A PROTOTYPE FOR PARENTS TO MONITOR THE CHILDREN'S USE OF GADGETS APPLYING SYSTEMS DEVELOPMENT LIFE CYCLE- PROTOTYPE: A CASE OF INDONESIA

by Juhriyansyah Dalle Et Al.

Submission date: 08-Jun-2023 04:14PM (UTC+0700)
Submission ID: 2111652586
File name: JDalle_SUBMIT--1_137-150.pdf (364.5K)
Word count: 5807
Character count: 30774

INTERNATIONAL JOURNAL OF eBUSINESS AND eGOVERNMENT STUDIES
Vol: 14 **No:** 4 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 137-150) **Doi:** 10.34109/ijebeg.202214206
Received: 21.07.2022 | **Accepted:** 27.11.2022 | **Published Online:** 05.12.2022

-RESEARCH ARTICLE-

A PROTOTYPE FOR PARENTS TO MONITOR THE CHILDREN'S USE OF GADGETS APPLYING SYSTEMS DEVELOPMENT LIFE CYCLE-PROTOTYPE: A CASE OF INDONESIA

Juhriyansyah Dalle
Universitas Lambung Mangkurat, Banjarmasin, Indonesia
Email: j.dalle@ulm.ac.id
https://orcid.org/0000-0002-5700-2766

Akhmad Yusuf
Universitas Lambung Mangkurat, Banjarmasin, Indonesia
Email: yusuf@ulm.ac.id
https://orcid.org/0000-0002-9177-8066

Ahmad Rizani

Politeknik Negeri Banjarmasin, Indonesia
Email: a.rizani@poliban.ac.id
https://orcid.org/0009-0006-3270-6245

Ahmad Yusuf

Politeknik Negeri Banjarmasin, Indonesia
Email: ahmadyusuf@poliban.ac.id
https://orcid.org/0000-0003-2383-9944

Charles Phandurand
Universitas Lambung Mangkurat, Banjarmasin, Indonesia
Email: 2010817110006@mhs.ulm.ac.id

Citation (APA): Dalle, J., Yusuf, A., Rizani, A., Yusuf, A., Phandurand, C., Hassan, M.F. (2022). A Prototype for Parents to Monitor The Children's Use Of Gadgets Applying Systems Development Life Cycle-Prototype: A Case of Indonesia. *International Journal of eBusiness and eGovernment Studies, 14 (4),* 137-150. doi:10.34111/ijebeg.202214206

INTERNATIONAL JOURNAL OF eBUSINESS and eGOVERNMENT STUDIES
Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

Muhammad Fadillah Hassan
Universitas Lambung Mangkurat, Banjarmasin, Indonesia
Email: 2010817110005@mhs.ulm.ac.id

—Abstract—

Gadgets seem inseparable from the lives of today's children all over the globe. Similarly, gadgets and the internet have become inseparable parts of children's daily lives in Indonesia. On the other hand, children's excessive use of gadgets negatively impacts their lives and routine activities. Therefore, efforts are needed to increase children's awareness, knowledge, and skills by providing security or monitoring the use of devices. As primarily responsible for children's use of gadgets/devices, parents must supervise and accompany their children in their digital activities and be involved in them. Hence, this study aims to develop a safety system for gadget activities (gadgets) for children that facilitate the parents in monitoring their children's gadgets' uses by applying the Systems Development Life Cycle (SDLC)-Prototype. This research applied a mixed method approach, i.e., exploratory sequential mixed methods (qualitative and quantitative). The monitoring system using the SDLC-Prototype was successfully developed following the parents' requirements and Indonesian culture. This development is expected to be one of the solutions to overcoming gadget addiction in children.

Keywords: Children's Gadgets Use; Monitoring system; SDLC-Prototype; Parents' Need; Indonesian Culture

1. INTRODUCTION

In today's contemporary world, Information and Communication Technology (ICT) trespassed into almost all walks of human life (Akrim et al., 2021; Šabić et al., 2022). This immense intrusion of ICT in human life makes life easier (Kundu et al., 2022). Gadgets are among the several technological products influencing human life to a large extent (Wahyuningtyas et al., 2022). Gadgets have penetrated time and space and changed human communication behaviors by bringing people sitting thousands of kilometers away from each other at a one-click distance apart (Putri et al., 2021). At the beginning of its emergence, gadgets were owned only by certain circles that needed them for the smooth running of human work (Bayanova et al., 2019). Currently, gadgets with internet technology are no longer just communication tools but a tool to get all the information in the world and a lifestyle, trend, and prestige (Suzana et al., 2020). Gadgets and the internet are a combination of technologies that have positive impacts, such as improving communication, saving time, saving space, and as a source of entertainment and fun (Salsabila, 2022).

Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

However, apart from their positive and beneficial impact on humans, gadgets also have some negative effects or impacts, especially if they are used excessively or carelessly by humans, especially children (Annisa et al., 2022). But until now, the use of gadgets is not limited by age, and children are no exception. In this case, the ages classified as children are divided into 3 periods, namely the first period (0-3 years), the second period (3-6 years), and the third period (6-9 years) (Wahyuningtyas et al., 2022). Various activities are carried out by children when using gadgets, such as playing games and online communication, learning online and learning new skills, updating their status on social media and watching movies or series on online platforms, making videos on short video platforms, and reading books or comics on the internet (Tyastiti, 2020).

In response, several parental control applications have emerged, such as Qustodia Parental Control, Kaspersky Safe Kids, Circle Home Plus, Locategy, Mobicip, Symantec Norton Family Premier, Net Nanny, and McAfee Safe Family. Simultaneously, several parental control applications have been built from the cultural elements in Indonesia (Annisa et al., 2022). However, it is not certain that the system is following the conditions that parents want for the use of gadgets in children (Suzana et al., 2020). On the other hand, the development of a security system based on the needs and culture of parents to supervise gadgets when children are used is one of the great potentials for reducing the problems that occur. Therefore, it is necessary to develop a security system for gadgets for children that can fulfill the wishes of end users according to the needs of parents and Indonesian culture (Tyastiti, 2020). Thus to address this literature gap, the current study aims to develop a system to monitor and control children's behavior when using gadgets anywhere and anytime that suit the needs of parents and Indonesian culture using the SDLC-Prototype. Meanwhile, the specific objectives of this research include developing a prototype of a child's gadget activity safety system with a friendly user interface for users (parents). Hence, developing a prototype of a children's gadget activity security system with an attractive and appropriate design of shapes, colors, and writing remained the prime focus of the current study. Moreover, considering the cultural values of Indonesia, a security system with features to monitor children's online activities such as social media activity, any applications uploaded (prevent), find out the child's location, block incoming calls, and deactivate all wireless signals, or other activities that require a fee, as well as deactivating all application access. Additionally, this gadget activity safety system has time management features, such as time limits for using devices and games and certain applications. It can automatically stop the device the child uses, developing a prototype of a child's device activity safety system.

2. LITERATURE REVIEW

A study conducted by Suzana et al. (2020) revealed that the use of gadgets by children has increased over the past 2 years. Hence, the American Academy of Paediatrics recommends preventing the use of technology for children under the age of two by

saying that it changes the nature of childhood. In addition, the University of Wisconsin shows that toddlers tend to respond better to video screens that initiate interactions, thus providing peace of mind to children (Salsabila, 2022). These devices changed entire childhood lifestyles, replacing TVs, toys, playgrounds, and storybooks. Research also reports that children use gadgets excessively, affecting their physical and mental health worldwide (Annisa et al., 2022). In this context, research has shown that gadget addiction can negatively affect children's cognitive and emotional development. In addition, a study by Wahyuni et al. (2019) on elementary school students in Indonesia showed that children with a moderate to severe risk of gadget addiction were more than twice as likely to develop depressive symptoms than their non-addicted counterparts. Besides, Gadgets seem inseparable from the lives of today's children. At the same time, scholars demonstrate that the rise of gadget use among children still needs to be under the supervision of parents (Yohana et al., 2021). This is because using gadgets and the internet can negatively impact children, such as through cyberbullying, exposure to pornographic content, and so on (Bhattacharyya, 2015). Meanwhile, the factor that causes the use of underage gadgets is the parenting style of parents who give children gadgets so that children don't cry and disturb their parents (Tafrihah et al., 2022). However, parents are unaware of the impact of gadgets on minors if they are used excessively (Putri et al., 2021; Yohana et al., 2021). Considering children's excessive use of gadgets and their negative impact, addiction to using gadgets in children is a problem that must be resolved (Wahyuningtyas et al., 2022). In this context, scholars also call for research and development of certain security systems that parents can utilize as monitoring tools (Bayanova et al., 2019; Salsabila, 2022; Tafrihah et al., 2022).

3. RESEARCH METHODOLOGY

The current study used a mixed-method approach with several stages. The first stage requires a description of the needs of the research's urgency. The urgency of this research was in the form of a safety system for gadget activities in children. Furthermore, the description of this urgency underlies identifying research problems, namely the need for a security system for gadget activities in children based on the needs of parents and Indonesian culture. The next stage was gathering information and studying the research literature to look for theories and related research to underlie this research. After obtaining related theory and research, the next step was to determine the concept and scope of the research. The concept and scope of this research include qualitative system requirements data collection, system development using the SDLC-Prototype, and quantitative system evaluation by adopting the System Usability Scale (SUS) as a research instrument to conclude for determine whether the research conducted can answer the existing problem formulation.

All processes and stages of the research were carried out in South Kalimantan. This research was carried out from January 2022 to September 2022. The population of this study was children and parents (who needed security in their children's gadget activities).

Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

The determination of the sample in this study was divided into two stages: the first stage when collecting data on system requirements using a qualitative method, and the second stage when evaluating the system using a quantitative method. The sampling technique from the two stages used purposive sampling (Andrade, 2021). Data collection aims to collect data, materials, information, and reliable information for research purposes (Hair et al., 2019; Noor et al., 2022). In this study, data collection was carried out using two approaches, qualitative and quantitative methods. A qualitative approach with observation and interviews was used when collecting data regarding the need for a safety system for children's gadget activities. The data collected went into a qualitative analysis process to conclude the needs of parents and Indonesian culture that are suitable for application to the safety system for children's gadget activities. The data obtained through this qualitative method became the basis for system development using the SDLC-Prototype.

3.1 Systems Development Life Cycle (SDLC)

Systems Development Life Cycle (SDLC) is a cycle used to create or develop information systems that solve problems effectively (Ridwan et al., 2021). SDLC can be a stage of work with the motive of producing a superior system that follows the needs or purposes for which the system was made (Tai, 2017). In addition, the SDLC is a framework with several steps to be followed for developing software. This system contains a complete plan to develop, maintain, and replace a certain software (Faqihuddin et al., 2020). In simple terms, SDLC is defined as the process of creating and modifying systems as well as the methodologies and models used to develop these systems. The SDLC concept underlies various methodologies for software development. One of the methods in system development based on SDLC is Prototype. This method allows the user or users to develop an initial picture of the required software (Faqihuddin et al., 2020). Also, the initial testing can be done by the users before releasing the software. Besides, the prototype aims to develop the model into the final software, and its development requires certain prerequisite stages (Ridwan et al., 2021). Applying the prototype methodology, one should follow the following software development stages (Dwivedi et al., 2019). In the *needs analysis*, the system requirements that need to be made and the software be quiet are identified by the developer. In the stage of making prototypes, a temporary design is created, focusing on the program flow by the users. Next, the evaluation of prototypes comes. The developers figure out the significance of the prototype model as per the requirements and expectations. After the prototype is approved, the coding system helps to transmit it into an appropriate programming language. After the software is ready, the system testing process starts, which can usually be done with White Box Testing, Black Box Testing, and others. The next system evaluation stage comes, where the users evaluate the developed system as per the expectations and requirements. If the developed system meets requirements and expectations, the developers move to the next stage; otherwise, the coding and testing

Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

system stage is revised to reach the desired outcomes. Finally, after the approval of the prototype developed, the users start to *use the system*.

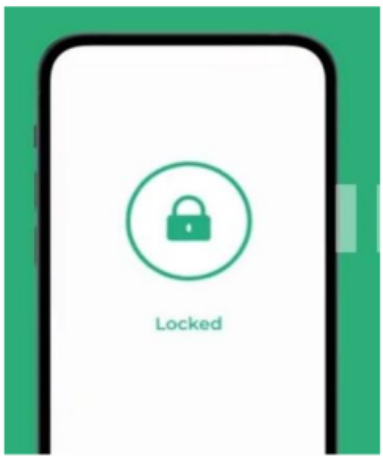
4. ANALYSIS AND FINDINGS OF THE STUDY

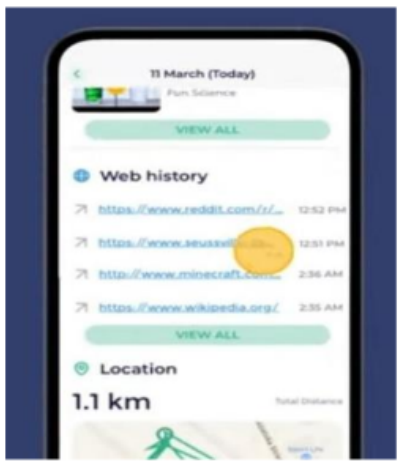
4.1 Needs Analysis

Needs analysis is the initial stage of the prototype development process. Two variables are the main factors in the current study, including the needs of parents and Indonesian culture. The parental needs variable is everything that parents want to be able to monitor their child's gadget activity. Meanwhile, what is meant by Indonesian culture is the pattern of values and norms that parents must carry out to educate children in using gadgets, as well as patterns of values and norms that children must obey. The research data was taken from respondents who were divided into 2 (two) groups: parents and children. The number of respondents when collecting data was 50 individuals (25 parents+ and 25 children). The ratio of the number of respondent groups was the same as the percentage of 50 percent for parents and 50 percent for children, with a total of 50 respondents. Data collection was carried out based on direct (practice) observation and questionnaires for research needs. Additionally, secondary data in the form of books, journal publications, library materials, laws, and regulations were considered for knowledge of Indonesian culture.

4.2 Making Prototype

In the next stage, we made a prototype using the data obtained via interviews and observations from parents who wanted to monitor their children's device usage. The authors also tried to add all the features that parents highlighted during their interviews based on their concerns about guarding their children's activities. The following Figures(1-6) present certain features which were taken into consideration while developing the prototype as per the needs of the parents.





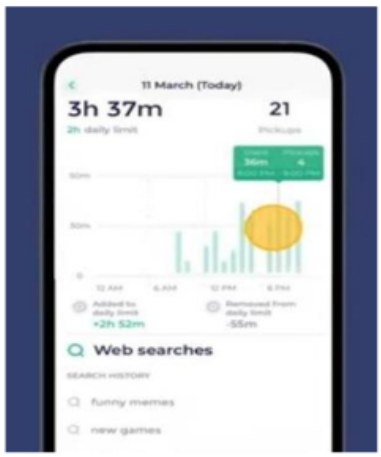


Figure 1. Display Locked **Figure 2.** Display Web History **Figure 3.** Web Search Display

Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

4.3 Coding System

After developing the prototype, certain codes were assigned to facilitate the parents to monitor their children's gadgets' use and control their usage.

4.4 System Testing

At this stage, usability testing was carried out by testing the user interface display of the Children's Device Activity Application website. The testing process asks respondents to interact with the system based on predetermined task scenarios. The developed prototype was evaluated with the help of experts and parents who were more concerned about their children's gadget use. For that purpose, they were given the prototype developed and were asked to monitor the activities of their children. They were able to see the schedule of their children using the gadgets. They were also able to manage the apps by intruding into their children's devices, i.e., mobile or tab usage mode. They also had access to their children's devices and were able to set the daily limit for using different apps. Figures 4-6 depict the activity monitored and controlled by the parents using the prototype developed in the current study.

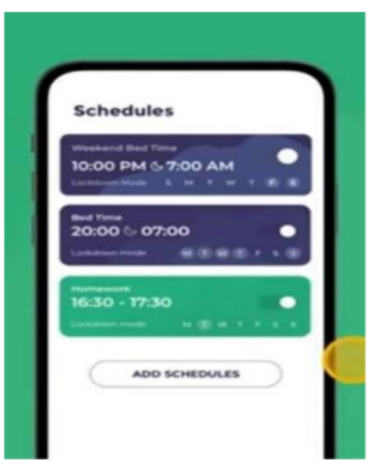


Figure 4. Schedule's view

Figure 5. App Management

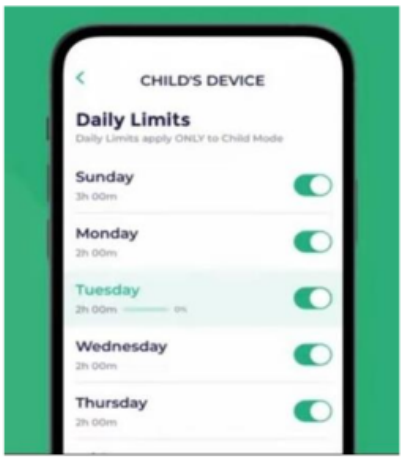


Figure 6. Daily Limits Display

4.5 Evaluation of Prototypes

In this stage, the System Usability Scale (SUS) was used to measure user satisfaction by distributing simple questionnaires to users after using or testing the application's usability. It is a research design process as well as a workflow framework in accordance with usability testing. Researchers prepared the System Usability Scale (SUS) Questionnaire as a tool to collect data from respondents in the form of a questionnaire (Hyzy et al., 2022). The questionnaire preparation is based on the SUS Questionnaire method as an aspect for Testing usability testing. The questionnaire consists of 10 indicators (see Table 1) in the form of statements with 5 (five) scale answers, namely Strongly Disagree to Agree Strongly. Respondents were asked to fill in the answers to the 10 SUS Questionnaire items that had been made on the Questionnaire Sheet. Before

INTERNATIONAL JOURNAL OF eBUSINESS and eGOVERNMENT STUDIES
Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

the questionnaire was handed over to the respondents, the researcher explained the rules for filling in, the number of items to be filled in, and so on. After compiling a questionnaire that adopted the SUS Questionnaire method, the researcher also compiled a user task for the respondent as a scenario when carrying out the test.

Table 1: SUS questionnaire items

Sr. No	SUS questionnaire items
1	I think that I will be using the children's gadget activity application a lot.
2	I find the children's gadget activity application tricky to use
3	I find the children's gadget activity application easy to use.
4	I need the help of other people or technicians when using the children's gadget activity application.
5	I feel the features of the children's gadget activity application work properly
6	I feel that there are many things that are not consistent/compatible with the children's gadget activity application.
7	I feel that other people will quickly understand how to use the children's gadget activity application on their devices.
8	I feel that the children's gadget activity application is confusing to use.
9	I feel there are no obstacles to using the children's gadget activity application.
10	I need to get used to it before using the children's gadget activity application

After that, respondents were required to fill in their personal information and questionnaire items. After recapitulating the respondent's answer data, the data were entered into the analysis stage. Questionnaire data analysis with the SUS Questionnaire uses the formula that has been set in SUS as in Formula 1 with several rules, i.e.,

- Odd statements, i.e., 1, 3, 5, 7, and 9, the score given by the respondent is reduced by 1.
- Even statements, i.e., 2, 4, 6, 8, and 10 scores given by respondents are used to reduce 5.
- The conversion results are then added up for each respondent and then multiplied by 2.5 to get a value range between 0 – 100.
- After the score of each respondent is known, the next step is to find the average score by adding up all the scores and dividing it by the number of respondents.

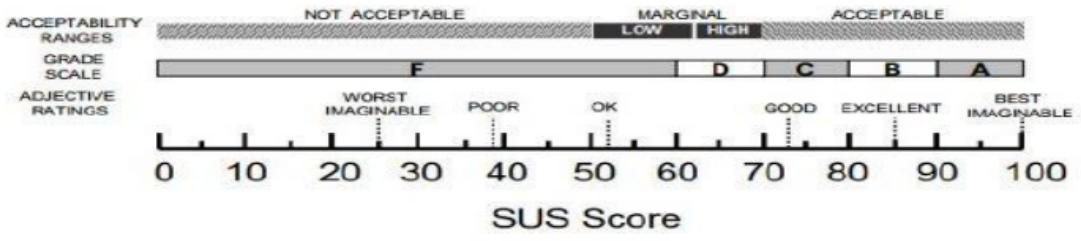


Figure 7. SUS Score Implementation

Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

The rules for calculating this value apply to 1 respondent. For the analysis of all respondents, it was analyzed based on the average of all respondents. After obtaining the final average result, the value was adjusted according to the SUS provisions. Furthermore, the data were calculated based on the rules of the SUS method so that the average value is obtained for evaluating alternative design prototypes. The score calculation can be seen in the following Table 2.

Table 2. Score Calculation on SUS Questionnare

No	Count Result Score										Value	Score
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
1	4	4	4	4	4	3	4	4	3	4	38	95
2	4	2	4	2	4	2	4	2	2	2	28	70
3	3	3	3	3	2	3	2	3	3	3	28	70
4	4	2	4	2	4	3	4	2	4	2	31	78
5	3	3	3	3	3	3	3	3	3	3	30	75
6	4	3	3	3	4	4	4	3	4	3	35	88
7	3	3	4	3	4	3	4	3	2	3	32	80
8	4	3	4	3	4	2	4	3	2	3	32	80
9	3	3	3	3	4	2	4	3	3	3	31	78
10	2	2	4	2	2	3	2	4	2	2	25	63
11	3	3	3	3	3	2	3	3	3	3	29	73
12	3	3	3	3	3	2	3	3	3	4	30	75
13	4	4	4	4	4	4	4	4	3	4	39	98
14	3	3	3	3	4	3	4	3	3	3	32	80
15	3	3	3	3	3	3	3	3	3	3	30	75
16	4	4	4	4	3	4	3	4	3	4	37	93
17	3	3	3	3	4	3	4	3	3	3	32	80
18	4	3	4	3	4	4	4	3	3	3	35	88
19	4	4	4	4	3	3	3	2	3	2	32	80
20	4	3	4	3	3	3	3	3	3	3	32	80
21	4	3	4	4	4	2	3	3	3	4	34	85
22	3	4	4	4	3	3	2	4	4	4	35	88
23	4	4	3	4	3	3	4	3	3	4	35	88
24	3	4	4	3	3	3	4	4	4	4	36	90
25	4	3	3	2	4	4	3	3	3	4	33	83
Average Score (Final Result)												80

Based on the score calculation, it was found that the average score or the final result of the alternative design prototype was 80. This means that the score is included in the excellent category with a grade scale B. This means that based on the usability data, a satisfactory or feasible assessment is obtained. These results approved the significance of the prototype developed and allowed its usage by parents.

Vol: 14 No: 4 Year: 2022 ISSN: 2146-0744 (Online) (pp. 137-150) Doi: 10.34109/ijebeg. 202214206

5. CONCLUSION

Based on the intimate nature of gadgets in the lives of children, it is of utmost significance to devise security systems to minimize their harmful impacts on children's physical and mental health. In this context, scholars recommended making considerable efforts to monitor the children's activities while using gadgets (Jannah et al., 2021; Salsabila, 2022; Tyastiti, 2020). This could better help to counsel them and control their gadgets usage. It is also important to keep their interest in studies and physical activities rather than spending time on immovable technology-used activities. Hence, acknowledging parents' significant role in monitoring and controlling their children's technology usage and spending time on different devices, the current study developed a prototype applying the Systems Development Life Cycle (SDLC)-Prototype. This research applied a mixed method approach, i.e., exploratory sequential mixed methods (qualitative and quantitative). For that purpose, 25 parents and 25 children were considered as respondents to the study. Interviews were conducted with the parents along with focus group discussions and observations to have detailed knowledge of their needs and requirements regarding the children's use of gadgets in routine life. On the other hand, secondary data in the form of books, journal publications, library materials, laws, and regulations were considered for knowledge of Indonesian culture. After developing the prototype based on the needs of the parents and following the Indonesian culture, it was tested by the experts and the parents. After the evaluation of the system, it was considered appropriate to be used by parents to control and monitor the activities of their children.

In addition to several strengths of the current study based on parents' needs and addressing the literature gap, it has a few limitations that need to be considered. The current study has only emphasized the parents' need to control and monitor their children's gadget usage. In contrast, future researchers can also consider the children's needs for using the gadgets to extract the significance of these gadgets' usage in children's lives. For that purpose, interviews or observations can be conducted among the children and the parents to evaluate the similarities or differences in both interests. Secondly, the data for the current study only consisted of 50 respondents. In contrast, future researchers can collect data from more respondents to enhance the generalizability of the results. Finally, future researchers can conduct multiple studies among the parents of children of different age groups to evaluate their priorities regarding the intensity of the gadget use and their parents' preferences in monitoring and controlling their children's gadget usage.

6. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Considering the significance of ICT in human life, the current study adds value to the literature regarding gadgets use and their monitoring system. Previously researchers have reported children's excessive use of gadgets and parents' concerns regarding their

children's health and physical activities (Zaky et al., 2022; Zamzani et al., 2022). Simultaneously previous researchers have focused on presenting the facts and figures that caused the excessive use of gadgets or addiction among children (Jannah et al., 2021; Munawar et al., 2020; Zulkifli et al., 2021). Also, researchers have highlighted the parents' role in controlling the activities of their children to limit the use of gadgets affecting their mental health (Akrim et al., 2021; Purnama et al., 2022). However, the development of a security system to practically limit the use of children's gadget use has been given scant attention. Hence developing the control or monitoring prototype against the excessive use of gadgets by children use of gadgets following parents' needs and as per Indonesian culture is a valuable contribution of the current study.

Moreover, this development is expected to contribute to the development of science and technology through a security system for gadget activities for children to monitor and guard children's activities when using these technological devices. In addition, it is hoped that this research will contribute in the form of technological devices that adapt to the needs of users (parents) and culture in Indonesia. Meanwhile, the research product produced in the form of a prototype security system for gadget activities in children will affect several factors such as child growth and development, parental and child knowledge, positive use of technology, parental and child insight into digital, and preventive measures. This research product will also form a conceptual model of technology security in Indonesian culture, especially for children.

AKNOWLEDGMENT

We would like to take this opportunity to thank you to Universitas Lambung Mangkurat for providing research funding through the Institute for Research and Community Service (LPPM) No. 024.33/UN8.2/PL/2022 Year 2022.

REFERENCES

Akrim, A., & Dalle, J. (2021). Mobile Phone and Family Happiness, Mediating Role of Marital Communication: An Attachment Theory Perspective. *International Journal of Interactive Mobile Technologies (iJIM)*, *15*(21), 107-118. doi: https://doi.org/10.3991/ijim.v15i21.17811

Andrade, C. (2021). The inconvenient truth about convenience and purposive samples. *Indian Journal of Psychological Medicine*, *43*(1), 86-88. doi: https://doi.org/10.1177/0253717620977000

Annisa, N., Padilah, N., Rulita, R., & Yuniar, R. (2022). Dampak Gadget Terhadap Perkembangan Anak Usia Dini. *Jurnal Pendidikan Indonesia*, *3*(09), 837-849. doi: https://doi.org/10.59141/japendi.v3i09.1159

Bayanova, A. R., Kuznetsov, V. V., Merculova, L. V., Gorbunova, L. N., Pervozvanskaya, O. A., Shalamova, O. O., & Vorobyova, C. I. (2019). Student performance interrelation with gadget use at lessons. *Journal of Environmental*

Treatment Techniques, *7*(3), 432-437. Retrieved from http://www.jett.dormaj.com

Bhattacharyya, R. (2015). Addiction to modern gadgets and technologies across generations. *Eastern Journal of Psychiatry*, *18*(2), 27-37. Retrieved from https://www.ejpsychiatry.com/doi/pdf/10.5005/EJP-18-2-27

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *Information Systems Frontiers*, *21*(3), 719-734. doi: https://doi.org/10.1007/s10796-017-9774-y

Faqihuddin, A., Wahyuddin, I., & Nathasia, N. D. (2020). Mysql Database Processing Information System Using The System Development Life Cycle (SDLC) Method At Quality Guarantee Agency Working Unit At National University: Mysql Database Processing Information System Using The System Development Life Cycle (SDLC) Method At Quality Guarantee Agency Working Unit At National University. *Jurnal Mantik*, *4*(1), 399-406. Retrieved from https://ejournal.iocscience.org/index.php/mantik/article/view/764

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2-24. doi: https://doi.org/10.1108/EBR-11-2018-0203

Hyzy, M., Bond, R., Mulvenna, M., Bai, L., Dix, A., Leigh, S., & Hunt, S. (2022). System usability scale benchmarking for digital health apps: meta-analysis. *JMIR mHealth and uHealth*, *10*(8), e37290. Retrieved from https://preprints.jmir.org/preprint/37290

Jannah, A. M., & Rachman, A. (2021). The Influence of the Role of Parents and Parenting Patterns in the Use of Gadgets on the Social Behavior of Children. *Journal of K6 Education and Management*, *4*(4), 401–407-401–407. doi: https://doi.org/10.11594/jk6em.04.04.03

Kundu, A., Dey, K. N., & Bej, T. (2022). Subject-Self Affecting on Teachers' Perceived ICT Usability: A Proposition for TAM3+. *International Journal of Distance Education Technologies (IJDET)*, *20*(1), 1-24. Retrieved from https://www.igi-global.com/article/subject-self-affecting-on-teachers-perceived-ict-usability/295980

Munawar, M., & Nisfah, N. L. (2020). The Effect of Assertive Discipline on Early-Aged Children's Gadget Addiction. *JECCE (Journal of Early Childhood Care and Education)*, *2*(2), 64-70. Retrieved from http://journal2.uad.ac.id/index.php/jecce

Noor, U., Mansoor, M., & Shamim, A. (2022). Customers create customers!–Assessing the role of perceived personalization, online advertising engagement and online users' modes in generating positive e-WOM. *Asia-Pacific Journal of Business Administration, ahead-of-print*(ahead-of-print). doi: https://doi.org/10.1108/APJBA-11-2021-0569

Purnama, S., Wibowo, A., Narmaditya, B. S., Fitriyah, Q. F., & Aziz, H. (2022). Do parenting styles and religious beliefs matter for child behavioral problem? The mediating role of digital literacy. *Heliyon*, *8*(6), e09788. doi: https://doi.org/10.1016/j.heliyon.2022.e09788

Putri, V. M., & Eliza, D. (2021). The impact of gadget use on the aspects of early childhood language development during Covid-19. *International Journal of Emerging Issues in Early Childhood Education*, *3*(1), 01-07. doi: https://doi.org/10.31098/ijeiece.v3i1.414

Ridwan, M., Fitri, I., & Benrahman, B. (2021). Rancang Bangun Marketplace Berbasis Website menggunakan Metodologi Systems Development Life Cycle (SDLC) dengan Model Waterfall. *Jurnal JTIK (Jurnal Teknologi Informasi dan Komunikasi)*, *5*(2), 173-184. Retrieved from http://journal.lembagakita.org/index.php/jtik

Šabić, J., Baranović, B., & Rogošić, S. (2022). Teachers' self-efficacy for using information and communication technology: The interaction effect of gender and age. *Informatics in Education*, *21*(2), 353-373. doi: https://doi.org/10.15388/infedu.2022.11

Salsabila, L. S. R. (2022). The Impact of Using Gadgets and Social Media. *KESANS: International Journal of Health and Science*, *1*(4), 432-442. doi: https://doi.org/10.54543/kesans.v1i4.43

Suzana, S., Munajim, A., Casta, C., Pratama, G., Sulaeman, E., Sukarnoto, T., . . . Karim, A. (2020). Gadget and the internet for early childhood distance learning. *PalArch's Journal of Archaeology of Egypt/Egyptology*, *17*(7), 8019-8028. Retrieved from https://archives.palarch.nl/index.php/jae/article/view/3518/3505

Tafrihah, T., & Utanto, Y. (2022). The Role of Parents in Preventing Impact Gadget Addiction in Early Childhood. *Paper presented at the International Conference on Science, Education, and Technology, 8*(1), 29-32. Retrieved from https://proceeding.unnes.ac.id/index.php/ISET/article/view/1717

Tai, Y.-M. (2017). Effects of product lifecycle management systems on new product development performance. *Journal of Engineering and Technology Management*, *46*, 67-83. doi: https://doi.org/10.1016/j.jengtecman.2017.06.001

Tyastiti, V. H. (2020). The impacts of the use of gadgets on the development of children 3-6 years of age. *SEAJOM: The Southeast Asia Journal of Midwifery*, *6*(1), 34-38. doi: https://doi.org/10.36749/seajom.v6i1.83

Wahyuni, A. S., Siahaan, F. B., Arfa, M., Alona, I., & Nerdy, N. (2019). The relationship between the duration of playing gadget and mental emotional state of elementary school students. *Open access Macedonian Journal of Medical Sciences*, *7*(1), 148. doi: https://doi.org/10.3889/oamjms.2019.037

Wahyuningtyas, R., Rochanah, R., & Izatovna, T. S. (2022). Impacts of Gadget on Early Childhood Development: How to Solve the Addiction Gadget? *Bulletin of Early Childhood*, *1*(1), 58-67. doi: http://dx.doi.org/10.51278/bec.v1i1.411

Vol: 14 **No:** 4 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 137-150) **Doi:** 10.34109/ijebeg. 202214206

Yohana, A., & Mulyono, S. (2021). The impact of digital era: Intensity of excessive use of gadget causing eating difficulty on children. *Enfermería Clínica*, *31*, S6-S9. doi: https://doi.org/10.1016/j.enfcli.2020.10.005

Zaky, U., Anggara, A., Zakariyah, M., & Fathullah, I. (2022). Poincaré Plot Method for Physiological Analysis of the Gadget Use Effect on Children Stress Level. *Jurnal Online Informatika*, *7*(1), 46-55. doi: https://doi.org/10.15575/join.v7i1.809

Zamzani, S. N., Zelfia, Z., & Ahdan, A. (2022). The Relationship of the Intensity of Gadget Media Use With Speech Delay in Children in Pannampu City Makassar. *RESPON*, *3*(3), 26-46. doi: https://jurnal.ilkom.fs.umi.ac.id/index.php/respon/article/view/71/58

Zulkifli, N., Novianti, R., & Garzia, M. (2021). The Role of Preschool in Using Gadgets for Digital Natives Generation. *Jurnal Pendidikan Usia Dini*, *15*(2), 221-238. doi: https://doi.org/10.21009/JPUD.152.02

A PROTOTYPE FOR PARENTS TO MONITOR THE CHILDREN'S USE OF GADGETS APPLYING SYSTEMS DEVELOPMENT LIFE CYCLE- PROTOTYPE: A CASE OF INDONESIA

ORIGINALITY REPORT

10%	8%	5%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	ojs.unud.ac.id Internet Source	1%
2	mail.cirrj.org Internet Source	1%
3	joiv.org Internet Source	1%
4	Submitted to Liberty University Student Paper	1%
5	Submitted to Yonsei University Student Paper	<1%
6	Rizky Putri Fajriati, Dewi Khairani, Nurul Faizah Rozy, Nanang Husin, Lisa Wiyartanti, Tabah Rosyadi. "Towards the Implementation of Arabic Language Mobile Apps Learning: Designed by User Insight", 2020 8th International Conference on Cyber and IT Service Management (CITSM), 2020 Publication	<1%
7	asianonlinejournals.com Internet Source	<1%

8	link.springer.com Internet Source	<1 %
9	www.researchgate.net Internet Source	<1 %
10	etd.unsyiah.ac.id Internet Source	<1 %
11	Submitted to Universitas Pendidikan Ganesha Student Paper	<1 %
12	www.markedbyteachers.com Internet Source	<1 %
13	Submitted to University of Glasgow Student Paper	<1 %
14	ejournal.upi.edu Internet Source	<1 %
15	Ricky Djamaluddin, Yudi Priyadi, Eko Darwiyanto. "User-Centered Design to Improve Personal Development In Comic Application", 2022 IEEE 12th Annual Computing and Communication Workshop and Conference (CCWC), 2022 Publication	<1 %
16	agbioforum.org Internet Source	<1 %
17	Aida Novitasari, Ananda Zara Eka Putri, Enung Mardiyana Hidayat, Adin Muafiroh, Indriatie Indriatie. "Analyzing the	<1 %

Relationship between Digital Game Addiction and Developmental Levelss Aged 4-6 Years Old", International Journal of Advanced Health Science and Technology, 2023
Publication

18	turcomat.org Internet Source	<1 %
19	Jianming Wang. "Application of Protease to Accelerate Sufu Ripening", 2010 4th International Conference on Bioinformatics and Biomedical Engineering, 06/2010 Publication	<1 %
20	Nurhafizah Nurhafizah, Wilma Rahmah Hidayati. "An Overview on Case Internet Addiction in Early Childhood's Perspective", Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini, 2022 Publication	<1 %
21	Shidiq Al Hakim, Dana Indra Sensuse, Indra Budi, Imam Much Ibnu Subroto, Al Hafiz Akbar Maulana Siagian. "Expert retrieval based on local journals metadata to drive small-medium industries (SMI) collaboration for product innovation", Social Network Analysis and Mining, 2023 Publication	<1 %
22	ejer.com.tr Internet Source	<1 %

23	insight.ppj.unp.ac.id Internet Source	<1 %
24	psasir.upm.edu.my Internet Source	<1 %
25	www.diva-portal.se Internet Source	<1 %
26	www.tandfonline.com Internet Source	<1 %
27	Kurniawan Teguh Martono, Agung Budi Prasetijo, Abbiyu Kirana Distira. "Analysis of Usability Game Educational Learning of Wayang Characters Using Usability Scale System", 2022 International Conference on Electrical, Computer and Energy Technologies (ICECET), 2022 Publication	<1 %
28	journal.unj.ac.id Internet Source	<1 %

Exclude quotes	On	Exclude matches	Off
Exclude bibliography	On		