

DISCOVERY OF PARENTS' INTENTION FACTORS IN THE USE OF PARENTAL CONTROL ON THE GADGETS USED BY THEIR CHILDREN

¹ PAULUS IMAN, ² RIYANTO JAYADI

^{1,2} Information Systems Management Department, BINUS Graduate Program – Master of Information

Systems Management, Bina Nusantara University, Jakarta, Indonesia 11480

E-mail: ¹paulus.iman@binus.ac.id, ²riyanto.jayadi@binus.edu

ABSTRACT

Children interact with technology and the internet every day by using gadgets such as smartphones, tablets, game consoles, or computers for education or entertainment, but unfortunately, children are prone to be addicted to gadgets. Parental control offers a technical mediation strategy for parents to supervise gadget use. A quantitative study was conducted by distributing a closed-answer questionnaire to parents living in the Jakarta Metropolitan Area with children under age 15 to discover what intentions can influence them to use parental control by proposing some hypothesized factors from parents and children. The number of participating respondents was 423 and the responses were analyzed using Smart PLS by assessing validity, reliability, and hypotheses testing. The study reveals that effort expectancy and parent's awareness are strong predictors of intention to use parental control. Parents perceive that gadget addiction is related to online risks, health risks, and academic concern in children. The total effect shows that gadget addiction is significantly related to the intention to use. Parent's age is a strong moderation predictor of self-awareness and parents' self-efficacy to the intention to use. Three parents were interviewed to seek their opinion on why they had not or rarely used parental control even though they knew about it. This study fills the gap between parental control use among parents and gadget addiction in children with potential risks related to online, health, and academic performance.

Keywords: *Parental Mediation; Technical Restriction; Smartphone Addiction; Internet Addiction; Gadget Use By Children.*

1. INTRODUCTION

Children these days have been introduced to digital devices such as smartphones and tablets (which are commonly called *gadgets*) since 2 years old, as their education and entertainment media, and also as a tool to look after (babysit) them [1]. Research revealed that smartphones were introduced to children between 3-4 years old at one of the kindergarten schools in Indonesia. The largest proportion of smartphone use was held by the first child in a family, with a usage duration was 2 hours per day [2].

Exposing gadgets to children could positively impact [3], where children can learn foreign languages and knowledge they do not get from school. The negative impact is often associated with accessing the internet and excessive use of gadgets [4]. When children play with their gadgets, parents' supervision plays a significant role in establishing the benefits of using gadgets [5].

Studies showed that gadget addiction has increased globally [6]–[8]. It can threaten mental health of children [9], [10] and has been a concern of many countries [11] as it affects children's behavior negatively.

The same phenomenon also happens in Indonesia, where Indonesian children could have a potential risk of having mental disorders because of mobile device addiction. The statement was disclosed by a psychologist at Marzuki Mahdi Hospital in Bogor, West Java [12]. Of the 30 cases, 25% were related to gadget use; the most extreme case could be up to 20 hours per day. Children with gadget addiction become furious when they are kept away from the gadgets or when their internet quota has run out. Also, they would not want to go to school and drop household goods willfully and whine, asking for the gadgets that they routinely play with.

A survey by Statista Research Department in the second quarter of 2019 reveals that most

respondents agree that parents should be aware of gadget addiction that could potentially occur in children [13]. Another survey performed by Indonesian Internet Service User Association (APJII) published a report that confirms 95.4% of the population in Indonesia accesses the internet through their smartphones every day. That number far exceeded people who access the internet through personal computers (9.5%) and laptops or tablets (19.7%) [14]. According to APJII, 5.5% and 9.6% of internet users in Indonesia are 10-14 years old and 15-19 years old, respectively. The Ministry of Communication and Information Technology also gave recommendations to children below 13 years old not to have any social media accounts, blocked inappropriate websites (such as gambling and adult websites), and suggested age-appropriate mobile applications [15], [16]. Research in Indonesia discovered that elementary students used social media even though, according to the minimum age policy set by the application provider, they were not allowed to use it [17].

Parents can use technology to supervise the internet and gadgets used by their children using parental control software. Some examples of parental control software on smartphones and tablets are Google Family Link, Qustodio, Kaspersky SafeKids, SecureTeen, ESET Parental Control, MMGuardian, KidsZone, Plano, and FamilyTime [18]. There were some news and research in Indonesia that recommend parental control:

1. Parents are urged to activate parental control to avoid child grooming on social media [19].
2. Parental control could prevent children from accessing unsuitable internet content [20].
3. Since parents cannot always physically monitor their children when playing with gadgets, they can consider using parental control software so their children can participate in online activities safely [21].
4. Parental control training for parents to prevent children from accessing pornography [22].
5. Parental control is a strategy to promote positive internet use for children in Malaysia by monitoring installed applications and websites visited by children and filtering software [23].
6. Advertisements about a kid-friendly smartphone brand that includes parental control software out of the box and cannot

be uninstalled [24].

However, a survey by Statista in Malaysia revealed some reasons parents were reluctant to use parental control technology [25]:

1. They believe they can establish their own rules without involving technology.
2. They do not know the existence of any parental control software.
3. They trust their children.
4. They must pay to use parental control software.
5. They are indecisive about parental control effectiveness.

Global studies about parental control have increased with an average increase of 29.29% yearly. However, in Indonesia, there is a relatively small number of studies compared to the United States, countries in Europe, and even neighboring countries. Asian countries that actively contribute to parental control study are China, South Korea, Malaysia, India, Japan, and Singapore [26]. Approximately 50% of parents in the United States use parental control [27], but finding the same information in Indonesia is challenging.

To date, there has been little agreement on what parental control applications can do to help parents, especially in Indonesia, as a mediation strategy to regulate gadget use by children. There has been relatively few quantitative studies and analysis on intention to use parental control in Indonesia even though many findings have discovered that children in Indonesia had been exposed to gadgets, and many studies revealed there were many mobile applications that had been used by children even though they had not met the age requirement to use them. On the other hand, there have been many studies in Indonesia related to creating and designing parental control applications [28]–[30] with the expectation of minimizing risks of gadget addiction. This study aims to investigate factors affecting parents' intention to use parental control applications and fills the gap between the applications used and the potential risks related to gadget addiction in children. This study is also an exciting opportunity for the author to introduce parental control to parents who have never used it.

The rest of the paper is organized as follows. Section II discusses some background related to parental mediation and technical restriction. Sections III and IV present the hypothesis development, hypothesized model, and research methodology. Research results are discussed in Section V. Finally, section VI is the paper's

conclusion.

2. RELATED STUDY

Research conducted by Gür, Duygu, Türel, and Yalin Kiliç [31] found that children can use technology as part of their education process, and parents should show their support for it. However, there is concern from parents about the possible risk and security threats that children may face in cyberspace. To minimize these risks, parents would try to control and limit the use of technology in children. Parents are worried when their children are playing outside the home, but parents are also worried when they are active on the internet at home. This phenomenon requires parents to be fluent in the digital world and the internet [32].

Digital technology has enormous potential to expand the reach and improve the quality of education, but things that are lacking in education system itself cannot be fixed with technology alone. Technology changes how children learn, form, and maintain friendships. Related to gadget use, technology has also changed how much time kids spend watching videos, social media updates, and playing online games. Many parents fear these changes are bad and worry that excessive screen time will isolate their children from their families and surroundings, may trigger depression, and even create health problems for children [33]. Screen time refers to time spent in front of digital devices, such as television, and touch devices, such as smartphones and tablets [34].

2.1 Parental Mediation

Parental mediation is a theory that discusses how parents use interpersonal communication strategies with children to minimize the adverse effects of media on cognitive and emotional development [35]. Regarding children's internet use, parental mediation takes several forms: active co-use, interaction restriction, technical restriction, and monitoring [36]. Choosing an appropriate strategy for children is related to parents' age [37].

2.2 Parental Control

Parental control, as a popular term of technical restriction, is a digital tool to supervise digital media use by children, which can be implemented either as software or hardware and have the functionality to limit usage based on time duration, content, activity, monitoring, and tracking [38]. It can also be a built-in feature in a streaming service (such as Youtube and Netflix), video games, or

computer/mobile applications that can limit and block the content. On a broader scope, parental control can access applications, websites, microphones, and cameras [39].

2.3 Gadget Addiction

Children are prone to gadget addictions when they are exposed to gadgets. Gadget addiction is related to the excessive use of gadgets that could affect emotional, mental, and social interactions [40], [41]. It is closely related to internet addiction [42]. The excessive use of gadgets also affects physical health. It could cause problems in the growth and development of children [41], for example, sleep disorders [43], [44] and obesity (because of minimal physical activity while using gadgets) [45]–[47]. Also, when children use the internet, they are exposed to online risks that they might not be aware of [48].

With gadgets, children can explore new things, develop skills, and competencies that may not have been taught at school, for example, learning English. Gadgets also could change how brain can interpret and process information. For example, children may prefer using gadgets to find information or learn new things rather than reading books [49]. However, spending excessive time with gadgets could affect children's academic performance [50]. All of those are related to inadequate parental supervision [51].

2.4 Effort Expectancy

Users of parental control are parents. They want to use the software if it can be easily installed and configured. The Unified Theory of Acceptance and Use of Technology (UTAUT) calls it effort expectancy, which is influenced by gender and age [52]. A related study regarding parental control in Saudi also revealed that effort expectancy was the strongest predictor as they want to have parental control software in Arabic. It was moderated by the parent's age [53].

2.5 Parents' Self-Efficacy and Awareness

Previous research in Saudi found self-efficacy was the other most substantial factor influencing behavioral intention to use parental control [53]. Self-efficacy is the degree to which someone believes they control what they are doing or performing a particular task [54]. Parents may find that mediating gadget use is a challenge [55].

Parents who use technology can improve social capital and parenting efficacy [56] but they need to

be aware that when children use social media, mobile applications, and digital devices, they may not fully discern the consequences of their actions. They may post content on the internet that may not be appropriate. Negative content posted by children may have long-term consequences that may affect their reputation, compromise their interests when they enter higher levels of education and even impact their careers [57].

3. HYPOTHESIS DEVELOPMENT

Based on the related works described in the previous section, some variables potentially influencing parents to use parental control are listed in Table 1, and the research model is depicted in Figure 1. Four constructs related to children are:

1. Perceived gadget addiction (AD)
2. Perceived online risk (OL)
3. Perceived health risk (HE)
4. Academic concern (AC)

The other three constructs are related to parents:

1. Effort expectancy (EF)
2. Parents' awareness (AW)
3. Parents' self-efficacy (SE)

Construct	Definition
Perceived gadget addiction (AD)	Parent's perception of gadget addiction by children [40], [41], [51], [58]–[60]
Perceived online risk (OL)	Parents' perception of potential online risk that could happen as a consequence of internet use on gadgets. [48]
Perceived Health Risk (HE)	Parents' perception of potential health risks that could happen as a consequence of excessive use of gadgets. [44], [51], [61], [62]
Academic Concern (AC)	Parents' perceptions related to their children's academic achievement. [50], [51], [63], [64]
Effort Expectancy (EF)	Parents' expectations have easy installation and configuration of a parental control system. [52], [53]
Parent's Awareness (AW)	Parents should be able to know what their children are doing online. [53], [56], [59]
Parent's Self-Efficacy (SE)	Parents' perception of their knowledge of gadgets. [53], [55], [56]
Intention to Use Parental Control (INT)	Parents' intention, willingness, and acceptance of using parental control on gadgets used by their children as a manifestation of creating a safe online environment. [38], [53]

Table 1: Construct and Definition

The moderating variable used in this research is the Parent's age (M) as the user of the parental control

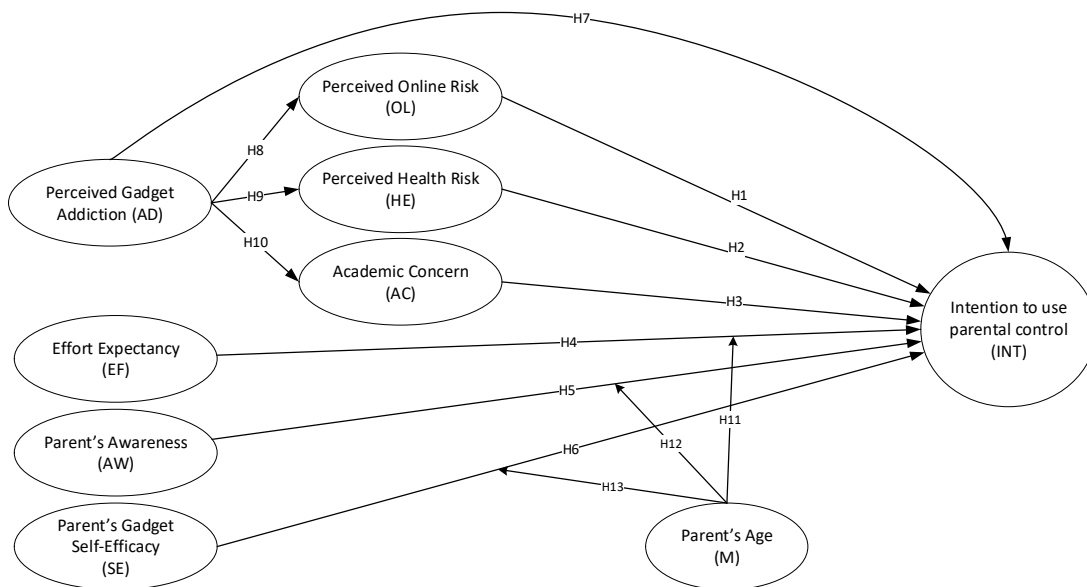


Figure 1: Hypothesized Model

system [37], [52], [53]

Since the main function of parental control is to limit gadget use, it is expected to minimize online risks [48] and health risk, especially eye-related health [61], [62], and relieve academic concern [50], [51], [63], [64]. Therefore, to investigate whether online risks, health risks, and academic concern significantly predict intention use of parental control, this study states the following hypotheses:

- H1: Perceived online risk (OL) significantly predicts intention to use parental control (INT).
- H2: Perceived health risk (HE) significantly predicts intention to use parental control (INT).
- H3: Academic concern (AC) significantly predicts intention to use parental control (INT).

The previous study of parental control in Saudi Arabia found that effort expectancy and parent's general computer self-efficacy are strong predictors since they wanted to have a control system that uses the local language (Arabic) [53]. Also, parents should be aware of regulating their children's gadget use [59]. Therefore, to investigate whether effort expectancy, parents' self-efficacy, and self-awareness significantly predict intention to use parental control, this study states the following hypotheses:

- H4: Effort expectancy (EF) significantly predicts the intention to use parental control (INT).
- H5: Parents' awareness (AW) significantly predicts the intention to use parental control (AW).
- H6: Parents' gadget self-efficacy (SE) significantly predicts the intention to use parental control (INT).

There are similarities between the research result by Young [60] regarding five subtypes of internet addiction and the four online risks [48] related to inappropriate internet content for children, e.g., cybersexual, cyberporn, and online gambling. Gadget addiction also has an impact on health [40], [41] and academic [50], [51]. It is also related to the isolation of children from the surrounding environment and emotional changes [41]. Therefore, to investigate whether gadget addiction significantly predict online risks, health risks, academic concern, and intention to use parental control, this study states the following hypotheses:

- H7: Perceived gadget addiction (AD) significantly impacts the intention to use parental control (INT).
- H8: Perceived gadget addiction (AD) significantly predicts perceived online risk (OL).
- H9: Perceived gadget addiction (AD) significantly predicts perceived health risk (HE).
- H10: Perceived gadget addiction (AD) significantly predicts academic concern (AC).

Parental control research in Saudi reported that parent's age is a significant moderation predictor between effort expectancy and intention to use parental control [53]. The other study reported parent's age influences how they regulate internet use by their children [37]. Therefore, to investigate whether parent's age is a significant moderation predictor between constructs of parents and intention to use parental control, this study states the following hypotheses:

- H11: Parents' age (M) significantly moderates the relationship between effort expectancy (EF) and intention to use parental control (INT).
- H12: Parents' age (M) significantly moderates the relationship between parents' awareness (AW) and intention to use parental control (INT).
- H13: Parents' age (M) significantly moderates the relationship between parents' gadget self-efficacy (SE) and intention to use parental control (INT).

Table 2 summarizes hypotheses created to investigate what factors influence parents' intention to use parental control on gadgets used by their children.

Table 2: List of Hypothesis

H1	Perceived online risk (OL) significantly predicts the intention to use parental control (INT)
H2	Perceived health risk (HE) significantly predicts the intention to use parental control (INT)
H3	Academic concern (AC) significantly predicts the intention to use parental control (INT)
H4	Effort expectancy (EF) significantly predicts the intention to use parental control (INT)
H5	Parents' awareness (AW) significantly predicts the intention to use parental control (AW)
H6	Parents' gadget self-efficacy (SE) significantly predicts on the intention to use parental control (INT)
H7	Perceived gadget addiction (AD) significantly predicts the intention to use parental control (INT)
H8	Perceived gadget addiction (AD) significantly

	predicts perceived online risk (OL)
H9	Perceived gadget addiction (AD) significantly predicts perceived health risk (HE)
H10	Perceived gadget addiction (AD) significantly predicts academic concern (AC)
H11	Parents' age (M) significantly moderates the relationship between effort expectancy (EF) and intention to use parental control (INT)
H12	Parents' age (M) significantly moderates the relationship between parents' awareness (AW) and intention to use parental control (INT)
H13	Parents' age (M) significantly moderates the relationship between parents' gadget self-efficacy (SE) and intention to use parental control (INT)

gender	Female	288	68.1%
Parent's age	Below 31 years	20	4.7%
	31-35 years	72	17%
	36-40 years	141	33.3%
	41-45 years	113	26.7%
	46-50 years	62	14.7%
	51-55 years	11	2.6%
	56-60 years	2	0.5%
	61-65 years	1	0.2%
Educational level	Over 65 years	1	0.2%
	Elementary	3	0.7%
	Intermediate	2	0.5%
	Secondary	29	6.9%
	Diploma	43	10.2%
	Bachelor's degree	290	68.6%
	Master's degree	53	12.5%
Know about parental control	Doctoral Degree	3	0.7%
	I know parental control	271	64.1%
Parental control usage	I do not know parental control	152	35.9%
	Never use	217	51.3%
	Rarely use	120	28.4%
	Often use	40	9.5%
Child's age	Always use	46	10.9%
	1-3 years	16	3.8%
	4-6 years	68	16.1%
	7-9 years	111	26.2%
	10-12 years	130	30.7%
	13-15 years	98	23.2%

4. RESEARCH METHODOLOGY

This research uses a quantitative approach with closed answers where data was collected using an online questionnaire platform and interviews. The online questionnaire was distributed randomly to parents who have child/children in the range of 1-15 years old and live in the Jakarta Metropolitan Area (Jakarta, Bogor, Tangerang, Depok, and Bekasi). The response was measured using four points of the Likert scale, where 0 = strongly disagree, 1=disagree, 2=agree, and 4 = strongly agree.

The responses were analyzed using SmartPLS 4.0 to assess validity, reliability, and hypothesis testing. Table 3 contains indicators for each construct presented in the questionnaire.

Three parents who had completed the questionnaire were interviewed to discuss the findings.

5. FINDINGS AND DISCUSSION

The questionnaire was distributed in September - October 2022, and the total number of responses was 423.

5.1. Demography

Table 4 presents the complete demography of the respondents.

Table 4: Demography of The Respondents

Measure	Item	Freq.	Percentage
Residence	Jakarta	121	28.6%
	Bogor	31	7.3%
	Depok	32	7.6%
	Tangerang	205	48.5%
	Bekasi	34	8%
Parent's	Male	135	31.9%

About half of the total respondents knew what parental control is, but they had never used or rarely used it. The interview of 3 parents discovered their reasons:

1. The parent was reluctant to use parental control since the gadget used by their children was a shared device, they would have to remember to switch it on when their children were using it and switch it off when they had finished playing with the gadget.
2. In the case of children with gadget ownership, the parent hesitated to create a personal account for them. Typically, parental control requires the child to have their account on the device and provide their personal information such as name, gender, location, and birth date. The information in the account is used to adjust the behavior of the gadget, such as which websites they are allowed to visit, what applications and games they can download, and what videos they can watch.
3. The other parent thought that parental control was only about blocking inappropriate content

(websites, applications, games), which they could do by not using parental control. They did not know that parental control could also provide other useful monitoring and tracking information as a periodic report, such as what keywords the children used in the search engine and what applications or games are frequently used.

5.2. Measurement Model

Convergent and discriminant validity were observed against the responses as part of the structural model assessment.

To calculate convergent validity, outer loading values from each indicator in each construct were observed. The acceptable outer loading value is greater than 0.7 [65]. AD1 and EE3 indicators were dropped since their outer loading values were below 0.7. Table 5 displays the complete outer loading observation.

The reliability test was performed using Cronbach’s Alpha and Average Variance Extracted (AVE). The acceptable Cronbach’s Alpha values for each construct should be greater than 0.6 [65]. The acceptable AVE value is greater than 0.5 [66]. Table 5 shows Cronbach’s Alpha and AVE values for each construct.

Table 5: Loading factor and Reliability Test

Construct	Indicators	Loading Factor	Cronbach’s Alpha	AVE
AD	AD1	0.652	0.797	0.617
	AD2	0.761		
	AD3	0.720		
	AD4	0.806		
	AD5	0.849		
OL	OL1	0.875	0.907	0.726
	OL2	0.866		
	OL3	0.869		
	OL4	0.840		
	OL5	0.808		
HE	HE1	0.812	0.859	0.706
	HE2	0.891		
	HE3	0.896		
	HE4	0.753		
AC	AC1	0.884	0.944	0.858
	AC2	0.953		
	AC3	0.947		
	AC4	0.919		
EF	EF1	0.947	0.927	0.873
	EF2	0.949		
	EF3	0.584		
	EF4	0.906		

AW	AW1	0.888	0.934	0.791
	AW2	0.880		
	AW3	0.907		
	AW4	0.883		
SE	SE1	0.865	0.933	0.715
	SE2	0.892		
	SE3	0.888		
	SE4	0.916		
	SE5	0.820		
	SE6	0.818		
	SE7	0.703		
INT	INT1	0.933	0.967	0.884
	INT2	0.947		
	INT3	0.944		
	INT4	0.943		
	INT5	0.935		

To calculate discriminant validity, the Fornell-Larcker criterion was used. As shown in table 6, the square root of the AVE of each construct is greater than the intercorrelation of one construct to the other. Hence, the requirement of discriminant validity requirement was confirmed.

5.3. Structural Model

Figure 2 illustrates the hypothesized results, and the summary is shown in Table 7. The result of the hypothesis testing is described as follows:

- H1 (OL → INT)

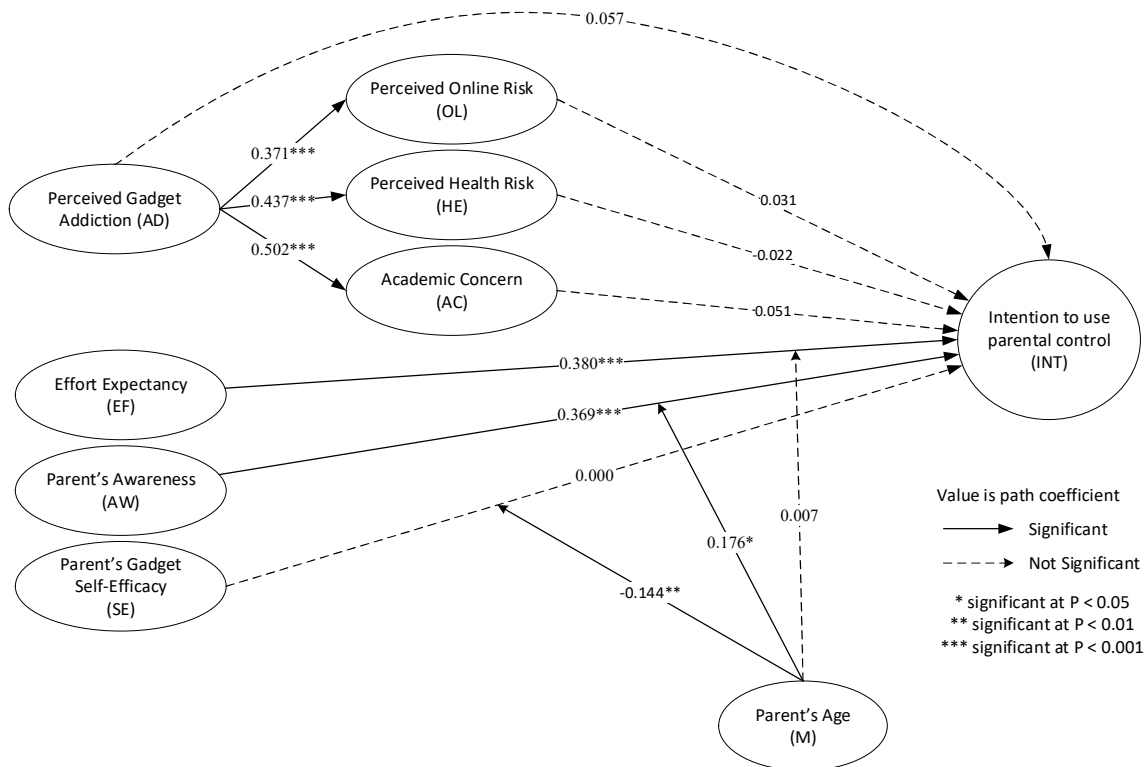


Figure 2: Hypothesis Test Result

- Perceived online risk does not significantly predict intention to use parental control (P=0.497, Beta=0.031).
- H2 (HE → INT) Perceived health risk does not significantly predict intention to use parental control. (P=0.583, Beta=-0.022).
- H3 (AC → INT) Academic concern does not significantly predict intention to use parental control (P=0.315, Beta=0.051).
- H4 (EF → INT) Effort expectancy significantly predicts intention to use parental control (P***< 0.001, Beta=0.380).
- H5 (AW → INT) Parent's awareness significantly predicts intention to use parental control (P***<0.001, Beta=0.369).
- H6 (SE → INT) Parent's self-efficacy does not significantly predict intention to use parental control (P=0.997, Beta=0.000).
- H7 (AD → INT) Gadget addiction does not significantly predict the intention to use parental control (P=0.072, Beta=0.057).
- H8 (AD → OL) Gadget addiction significantly predicts perceived online risk (P***<0.001, Beta=0.371).
- H9 (AD → HE) Gadget addiction significantly predicts perceived health risk (P***<0.001, Beta=0.437).
- H10 (AD → AC) Gadget addiction significantly predicts academic concern (P***<0.001, Beta=0.502).
- H11 (M → H4) Parent's age does not significantly moderate a relationship between effort expectancy and intention to use parental control. (P=0.925, Beta=0.007).
- H12 (M → H5) Parent's age significantly moderates the relationship between parent's awareness and intention to use parental control (P*=0.019<0.05, Beta=0.176).
- H13 (M → H6) Parent's age significantly moderates the relationship between parent's gadget self-efficacy and intention to use parental control (P=0.005, Beta=-0.144).

Table 7: Hypothesis Test Result

Hypothesis	Beta	P-value	Result
H1: (OL → INT)	0.031	0.497	Not significant
H2: (HE → INT)	-0.022	0.583	Not significant
H3: (AC → INT)	0.051	0.315	Not significant
H4: (EF → INT)	0.380	0.000	Significant
H5: (AW → INT)	0.369	0.000	Significant
H6: (SE → INT)	0.000	0.997	Not significant
H7: (AD → INT)	0.057	0.072	Not Significant
H8: (AD → OL)	0.371	0.000	Significant
H9: (AD → HE)	0.437	0.000	Significant
H10: (AD → AC)	0.502	0.000	Significant
H11: (M → H4)	0.007	0.925	Not significant
H12: (M → H5)	0.176	0.019	Significant
H13: (M → H6)	-0.144	0.005	Significant

The R^2 coefficient shows that the hypothesized model explains 62.6% of the explanatory variances of the intention to use parental control.

Table 8: Indirect Effects

Indirect Effects	Beta	P-value	Result
AD → OL → INT	0.011	0.501	Not significant
AD → HE → INT	-0,010	0,588	Not significant
AD → AC → INT	0,025	0,325	Not significant

Table 8 shows that none of the indirect effects are significant.

Table 9: Total Effect

Total Effect	Beta	P-value	Result
AD → INT	0,085	0,012	Significant

Table 9 shows that the total effect between Perceived Gadget Addiction and Intention to Use Parental Control is significant.

5.4. Implication

The hypothesis test results show that gadget addiction strongly predicts online risk, health risk, and academic concern. These findings align with [51], [60], [62]–[64]. If the children were addicted to gadgets, they could neglect their academic obligations and lack physical and social activities in real life. Gadget addiction can also cause exposure to inappropriate use of applications, games, or any unsuitable online content, affecting children's growth, emotions, and social life. Minimizing the probability of being addicted to gadgets by regulating gadget use can reduce the probability of having online risk, health risk, and academic concern.

However, the total effect shows a significant relationship between gadget addiction and the intention to use parental control. This finding reveals that parental control on gadgets can be an option to regulate gadget use by their children so that parents can prevent their children from being addicted to gadgets by establishing constraints. Parents also can consider parental control to create a safe online environment as they may not be able to accompany their children all the time when children are playing with gadgets.

The indicator AD1 was removed since it did not conform to the outer loading constraint. It can be interpreted as no consensus on the excessive use of gadgets. It is a subjective opinion on how much is too much when playing with gadgets. However, parents should have an awareness when they must ask their children to stop using gadgets if they feel their children have been using them for too long.

The other indicator removed was EF3, as parents in Jakarta metropolitan area are confident they can operate parental control that does not use Bahasa Indonesia. This finding is different from a similar study in Saudi [53], where parents in Saudi want to have parental control that uses the Arabic language.

The significant relationship between effort expectancy and intention to use parental control means that they want to have parental control that is easy to use and meets their motivation. They also expect to have reports that can be generated automatically from parental control. Some information can be gathered, such as how long the children have used the gadget, what applications or games are frequently used, what websites are usually visited, what keywords children have used on the search engine, and other monitoring and tracking information [38].

The significant relationship between parent's awareness and intention to use parental control means they expect to have a visibility to their children's gadgets. Parental control can obtain information such as what applications or games have been installed on the gadget, what media files are stored, place content restrictions to supervise children's online activities.

Parental age shows a significant moderation relationship between their awareness and intention to use parental control. Parent's age also shows a significant moderation relationship between their self-efficacy and intention to use parental control. This finding is different from a similar study in Saudi, but it is similar to what was discovered by Shin [55] where parent's age is related to parental mediation strategy, either active mediation or restrictive mediation, but smartphone self-efficacy does not have a significant relationship with restrictive mediation. Parental control can be seen as a restrictive mediation strategy as it limits what children can do with the gadget [38].

The previous work on the intention to use technical mediation or parental control was done by [53] in Saudi. In their study, constructs related to children's risk were strong predictors, they were perceived vulnerability and severity of online risks. In this study, the individual constructs pertaining to children's risk are not strong predictors of the intention to use parental control. However, the total effect shows that gadget addiction can strongly predict the intention to use parental control and also strongly predict online risk, health risk, and academic concerns. Also, in the previous work, the moderation variable parent's age strongly predicts effort expectancy and the intention to use, whereas in this study parent's age strongly moderates parent's awareness and self-efficacy to the intention to use.

Regarding parent's knowledge of parental control, the previous study did not tell whether Saudi parents were already familiar with and utilized it. This study in Table 4 presents more information by showing that more than 60% of sample parents admitted that they knew about parental control, but interestingly, more than 50% never used it. In the interview, they addressed reasons why they did not use parental control:

1. They are reluctant to install parental control on a shared gadget.
2. They do not know what parental control can do other than blocking inappropriate content.

3. They are hesitant to expose the child's personal information, such as name, gender, location, and birth date, even though parental control needs the information to adjust the constraints.

6. CONCLUSION

Children cannot be separated from gadgets. They use gadgets at an early age, and it becomes something that they use in daily life. With gadgets, they discover new knowledge, play games, and virtually get in touch with their friends. Unfortunately, exposure to gadgets and the internet can cause children to become addicted.

Parents perceive that gadget addiction strongly relates to online risk, health risk, and academic concern. As an option to regulate and monitor gadget use, prevent children from being addicted, and minimize the likelihood of having those risks, parents can consider using parental control on the gadgets used by their children.

Software vendors can use this paper to design and build a parental control system suitable for parents in Indonesia. They should try to resolve obstacles described in the interview that obstruct parents from using parental control. Parents want a hassle-free parental control system, especially if a shared gadget is used, they need an easy mechanism to enable and disable parental control without interrupting or delaying what they have been doing with the gadget. The parental control should be easy to install, use, and capable of providing information about children's online activities and visibility to the gadgets. Parent's age should also be considered to design and set up the system, as this study shows it affects their self-efficacy and awareness.

Parents should be aware that having parental control installed on gadgets does not mean that they could leave their children entirely with gadgets. In terms of playing with gadgets, there is no absolute answer for how much is too much. If parents feel their children have played long enough with the gadget, they should remind them to put it down, as parents do not want their children to be addicted to gadgets. They should plan to spend time with their children and provide appropriate education and understanding about internet and gadget use since sooner or later, children will be exposed to the internet with its risks. However, it is the responsibility of parents to minimize the risk, with or without parental control.

7. LIMITATIONS AND FURTHER RESEARCH

It is essential to note the limitations of this research: it only observed parents in The Jakarta Metropolitan Area within a limited time frame, and the sample was not distributed uniformly among the locations observed. This study encourages further research in this area of study for the following objectives:

- Investigate with a more balanced sample size among locations and broader audiences in different places in Indonesia that can capture additional requirements and contexts.
- Investigate other potential obstacles that prevent parents from applying parental control other than what they addressed in the interview, such as financial and social-cultural issues.
- Seek out what parental control features are considered beneficial, especially for parents in Indonesia.

REFERENCES:

- [1] L. Sekarasih, "Restricting, Distracting, and Reasoning: Parental Mediation of Young Children's Use of Mobile Communication Technology in Indonesia," *Mob. Commun. Asia*, pp. 129–146, 2016, doi: 10.1007/978-94-017-7441-3_8.
- [2] A. Agustina and H. Hermansyah, "Case Study of Controlling Smartphone Use Based on Characteristics of Children Aged 3-6 years in Peusangan District, Bireuen Regency (Study Case Control Penggunaan Smartphone Berdasarkan Karakteristik Anak Usia 3-6 Tahun Di Kecamatan Peusangan Kabupaten Bi)," *An-Nadaa J. Kesehat. Masy.*, vol. 7, no. 2, p. 151, 2020, doi: 10.31602/ann.v7i2.3464.
- [3] T. P. Sari and A. A. Mitsalia, "Effects of Using Gadget on Social Personal Pre-School Children at Kindergarten Islam Integrated of Al Mukmin (Pengaruh Penggunaan Gadget Terhadap Personal Sosial Anak Usia Pra Sekolah Di TKIT Al Mukmin)," *Profesi*, vol. 13, pp. 72–78, 2016, doi: https://doi.org/10.26576/profesi.124.
- [4] Z. M. Zain, F. N. Jasmani, N. H. Haris, and S. M. Nurudin, "Gadgets and Their Impact on Child Development," *Proceedings*, vol. 82, no. 1, 2022. doi: 10.3390/proceedings2022082006.
- [5] I. Sunita and E. Mayasari, "Parental Supervision of the Impact of Gadget Use on Children (Pengawasan Orangtua Terhadap Dampak Penggunaan Gadget Pada Anak)," *J. Endur.*, vol. 3, no. 3, p. 510, 2018, doi: 10.22216/jen.v3i3.2485.
- [6] J. A. Olson *et al.*, "Smartphone Addiction is Increasing across the World: A Meta-Analysis of 24 Countries," *Comput. Hum. Behav.*, vol. 129, no. C, Apr. 2022, doi: 10.1016/j.chb.2021.107138.
- [7] M. Nyamadi, R. Boateng, and I. Asamenu, "Smartphone addictions: A review of themes, theories and future research directions," 2020.
- [8] R. Seetharaman and P. S. Rajeswari, "Smartphone Usage and the Addiction Behavior Among Children—A Global Study," *Spec. Ugdym.*, vol. 1, no. 43, pp. 6309–6316, 2022.
- [9] E. Tumurbaatar, "Smartphone addiction harms children's mental health," *The UB Post*, 2022. https://theubposts.com/smartphone-addiction-harms-children-s-mental-health/ (accessed Dec. 18, 2022).
- [10] S.-I. Lim and S. Jeong, "The Relationship between Korean Parents' Smartphone Addiction and That of Their Children: The Mediating Effects of Children's Depression and Social Withdrawal.," *Int. J. Environ. Res. Public Health*, vol. 19, no. 9, May 2022, doi: 10.3390/ijerph19095593.
- [11] N. F. Khan and M. N. Khan, "A bibliometric analysis of peer-reviewed literature on smartphone addiction and future research agenda," *Asia-Pacific J. Bus. Adm.*, vol. 14, no. 2, pp. 199–222, Jan. 2022, doi: 10.1108/APJBA-09-2021-0430.
- [12] S. F. Aprianus, "Indonesian children suffering from gadget addiction," 2019. https://www.aa.com.tr/en/asia-pacific/indonesian-children-suffering-from-gadget-addiction/1657856 (accessed Jul. 28, 2022).
- [13] Statista, "Share of respondents in Indonesia who agreed that parents need to be cautious about gadget addiction on kids as of the second quarter of 2019," 2019. https://www.statista.com/statistics/1100097/in-donesia-perception-on-gadget-addiction-on-kids/ (accessed Jul. 28, 2022).
- [14] APJII, "Internet Survey Report APJII (Laporan Survei Internet APJII) 2019 – 2020," 2020. [Online]. Available:

- <https://apjii.or.id/survei>
- [15] Kominfo, “Kominfo Blocks 800 Thousand Negative Sites (Kominfo Blokir 800 Ribu Situs Negatif),” 2017. https://kominfo.go.id/content/detail/10445/kominfo-blokir-800-ribu-situs-negatif/0/sorotan_media (accessed Mar. 27, 2022).
- [16] Kominfo, “Tik Tok is prohibited for users under the age of 13 (Tik Tok Dilarang untuk Pengguna Usia di Bawah 13 Tahun),” 2018. https://kominfo.go.id/content/detail/13453/tiktok-dilarang-untuk-pengguna-usia-di-bawah-13-tahun/0/sorotan_media (accessed Mar. 27, 2022).
- [17] M. Fajar and H. Machmud, “Use of Social Media Among Elementary School Students (Penggunaan Media Sosial di Kalangan Siswa Sekolah Dasar),” *Diniyah J. Pendidik. Dasar*, vol. 1, no. 1, p. 46, 2020, doi: 10.31332/dy.v1i1.1822.
- [18] Merdeka.com, “Application to Monitor Children’s Gadget Activities, Controlled and Safe! (Aplikasi Untuk Pantau Aktivitas Gadget Anak, Terkontrol dan Aman!),” 2020. <https://www.merdeka.com/teknologi/aplikasi-untuk-pantau-aktivitas-gadget-anak-terkontrol-dan-aman.html> (accessed Sep. 11, 2022).
- [19] Detik, “Parents Urged to Activate Parental Control to Prevent Child Grooming on Social Media (Ortu Diimbau Aktifkan Parental Control Cegah Child Grooming di Medsos),” 2019. <https://news.detik.com/berita/d-4644291/ortu-diimbau-aktifkan-parental-control-cegah-child-grooming-di-medsos> (accessed Apr. 02, 2022).
- [20] Kompas, “Activate Parental Control, How to Prevent Children from Accessing Age-Inappropriate Content on Cellphones (Aktifkan Parental Control, Cara Cegah Anak Mengakses Konten Tak Sesuai Umur di Ponsel),” 2021. <https://www.kompas.com/tren/read/2021/04/06/070000865/aktifkan-parental-control-cara-cegah-anak-mengakses-konten-tak-sesuai-umur?page=all> (accessed Apr. 02, 2022).
- [21] M. Yusuf, D. Witro, R. Diana, T. A. Santosa, A. ‘Alwiyah Alfikri, and J. Jalwis, “Digital Parenting to Children Using The Internet,” *Pedagog. J. Islam. Elem. Sch.*, vol. 3, no. 1, pp. 1–14, 2020, doi: 10.24256/pijies.v3i1.1277.
- [22] S. P. Saragih, I. Svinarky, and M. Silalahi, “Increasing the Ability of Parents in Controlling Children to Avoid Accessing Pornographic Content (Peningkatan Kemampuan Orang Tua Dalam Mengendalikan Anak-Anak Untuk Mengakses Konten Pornografi),” *PUAN Indones.*, vol. 3, no. 1 SE-Jurnal Puan Indonesia Vol 3 No 1 July 2021, pp. 73–82, Jul. 2021, doi: 10.37296/jpi.v3i1.56.
- [23] A. Daud, S. Z. Omar, M. S. Hassan, J. Bolong, and M. Teimouri, “Parental mediation of children’s positive use of the internet,” *Life Sci. J.*, vol. 11, no. 8, pp. 360–369, 2014.
- [24] Detik, “Reviewing the Sophistication of the Geniora Phone, a Cellphone for Children (Mengulas Kecanggihan Geniora Phone, Ponsel Untuk Anak-anak),” 2020. <https://inet.detik.com/consumer/d-5152236/mengulas-kecanggihan-geniora-phone-ponsel-untuk-anak-anak> (accessed Apr. 11, 2022).
- [25] Statista, “Reasons for internet users not to use parental control software in Malaysia in 2016,” 2016. [Online]. Available: <https://www.statista.com/statistics/901499/malaysia-reasons-for-not-using-parental-control-software/>
- [26] H. H. M. Altarturi, M. Saadoon, and N. B. Anuar, “Cyber parental control: A bibliometric study,” *Child. Youth Serv. Rev.*, vol. 116, p. 105134, 2020, doi: 10.1016/j.chilyouth.2020.105134.
- [27] Kaspersky, “Study finds 50% of parents use parental control apps,” 2021. https://usa.kaspersky.com/about/press-releases/2021_study-finds-50-of-parents-use-parental-control-apps (accessed Jul. 29, 2022).
- [28] A. Shofi, “Reengineering the Parental Control Application (Reengineering Pada Aplikasi Parental Control).” Universitas Komputer Indonesia, 2022.
- [29] B. Damareksa, “Development of One Device Parental Control–Multi Access Limits Application Using Face Identification (Pembangunan Aplikasi One Device Parental Control–Multi Access Limits Menggunakan Face Identification).” Universitas Komputer Indonesia, 2022.
- [30] E. Ambarsari, H. Herlinda, A. D. GS, R. Prasetya, and H. Herfina, “Usability of Parental Control Application Features To

- Protect Children From Negative Internet Impact By Using MAGIQ Approach (Case Study In Indonesia),” in *The 1st International Conference on Computer Science and Engineering Technology Universitas Muria Kudus*, 2018.
- [31] D. Gür and Y. K. Türel, “Parenting in the digital age: Attitudes, controls and limitations regarding children’s use of ICT,” *Comput. Educ.*, vol. 183, p. 104504, 2022, doi: <https://doi.org/10.1016/j.compedu.2022.104504>.
- [32] H. F. Kabakçı Yurdakul, İ. , Dönmez, O. , Yaman, F. & Odabaşı, “Digital Parenting and Changing Roles,” *Gaziantep Univ. J. Soc. Sci.*, vol. 12, no. 4, pp. 883–896, 2013.
- [33] UNICEF, *Children in a Digital World*. 2017. [Online]. Available: https://www.unicef.org/publications/files/SO_WC_2017_ENG_WEB.pdf
- [34] E. Savina, J. Mills, K. Atwood, and J. Cha, “Digital Media and Youth: a Primer for School Psychologists,” *Contemp. Sch. Psychol.*, vol. 21, Jan. 2017, doi: 10.1007/s40688-017-0119-0.
- [35] L. S. Clark, “Parental Mediation Theory for the Digital Age,” *Commun. Theory*, vol. 21, no. 4, pp. 323–343, Nov. 2011, doi: <https://doi.org/10.1111/j.1468-2885.2011.01391.x>.
- [36] S. Livingstone and E. J. Helsper, “Parental mediation of children’s internet use,” *J. Broadcast. Electron. Media*, vol. 52, no. 4, pp. 581–599, 2008, doi: 10.1080/08838150802437396.
- [37] M. Valcke, S. Bonte, B. De Wever, and I. Rots, “Internet parenting styles and the impact on Internet use of primary school children,” *Comput. Educ.*, vol. 55, no. 2, pp. 454–464, Sep. 2010, doi: 10.1016/j.compedu.2010.02.009.
- [38] B. Zaman and M. Nouwen, “Parental controls : advice for parents , researchers and industry,” *Eukidsonline*, no. February, pp. 1–9, 2016, [Online]. Available: https://www.researchgate.net/publication/301775592_Parental_controls_advice_for_parents_researchers_and_industry
- [39] A. Y. Satyarini Sukendar, A. Raissa, and T. Michael, “Authority of the Indonesian Broadcasting Commission (KPI) against Youtube and Netflix according to the Law Number 32 of 2002 regarding Broadcasting Law,” *Tech. Soc. Sci. J.*, vol. 8, pp. 205–211, 2020, [Online]. Available: <https://heionline.org/HOL/P?h=hein.journals/techssj8&i=205>
- [40] D. Wulandari and D. Hermiati, “Early Detection of Mental and Emotional Disorders in Children Experiencing Gadget Addiction (Deteksi Dini Gangguan Mental dan Emosional pada Anak yang Mengalami Kecanduan Gadget),” *J. Keperawatan Silampari*, vol. 3, no. 1 SE-Articles, Nov. 2019, doi: <https://doi.org/10.31539/jks.v3i1.843>.
- [41] I. D. Ardiyani, Y. Setiawati, and Y.-T. Hsieh, “Education for Parents of Children with Gadget Addiction,” *J. Berk. Epidemiol.*, vol. 9, no. 3, pp. 221–230, 2021.
- [42] Y.-J. Kim, H. M. Jang, Y. Lee, D. Lee, and D.-J. Kim, “Effects of Internet and Smartphone Addictions on Depression and Anxiety Based on Propensity Score Matching Analysis,” *Int. J. Environ. Res. Public Health*, vol. 15, no. 5, Apr. 2018, doi: 10.3390/ijerph15050859.
- [43] R. Bacharuddin, E. Ernawati, and R. Saraswati, “The Relationship of Gadget Use Behavior on Sleep Disorders in Children of SDN 1 Jlamprang, Leksono District, Wonosobo Regency,” *Proceeding of The URECOL*, pp. 252–263, 2022.
- [44] M. Figueiro and D. Overington, “Self-luminous devices and melatonin suppression in adolescents,” *Light. Res. Technol.*, vol. 48, no. 8, pp. 966–975, 2016, doi: 10.1177/1477153515584979.
- [45] O. W. K. Handayani, A. Yuniastuti, K. O. Abudu, and E. Nugroho, “Gadget Addiction and The Effect of Sleep Habit, Stress, Physical Activity to Obesity,” *Malaysian J. Public Heal. Med.*, vol. 21, no. 1, pp. 1–8, 2021, doi: 10.37268/MJPHM/VOL.21/NO.1/ART.272.
- [46] T. N. Robinson *et al.*, “Screen Media Exposure and Obesity in Children and Adolescents,” *Pediatrics*, vol. 140, no. Suppl 2, pp. S97–S101, Nov. 2017, doi: 10.1542/peds.2016-1758K.
- [47] N. Stiglic and R. M. Viner, “Effects of screentime on the health and well-being of children and adolescents: A systematic review of reviews,” *BMJ Open*, vol. 9, no. 1, pp. 1–15, 2019, doi: 10.1136/bmjopen-2018-023191.
- [48] L. Sonia and S. Mariya, “The 4Cs : Classifying online risk to children,” pp. 0–14,

- 2021, [Online]. Available: https://www.ssoar.info/ssoar/bitstream/handle/document/71817/ssoar-2021-livingstone_et_al-The_4Cs_Classifying_Online_Risk.pdf?sequence=4&isAllowed=y&lnkname=ssoar-2021-livingstone_et_al-The_4Cs_Classifying_Online_Risk.pdf
- [49] M. G. Sobry, "The Role of Smartphones on Children's Growth and Development (Peran Smartphone Terhadap Pertumbuhan Dan Perkembangan Anak)," *J. Penelit. Guru Indones. - JPGI*, vol. 2, no. 2, pp. 24–29, 2017, doi: <https://doi.org/10.29210/02222jpgi0005>.
- [50] N. Othman, M. Khairuz, S. Bin, T. Soe, and S. Jamaludin, "The Impact of Electronic Gadget Uses with Academic Performance among Secondary School Students," *Res. Artic.*, vol. 2, no. December 2019, pp. 56–60, 2020.
- [51] D. C. Wibowo *et al.*, "Description of Gadget Addiction, Sleep Quality, and Students Learning Achievement at SD Negeri 1 Sidodadi Lawang in 2019," *J. Community Med. Public Heal. Res.*, vol. 1, no. 2 SE-Original Research, pp. 72–78, Aug. 2020, doi: [10.20473/jcmphr.v1i2.21698](https://doi.org/10.20473/jcmphr.v1i2.21698).
- [52] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User Acceptance of Information Technology: Toward a Unified View," *MIS Q.*, vol. 27, no. 3, pp. 425–478, Apr. 2003, doi: [10.2307/30036540](https://doi.org/10.2307/30036540).
- [53] A. B. Al-Naim and M. M. Hasan, "Investigating Saudi Parents' intention to adopt technical mediation tools to regulate children's internet usage," *Int. J. Adv. Comput. Sci. Appl.*, vol. 9, no. 5, pp. 456–464, 2018, doi: [10.14569/IJACSA.2018.090560](https://doi.org/10.14569/IJACSA.2018.090560).
- [54] A. Bandura, W. H. Freeman, and R. Lightsey, "Self-efficacy: The exercise of control." Springer, 1999.
- [55] W. Shin, "Empowered parents: the role of self-efficacy in parental mediation of children's smartphone use in the United States," *J. Child. Media*, vol. 12, no. 4, pp. 465–477, 2018, doi: [10.1080/17482798.2018.1486331](https://doi.org/10.1080/17482798.2018.1486331).
- [56] J. Jang, H. Hessel, and J. Dworkin, "Parent ICT use, social capital, and parenting efficacy," *Comput. Human Behav.*, vol. 71, pp. 395–401, 2017, doi: <https://doi.org/10.1016/j.chb.2017.02.025>.
- [57] stopbullying.gov, *How to Prevent Cyberbullying: A Guide for Parents, Caregivers, and Youth*. Health Resources and Services Administration (HRSA), 2021.
- [58] R. Gunawan, S. Aulia, H. Supeno, A. Wijanarko, J. P. Uwiringiyimana, and D. Mahayana, "Social Media and Gadget Addiction by Internet Users in Indonesia (Adiksi Media Sosial dan Gadget bagi Pengguna Internet di Indonesia)," *Techno-Socio Ekon.*, vol. 14, no. 1, pp. 1–14, 2021.
- [59] F. M. Reshad, M. Z. bin Mat, W. N. I. Mohamad, and W. N. Anas, "Gadget Addiction Factors in Malaysia: A Literature Review," *J. Acad. Res. Bus. Soc. Sci.*, vol. 11, no. 2, pp. 151–156, 2021.
- [60] K. Young, M. Pistner, J. O'Mara, and J. Buchanan, "Cyber disorders: the mental health concern for the new millennium.," *Cyberpsychol. Behav.*, vol. 2, no. 5, pp. 475–479, 1999, doi: [10.1089/cpb.1999.2.475](https://doi.org/10.1089/cpb.1999.2.475).
- [61] H. K. Falkenberg, T. R. Johansen, and H. M. S. Thorud, "Headache, eyestrain, and musculoskeletal symptoms in relation to smartphone and tablet use in healthy adolescents.," 2020.
- [62] M. E. Helander, S. A. Cushman, and S. M. Monnat, "A public health side effect of the coronavirus pandemic: Screen time-related eye strain and eye fatigue," 2020.
- [63] T. Schulz van Endert, "Addictive use of digital devices in young children: Associations with delay discounting, self-control and academic performance.," *PLoS One*, vol. 16, no. 6, p. e0253058, 2021, doi: [10.1371/journal.pone.0253058](https://doi.org/10.1371/journal.pone.0253058).
- [64] O. J. Sunday, O. O. Adesope, and P. L. Maarhuis, "The effects of smartphone addiction on learning: A meta-analysis," *Comput. Hum. Behav. Reports*, vol. 4, p. 100114, 2021, doi: <https://doi.org/10.1016/j.chbr.2021.100114>.
- [65] J. F. Hair, *Multivariate data analysis*, 7. ed., Pe. Harlow: Pearson, 2014.
- [66] J. F. Hair, *A primer on partial least squares structural equation modeling (PLS-SEM)*, Second edi. Los Angeles: Sage, 2017.

Appendix

Table 3: Indicators in The Questionnaire

Construct	Indicators	Reference
Gadget Addiction (AD)	AD1: I feel my child has excessively used gadgets	[40], [58]
	AD2: I feel my child became emotional after using gadgets for a relatively long time.	[40], [41]
	AD3: I feel I do not supervise my child's use of gadgets.	[51], [59]
	AD4: I feel my child prefers playing with gadgets rather than socializing with his/her friends.	[41]
	AD5: I feel my child is obsessed with certain applications or games on his gadget (e.g., social media and online games).	[60]
Perceived Online Risk (OL)	OL1: I am worried that my child may see violent content on the internet.	[48]
	OL2: I am worried that my child may see pornography on the internet.	
	OL3: I am worried that my child may download applications and games that are not suitable for their age.	
	OL4: I am worried my child may meet strangers on the internet.	
	OL5: I am worried that my child may communicate with strangers on the internet	
Perceived Health Risk (HE)	HE1: My child could have eyestrain due to gadget use.	[61], [62]
	HE2: My child could be difficult to rest after long use of the gadget.	[44], [51]
	HE3: My child could lack rest time after using the gadget.	[51]
	HE4: My child could have an uncomfortable sitting posture while using the gadget (e.g., being hunched over)	[51]
Academic Concern (AC)	AC1: My child's academic performance could decrease due to using gadgets.	[50], [51], [63], [64]
	AC2: My child could be lazy to study because of gadgets.	
	AC3: My child could be lazy to do homework because of gadgets.	
	AC4: My child could easily get distracted when learning because of gadgets.	
Effort Expectancy (EF)	EF1: I want parental control that is easy to be installed on the gadget used by my child.	[52], [53]
	EF2: I want parental control that is easy to be used.	
	EF3: I want parental control that uses Bahasa Indonesia.	[52]
	EF4: I want the convenience of getting information or reports from parental control.	
Parent's Awareness (AW)	AW1: I want to know what applications or games are installed on the gadget used by my child	[53], [56]
	AW2: I want to know what things are stored on the gadget used by my child.	
	AW3: I want to know about any online activities done by my child.	
	AW4: I want to place content restrictions on the gadget used by my child.	
	AW5: I want to limit the duration of using gadgets by my child	[53], [56], [59]
Parent's Self-Efficacy (SE)	SE1: I know how to browse the internet on gadgets.	[53], [55], [56]
	SE2: I know how to send messages and emails on gadgets.	
	SE3: I know how to use social media on gadgets.	

	SE4: I know how to download applications or games on gadgets.	
	SE5: I can learn how to use any mobile application.	
	SE6: I know how to lock gadgets (e.g., using PIN or password)	
	SE7: I know how to change gadgets' settings.	
Intention to Use Parental Control (INT)	INT1: I want to use parental control to monitor the duration of gadget use by children.	[38], [53]
	INT2: I want to use parental controls to supervise children's online activities	
	INT3: I want to use parental control to monitor applications or games used/played by children.	
	INT4: I want to use parental controls to limit which apps or games my child can download.	
	INT5: I want to use parental control to limit the use of gadgets by children.	
Parent's Age (M)	Parent's age	[37], [52], [53]

Table 6: Discriminant Validity Test

	AD	OL	HE	AC	EF	AW	SE	INT
AD	0.785							
OL	0.371	0.852						
HE	0.437	0.530	0.840					
AC	0.502	0.437	0.532	0.926				
EF	0.255	0.350	0.372	0.378	0.934			
AW	0.227	0.401	0.395	0.372	0.726	0.889		
SE	0.454	0.266	0.298	0.227	0.454	0.504	0.846	
INT	0.264	0.355	0.335	0.714	0.714	0.717	0.369	0.940