

"PRIVACY IN PANDEMIC – IMPACT OF COVID 19 ON HIGH SCHOOL STUDENTS' PRIVACY IN INDIA"



Saina Kakkar, founder and president of non-profit group teenybeshield.org, is an extraordinarily talented, insightful, and passionate 15-year-old high school student and entrepreneur, who radiates both warmth and confidence. She is known for her strong belief and research in Privacy as a right of every individual to control how their personal data would be collected, used, and stored. Her new book "Navigating the Social Media Maze" is now available on Amazon! It is a practical guide for fellow teens and parents to understand the harsh reality of the dangers lurking in the online world for their kids. [h//amzn.to/3H5Zi3Q](https://amzn.to/3H5Zi3Q)

ARTICLE INFO

Keywords:

social Media Literacy
Guardian Supervision
Self-discipline
Online Privacy Risk

ABSTRACT

The adoption of online-based learning and the internet has had both a positive impact on students. This study aims to understand how social media literacy, guardian supervision, and self-discipline affects Online Privacy Risk during the Covid19 pandemic in India. This paper elaborated a quantitative method with SEM-PLS to raise the comprehension of the phenomenon studied. A questionnaire was voluntarily responded to approximately 300 high school students who engaged in online-based learning. The structural equation modeling estimation indicates that social media literacy, guardian supervision, and self-discipline influences Online Privacy Risk. However, guardian supervision failed in promoting students' self-discipline. These findings suggest that both social media literacy and guardian supervision needs to be penetrated to reduce the impact of Online Privacy Risk in the teaching and learning process. This is the first step for schools and parents' alertness in assisting and considering the appropriate and safe media using technology.

1. Introduction

The COVID-19 pandemic has resulted in a shift towards remote learning, causing an increased use of technology among students. This shift has brought new privacy concerns to the forefront, as students face difficulties in protecting their personal information in this new learning environment. This research paper explores the privacy concerns among students during the pandemic and analyzes the impact of remote learning and technology use on their privacy. The paper will examine the challenges and opportunities for protecting student privacy in the current environment and provide recommendations for academic institutions on how to mitigate privacy risks for students. This paper elaborated a quantitative method with SEM-PLS to raise the comprehension of the phenomenon studied. A questionnaire was voluntarily responded to approximately 300 high school students who engaged in online-based learning. The structural equation modeling estimation indicates that social media literacy, guardian supervision, and self-discipline influences online privacy risk. However, guardian supervision failed in promoting students' self-discipline. These findings suggest that both social media literacy and guardian supervision needs to be penetrated to reduce the impact of online privacy risk in the teaching and learning process. This is the first step for schools and parents' alertness in assisting and considering the appropriate and safe media using technology. The study concludes with insights into the importance of protecting student privacy in the digital age and the role that academic institutions can play in ensuring that students' personal information is secure.

This research paper is presented as follows. Section 2 is a literature review that provides a general overview of social media literacy, guardian supervision, and Online Privacy Risks. Section 3 outlines the method used in this study, followed by findings and discussion in section 4 and followed by conclusion in Section 5.

2. Literature review

2.1. Social media literacy (SML) and Online Privacy Risk (OPR)

The COVID-19 pandemic has highlighted the importance of incorporating social media literacy into the educational curriculum. This concept is especially crucial for students as they navigate remote learning opportunities. social media literacy, as defined by List (2019), is the ability to comprehend information from computer and internet resources. Studies have shown that social media literacy is linked with cognitive abilities (Traxler and Lally, 2016; Mishra et al., 2017). Online learning activities not only enhance student learning, but also expose them to potential online risks such as social media, gaming, and music. Insufficient social media literacy can lead to low self-discipline and dangerous online behavior (Higgins et al., 2014; Bahrainian et al., 2014; Helsper et al., 2019). A preliminary study by Mohammadyari and Singh (2015) suggests that an individual's social media literacy level can positively impact their performance in utilizing e-learning and reducing negative online experiences. The following hypotheses are proposed:

H1: social media literacy positively affects students' online privacy risks.

H2: social media literacy positively impacts students' self-discipline.

Guardian Supervision (GS)

The internet and technology are important parts of children's lives, but they also have negative effects. To prevent these negative effects, parents have a big role in controlling their children's behavior online, which is called guardian supervision. There are three ways parents can mediate: guiding, limiting, and monitoring. Studies show that children's age, parental views on the internet, and parental internet skills can all impact how parents mediate. Guardian Supervision helps maximize the benefits of the internet

while minimizing the risks to children. There are two types of guardian supervision: restrictive, which limits what children can do online, and instructive, which sets rules and helps children learn how to behave online. The goal of both types is to keep children safe and help them develop digital skills.

Self-discipline (SD)

Self-discipline is an important skill that helps people succeed in life. Studies show that children with good self-discipline do better in communication and have better attitudes. With the increasing use of technology and online communication, self-discipline is becoming even more important for children online. Children with low self-discipline can become addicted to the internet, access inappropriate content, engage in cyber-bullying, and have negative health effects. Therefore, it is important for children to have good self-discipline to stay safe online.

3. Methodology

This research was a survey of high school students in Delhi, India to understand Online Privacy Risks. The research used a quantitative approach and measured three variables: social media literacy (SML), guardian supervision (GS), and self-discipline (SD). The data was collected using online questionnaires and was anonymous. The questionnaire was also translated into the local language (Hindi) and adapted to the Indian context. The survey was conducted between January, February and March 2021 and received 300 responses, with 92% of the responses used for analysis. The internet and educational technology are an indispensable part of new students' culture which provides both advantages and disadvantages. As previously mentioned, the drawbacks from internet use harms the users. Therefore, parents have a central role in affecting children's behavior or well-known as guardian supervision. The model of guardian supervision approaches can in the form of guiding, bounding, and observing. The consequence of regulative mediation on synchronous and Online Privacy Risk was higher for an individual with inadequate self-discipline. Children's age, parental perceptions of the negative influence of the internet, parental perceptions of low children's self-discipline, and parental internet skills are significant predictors of restrictive mediation (Lee, 2013). Another study by Nikken and Jansz (2014) documented mediation covers several activities including co-use, active mediation, and restrictive mediation. In addition, strategies that can be utilized include supervision and technical safety guidance.

Guardian Supervision is a strategy that regulates internet use and maximizes benefits, and minimizes Online Privacy Risks to children (Shin, 2018). Antecedent study showed that active guardian supervision can reduce media's influence on children (Lwin et al., 2008). Guardian Supervision can take the form of strategies and techniques in nurturing and controlling values and behavior in online activities (Kirby, 2020). Two guardian supervision strategies are restrictive and instructive (Helsper and Smahel, 2020), restrictive is guardian supervision in the form of regulations limiting children to content and social interactions, while instructive is the limitation of social interaction by setting rules and examining children's activities. The restrictive and instructive strategy aims to know messages on online platforms, preventing social conflicts, directing the development of digital skills (Shin, 2018). Therefore, a hypothesis is provided as follows:

H3. Guardian Supervision positively influences students' Online Privacy Risks

H4. Engagement positively influences students' self-discipline

3.1. Design and data

This research involved a quantitative approach with the cross-sectional survey of selected high school schools in Delhi of India. The underlying rationale is that Delhi is well-known as an educational city in India. To understand students' Online Privacy Risks (OPR), we incorporated several variables including, social media literacy (SML) and guardian supervision (GS), with self-discipline (SD) as intervening variables. The data in this survey was gathered from online questionnaires using Google form apps distributed to the voluntary respondents.

3.2. The Structural Model Estimation

In this study, the multivariate data analysis method was employed to analyze the collected data. The analysis consisted of two main calculations: the outer model and the inner model, which are necessary for structural model analysis.

The outer model calculation assessed the validity and reliability of the model, using the convergent validity, discriminant validity, and composite reliability assessment. The convergent validity was established if the loading factor was greater than 0.70 and the average variance extracted (AVE) was more significant than 0.50. The discriminant validity was established if the cross-loading value was greater than 0.70. The reliability of the model was established if the Cronbach's alpha and composite reliability (CR) values were higher than 0.70.

The inner model calculation assessed the structural model for collinearity issues, evaluated the path coefficient, and calculated the level of R-square (R²) and the effect size (f²). The R² showed the robustness of the model, with robust models having a value of 0.67, moderate models having a value of 0.33, and weak models having a value of 0.19. The f² indicated the size impact of the model, with small models having a value of 0.02, medium models having a value of 0.50, and large models having a value of 0.35. The predictive relevance (Q²) of the model was assessed, and the model was considered to have predictive relevance if the Q² value was higher than 0.

Structural equation modeling with partial least squares was performed using SmartPLS version 3.0 to test the hypotheses with a significance level of 5%.

Results and discussions

3.3. The outer model prediction

Table 1 shows the characteristics of respondents engaged in this study. What is interesting in Table 1 is that the respondents were high school students between the age of 15 and 16 years old. Additionally, the majority of respondents were students in last two years of their study and were dominated by female students (63.97%). From the table, it can be known that the respondents involved in this survey have elaborated with online-based learning activities for more than one year.

Table 2 informs the calculation of the outer model in this research. Overall, loading factors ranging from 0.721 to 0.826 (>0.70), which

Table 1. The respondents profile.

Characteristics	Frequency
Age	

10 years			GS3	0.769				
15 years	105	38.6	GS4	0.767				
16 years	167	61.4	GS5	0.770				
Level			Self-discipline (SD)	SD19	0.786	0.876	0.906	0.615
X	102	37.5		SD20	0.796			
XI	170	62.5		SD21	0.759			
Gender				SD23	0.813			
Female	174	63.97		SD30	0.763			
Male	98	36.03		SD5	0.787			
Online learning			Online Privacy Risk (OPR)	OPR15	0.784	0.751	0.858	0.669
One course	112	41.17		OPR16	0.836			
Two courses	160	58.83		OPR4	0.708			
				OPR5	0.785			
				OPR6	0.840			

implicating that this study was confirmed to meet the convergent validity. Furthermore, it declares to achieve discriminant validity when the AVE is higher than 0.50 to achieve. As clearly seen in Table 2, it can be depicted that the AVE score is ranging from 0.591 to 0.669, implicating that it confirmed discriminant validity criteria. While the composite reliability is provided by the CR score that should be higher than 0.70 (Hair et al., 2020). From the table, the CR value is ranging from 0.845 to 0.906 and it achieves the composite reliability criteria.

To measure the discriminant validity, this study also estimated as suggested by Henseler et al. (2015) using the heterotrait-monotrait. The discriminant validity is achieved when the ratio is less than 0.90. As informed in Table 3, it shows that the ratio for each construct ranges from 0.203 to 0.330, indicating to confirm the discriminant validity.

Table 3. Heterotrait-monotrait ratio.

	SD OPR	SML	GS
Self-discipline (SD)			
social media literacy (SML)	0.230		
Parental Mediation (GS)	0.224	0.203	
Online Privacy Risk (OPR)	0.471	0.581	0.330

Table 4. Path coefficients and results of hypotheses testing.

Hypothesis	Relationship Decision	T-value	P-value	
H ₁	SML → OPR	6.184	0.000	Accepted
H ₂	SML → SD	2.109	0.035	Accepted
H ₃	GS → SD	1.192	0.234	Rejected
H ₄	GS → OPR	4.111	0.000	Accepted
H ₅	SD → OPR	6.555	0.000	Accepted

Note: SML % social media literacy; SD % Self-discipline; GS % Parental Mediation; OPR % Online Privacy Risk.

3.4. The structural (inner) model estimation

The preliminary calculation showed that the model had fulfilled the validity and reliability test. For further analysis, this study incorporated PLS estimation to construct a structural model by estimating the inner model. This is intended to perform the relationships between constructs. All the data were run using 500 bootstrapped samples through 272 cases.

Table 2. Results of measurement (outer) model.

Construct AVE	Item	Loading	Cronbach Alpha (α)	CR
social media literacy (SML)	SML13	0.731	0.769	0.852
	SML3	0.731		
	SML6	0.788		
	SML7	0.821		
Parental Mediation (GS)	GS13	0.746	0.764	0.845
	GS2	0.778		

In addition, from the calculation, it can be known that the range of inner VIF ranges from 1.251 - 2.334, implicating that there is no collinearity issue in the model. As shown in Table 4, all of the

hypotheses were accepted since the range of p-value for each relationship is within

0.000–0.033, less than 0.05.

3.5. Model fit

The R-square (R^2) is a measure of the model's accuracy. In line with Hair et al. (2020), this study categorizes the R^2 as follows: 0.77 (substantial), 0.52 (moderate), and 0.27 (weak). According to the initial calculation, the R^2 for SD was 0.069, indicating that GS and SML can explain approximately 6.9% of the variance in SD with a weak categorization. On the other hand, the R^2 for OPR was 0.312, suggesting that GS, SML, and SD can explain around 31.2% of the variance in OPR with a moderate categorization.

The study also used f^2 to estimate the size of the variable constructs. Hair et al. (2014) categorizes f^2 as follows: 0.04 (small), 0.17 (medium), and 0.37 (large). The results show that the value of f^2 for GS and SML towards SD was 0.062, which is small, while OPR was 0.320, implying a medium-sized effect of GS, SML, and SD on OPR.

3.6 Hypothesis testing

Table 4 and Figure 2 provide information about the hypothesis estimation in this study using a significant level of 5%. In general, this study confirmed four proposed hypotheses and rejected one relationship. The hypotheses that were accepted in the model include the effect of SML on SD, GS on OPR and SD, SD on OPR. However, we did not find a significant relationship between SML and OPR. In other words, while hypotheses H1, H2, H4, and H5 were approved, H3 was rejected.

4. Discussions

The first set of hypotheses aimed to examine the relationship between social media literacy and Online Privacy Risk in children. This study confirmed preliminary findings by Deursen et al. (2015); Helsper et al. (2019), which revealed that social media literacy skills in children can affect Online Privacy Risks such as bullying, aggression and hatred, sexual harassment, hacking, vulnerability, victimhood, and resilience, and addiction to the internet. The result is also relevant to previous work by Cosma et al. (2020); Keles et al. (2019); Machimbarrena et al. (2018), which noted social media literacy can provide direction in exploring and using the internet with good social media literacy skills will provide security and minimize online crime that is currently happening. Indeed, White (2017) revealed that social media literacy is the 'literacy' ability to discover, evaluate, utilize, share and utilize information technology and the internet. social media literacy is crucial to be implemented in the context of India, especially during the Covid-19 pandemic, where learning activities are carried out using educational technology and the internet. However, parents must also be involved considering those who during the Covid-19 period intensely accompanied their children. Moreover, collaboration between teachers and parents of students is needed so that social media literacy is effective and has a positive effect on students.

With respect to the first question, social media literacy can promote students' self-discipline. This finding supports some previous studies by Higgins et al. (2014); Nodeland and Morris (2018), which stated that social media literacy affects self-discipline in children. Children who have low social media literacy abilities have negative self-discipline behavior, and children tend to be suspects or victims of cyber-world crimes, children tend to

have impulsive characteristics and can influence children's attitudes in behaving online and offline. This result may be explained by the fact that children's self-discipline is a major indicator in determining internet use wisdom, and factor that enables children to find, evaluate, and utilize internet technology sources. This is in accordance with the fact in India that during the Covid-19 pandemic, there was an increase in incomplete information spreading. Children freely use social media platforms and communicate with strangers without knowing the impact that will occur. In fact, it is not uncommon for children to become victims of cyber-kidnapping and cyber-bullying. This finding is an entry point for stakeholders to pay more attention to internet use in children to feel the importance of social media literacy and self-discipline skills in online behavior.

In addition to the first and second hypotheses, this study found that guardian supervision failed in explaining students' self-discipline. This finding is on the contrary with the prior study by Livingstone et al. (2017); Soldatova and Rasskazova (2017) remarked that guardian supervision is a factor in children's self-discipline ability. At the same time, the results of the study suggest guardian supervision can promote students' Online Privacy Risks. This is in agreement with Nikken and Jansz (2014); Shin (2018), which demonstrated that parents have a role as mediators in online behavior. These findings are similar to antecedent studies by Paat and Markham (2020) which has proven that there is an effect of human self-discipline in preventing negative online behaviors. Likewise, the last finding agreed with Cava et al. (2020); Nodeland and Morris (2018), which stated that Online Privacy Risk in children can be prevented by positive internet recognition by parents from an early age. Indeed, Shin (2018) emphasized that guardian supervision is a strategy that regulates internet use and maximizes benefits, and minimizes Online Privacy Risks to children. In short, guardian supervision and self-discipline are indicators that can determine children's online behavior. As previously described, the role of parents in reducing students' Online Privacy Risky behavior is very crucial. The main reason is that parents fully assist students in learning activities, especially those who get the work from home policy. Without the role of parents, students will be very vulnerable to risky online behavior. Furthermore, the role of parents will also increase children's self-discipline in Online Privacy Risky behavior. Direction, rules, and parental assistance will provide knowledge of the child and how self-discipline will grow and develop. When self-discipline in children grows strong, it will minimize and even eliminate risky online behavior. This strategy must be synergistic between teachers, schools and parents, so that students' risky online behavior can be anticipated appropriately and effectively.

5. Conclusions

The main objective of this study was to determine the main factors that can affect social media literacy and Online Privacy Risk in children in India during the Covid-19 pandemic. We proposed several hypotheses, of which four were accepted. The findings showed that social media literacy positively affects Online Privacy Risk and students' self-discipline. However, guardian supervision can explain students' Online Privacy Risks, but it failed in determining students' self-discipline. Then, self-discipline has a positive influence on Online Privacy Risk in children. Finally, our findings confirm that social media literacy can affect Online Privacy Risk in children behaving in the cyber world. The findings pointed out that some children had low self-discipline, which resulted in a high Online Privacy Risk for children. This is important, given the ever-growing development of technology, children can freely access the internet anywhere and wherever they are. If this is left alone, children will tend to depend on the internet, and sometimes even children become victims of cyber-

kidnapping and cyber-bullying. In the context of the Covid-19 pandemic in India, both children, parents, and teachers should provide positive support and direction to children using the internet, one of which is the parenting mediation strategy. This finding is an entry point for stakeholders to pay more attention to internet use in children to feel the importance of social media literacy and self-discipline skills in online behavior. The limitation of this study is that respondents from the study came from high school students. Further, scholars need to incorporate various levels of education such as Junior High School, Senior High School, and Higher Education so that social media literacy skills and their impact on Online Privacy Risk can be known in detail. Forthcoming researchers also need to include variables in the form of digital devices and several similar variables to find out the main factors of social media literacy skills in high students or college students.

- Oriol, X., Miranda, R., Oyanedel, J.C., Torres, J., 2017. The role of self-discipline and grit in domains of school success in students of primary and secondary school. *Front. Psychol.* 8, 1716.
- Paat, Y., Markham, C., 2020. Digital crime , trauma , and abuse : internet safety and cyber risks for adolescents and emerging adults in the 21 century. *Soc. Work. Ment. Health* 00(00), 1–23.
- Phuapan, P., Viriyavejakul, C., Pimdee, P., 2016. An analysis of social media literacy skills among Thai university seniors. *Int. J. Emerg. Technol. Learn.*
- Ramsey, J.L., Dilalla, L.F., Mccrary, M.K., Ramsey, J.L., Dilalla, L.F., Cyber, M.K.M., 2016. Cyber Victimization and Depressive Symptoms in Sexual Minority College Students Cyber Victimization and Depressive Symptoms, p. 8220. April.
- Rodríguez-de-Dios, I., van Oosten, J.M., Igartua, J.J., 2018. A study of the relationship between guardian supervision and adolescents' digital skills, Online Privacy Risks and online opportunities. *Comput. Hum. Behav.* 82, 186–198.
- White, J., 2017. What is social media literacy?. In: social media literacy Skills for FE Teachers.
- Yustika, G.P., Iswati, S., 2020. social media literacy in Formal Online Education: A Short Review. *Dinamika Pendidikan*.

References

- Churiyah, M., Sholikhan, S., Filianti, F., Sakdiyyah, D.A., 2020. India education readiness conducting distance learning in Covid-19 pandemic situation. *Int. J. Multicult. Multirel. Understand.* 7 (6), 491–507.
- Cosma, A., Walsh, S.D., Chester, K.L., Callaghan, M., Molcho, M., Craig, W., Pickett, W., 2020. Bullying victimization: time trends and the overlap between traditional and cyberbullying across countries in Europe and North America. *Int. J. Publ. Health* 65 (1), 75–85.
- Deng, X., Zhang, L., 1998. Correlates of self-discipline: An empirical test of self-discipline theory. *J. Crime Justice* 21 (2), 89–110.
- Van Deursen, A.J.A.M., Helsper, E.J., Eynon, R., Van Deursen, A.J.A.M., Helsper, E.J., Eynon, R., 2015. Development and Validation of the Internet Skills Scale (ISS), p. 4462 (December).
- Duckworth, A.L., GenSMLer, T.S., Gross, J.J., 2014. Self-discipline in school-age children. *Educ. Psychol.* 49 (3), 199–217.
- Eisenberg, N., Sulik, M.J., 2015. Emotion-related self-regulation in children. *Teach. Psychol.* 39 (1), 77–83.
- Elliston, Z.A., 2020. A position paper on the implementation of learning technology tools: uncovering faculty perceptions. *Int. J. Stud. Educ.* 2 (1), 58–65.
- Favale, T., Soro, F., Trevisan, M., Drago, I., Mellia, M., 2020. Campus traffic and eLearning during COVID-19 pandemic. *Comput. Network.* 176, 107290.
- Kirby, J.N., 2020. Nurturing family environments for children: compassion-focused parenting as a form of parenting intervention. *Educ. Sci.* 10 (1), 3.
- Koutsoupidou, T., 2014. Online distance learning and music training: benefits, drawbacks and challenges. *Open Learn.* 29 (3), 243–255.
- Lee, S.J., 2013. Parental Restrictive Mediation of Children's Internet Use: Effective for what and for Whom? *New Media and Society*.
- Lemay, J.D., Doleck, T., Bazalais, P., 2021. Transition to online teaching during the COVID-19 pandemic. *Interact. Learn. Environ.* 0(0), 1–12.
- Leukfeldt, E.R., Jansen, J., Stol, W.P., 2013. Journal of social Welfare and Family Child Pornography , the Internet and Juvenile Suspects. August 2014, pp. 37–41.
- List, A., 2019. Defining social media literacy development: an examination of pre-service teachers' beliefs. *Comput. Educ.* 138, 146–158.
- Nikken, P., Jansz, J., 2014. Developing Scales to Measure Parental Mediation of Young Children's Internet Use. *Learning, Media and Technology*.
- Nodeland, B., Morris, R., 2018. A test of social learning theory and self-discipline on cyber offending A test of social learning theory and self-discipline on cyber. *Deviant Behav.* 00(00), 1–16.