyberbullying indicates that policy functions as a preventive factor. This means that better school rules, stronger supervision, and more consistent digital behavior guidance are associated with lower cyberbullying. Meanwhile, the negative coefficient of cyberbullying toward cognitive development indicates that cyberbullying functions as a risk factor that can weaken students' cognitive processes. The direct effect of educational policy on cognitive development was also positive and significant, indicating that educational policy contributes directly to students' cognitive development while also contributing indirectly through the reduction of cyberbullying. The simultaneous effect of educational policy and cyberbullying on students' cognitive development was examined using multiple regression analysis. The model summary is presented in Table 8.

Table 8. Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of Estimate
Educational Policy and Cyberbullying → Cognitive Development	0.640	0.410	0.396	0.379

The model summary shows that the R value was 0.640, indicating a moderate relationship between the predictor variables and students' cognitive development. The coefficient of

determination was 0.410, meaning that educational policy and cyberbullying collectively explained 41 percent of the variation in students' cognitive development. The adjusted R² value of 0.396 indicates that the model remained stable after adjustment for the number of predictors. The remaining 59 percent was influenced by other factors outside this study, such as family environment, teacher support, learning motivation, peer relationships, emotional regulation, digital literacy, and socioeconomic background. The ANOVA test was conducted to determine whether the regression model was statistically significant. The result is presented in Table 9.

Table 9. ANOVA Test Result

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.200	2	4.100	28.49	0.000
Residual	11.800	82	0.144		
Total	20.000	84			

The ANOVA test showed an F value of 28.49 with a significance value of 0.000. Since the significance value was lower than 0.05, the regression model was statistically significant. This means that educational policy and cyberbullying simultaneously influenced students' cognitive development. Therefore, the model can be used to explain the relationship between policy implementation, cyberbullying mitigation, and students' cognitive development. The mediation analysis was conducted to examine whether cyberbullying mediated the relationship between educational policy and students' cognitive development. The indirect effect was calculated by multiplying the path coefficient from educational policy to cyberbullying with the path coefficient from cyberbullying to cognitive development. The result showed an indirect effect of 0.258, obtained from minus 0.482 multiplied by minus 0.536. This indicates that educational policy can influence students' cognitive development indirectly through the reduction of cyberbullying. To strengthen the mediation conclusion, the Sobel test was also used. The mediation analysis result is presented in Table 10.

Table 10. Mediation Analysis Result

Effect Type	Path	Effect Value	Std. Error	Sobel Test or Bootstrap Confidence Interval	p	Mediation Decision
Direct Effect	Educational Policy → Cognitive Development	0.324	0.087	3.724	0.000	Significant
Indirect Effect	Educational Policy → Cyberbullying → Cognitive Development	0.258	0.062	Sobel Z = 4.13	0.000	Significant mediation
Total Effect	Educational Policy → Cognitive Development	0.582	0.101	95 percent CI = 0.384 to 0.780	0.000	Significant

The mediation analysis shows that cyberbullying significantly mediated the relationship between educational policy and students' cognitive development. The indirect effect value was 0.258, with a Sobel Z value of 4.13 and a significance value of 0.000. This means that educational policy contributes to students' cognitive development not only through its direct effect, but also through its role in reducing cyberbullying. Since the direct effect of educational

policy on cognitive development remained significant after cyberbullying was included in the model, the mediation can be interpreted as partial mediation.

The research results show that educational policies have a significant influence in reducing cyberbullying rates. These findings indicate that the existence of clear policies, accompanied by consistent implementation, can create a safer learning environment. From the perspective of Jean Piaget's cognitive development theory, a safe environment is crucial to support the assimilation and accommodation processes in learning. When students are free from social pressures such as cyberbullying, they can more optimally develop logical thinking skills.

Furthermore, the negative impact of cyberbullying on cognitive development shows that the emotional distress experienced by students impacts basic cognitive functions such as attention and working memory. From Lev Vygotsky's perspective, this condition inhibits social interactions, which are the foundation of cognitive development. Students who are victims tend to withdraw from their social environment, thus limiting opportunities for learning through interaction (scaffolding).

From Albert Bandura's perspective, cyberbullying also impacts students' self-efficacy. This low self-confidence makes students less motivated to actively engage in learning, which ultimately impacts critical thinking and problem-solving skills. Findings regarding the mediating role of cyberbullying indicate that educational policy has an indirect influence on cognitive development through the creation of a safe learning environment. This confirms that educational policy functions as a protective factor that not only regulates behavior but also influences the quality of the learning process. Therefore, effective educational policy must integrate regulatory aspects, digital literacy, and character building to minimize the negative impacts of cyberbullying while optimally supporting students' cognitive development.

The research results indicate that cyberbullying has a significant negative impact on students' cognitive development. To understand these findings more comprehensively, it is necessary to examine them through the perspectives of cognitive and social development theories from key figures, namely Jean Piaget, Lev Vygotsky, and Albert Bandura.

From Jean Piaget's cognitive development theory, elementary school-aged students are in the concrete operational stage, where logical thinking skills begin to develop through interaction with the environment. Piaget emphasized that cognitive development occurs through the process of assimilation and accommodation to new experiences. However, when students experience cyberbullying, the experience is not constructive, but rather negative and causes emotional distress. This condition can hinder the cognitive adaptation process because individuals tend to experience difficulties processing information. In other words, cyberbullying creates obstacles in the knowledge construction process, preventing optimal cognitive development.

Furthermore, from the perspective of Lev Vygotsky's sociocultural theory, cognitive development is significantly influenced by social interactions and the learning environment. Vygotsky emphasized the importance of the zone of proximal development (ZPD) and the role of scaffolding in helping students reach higher levels of development. In this context, a safe and supportive learning environment is a key prerequisite for cognitive development. However, cyberbullying creates a non-conducive social environment, hindering positive interactions between students and their peers and teachers. As a result, the scaffolding process is suboptimal, and students lose opportunities to develop thinking skills through collaboration and dialogue. This is evident in the tendency of cyberbullying victims to withdraw from their social environment, resulting in decreased participation in learning.

Meanwhile, from the perspective of Albert Bandura's social learning theory, individual behavior is influenced by the process of observing and imitating the social environment. Cyberbullying can be understood as the result of observational learning, in which students imitate aggressive behavior they see in the digital environment. Furthermore, victims of cyberbullying also experience cognitive impacts through decreased self-efficacy, which is the belief in their ability to complete tasks. Bandura emphasized that self-efficacy plays a crucial role in determining learning success, as individuals with low self-efficacy tend to avoid challenges and have low learning motivation. Thus, cyberbullying not only affects emotional well-being but also undermines academic self-confidence, which can lead to cognitive decline.

Furthermore, the findings of this study suggest that educational policies play a crucial role in mitigating the impact of cyberbullying on cognitive development. Within Piaget's theoretical framework, educational policies that create a safe learning environment will optimally support cognitive adaptation. From Vygotsky's perspective, these policies serve as a reinforcing social environment, enabling meaningful interactions and effective scaffolding. Meanwhile, in Bandura's theory, educational policies can control the social environment, thereby minimizing exposure to negative behavior and strengthening students' self-efficacy through positive learning experiences.

More deeply, the impact of cyberbullying on cognitive development can also be explained through disruptions in core cognitive functions, such as attention, working memory, and executive function. The emotional distress experienced by students leads to cognitive overload, which hinders their ability to process information. This results in decreased critical thinking, problem-solving, and conceptual understanding. This finding is consistent with research by Solas-Martínez et al. (2025), which showed that cyberbullying victims had lower cognitive strategies, and research by Liang et al. (2026), which emphasized the importance of emotional regulation in maintaining cognitive function.

Thus, this discussion confirms that students' cognitive development is the result of a complex interaction between individual, social, and structural factors. Cyberbullying, as a modern social disorder, has a significant impact on cognitive processes, both directly and indirectly. Therefore, educational policies must be designed comprehensively, considering the psychological, social, and cognitive aspects of students. Effective policies should not only suppress cyberbullying but also create a learning environment that supports optimal cognitive development in accordance with the theoretical principles of Piaget, Vygotsky, and Bandura.

Conclusion

This research shows that educational policies play a significant role in mitigating cyberbullying and contributing to students' cognitive development. Effective implementation of educational policies has been shown to reduce the rate of cyberbullying in schools. This indicates that clear regulations, ongoing socialization, and consistent supervision are important factors in creating a safe and conducive learning environment.

Furthermore, cyberbullying has been shown to have a significant negative impact on students' cognitive development. Students who experience cyberbullying tend to experience decreased concentration, difficulty understanding material, and poor critical thinking and problem-solving skills. This situation indicates that cyberbullying is not only a social and psychological problem but also directly impacts the quality of the learning process and outcomes.

The research results also confirm that cyberbullying acts as a mediating variable in the relationship between educational policies and students' cognitive development. This means that educational policies not only directly influence cognitive abilities but also indirectly

through reducing the rate of cyberbullying. Therefore, the more effectively implemented educational policies are, the lower the rate of cyberbullying and the more optimal the cognitive development of students. Overall, this study confirms that strengthening prevention-based education policies, digital literacy, and character education are key to creating a safe learning environment while supporting optimal cognitive development of students in the digital era.

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