

Development of E Rapport on Child Growth and Development in the Early Childhood Education (PAUD)

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ABSTRACT

Background: Every child has the right to monitor growth and development without exception, carried out at the family level; early detection of irregularities is carried out by trained health workers and early childhood/kindergarten educators. This activity has not yet reached the targeted figure, which is only 59.28% in 2020. Optimization of child growth and development can be developed through Paysandú integrated preschool. Notes on the assessment of the process and results of early detection of child growth and development stimulation are used by educators and parents as material for preparing follow-up stimulation. Based on this description, the authors consider it necessary to synergize the implementation of the SDIDTK program in the PAUD education program by making growth and development reports.

Purpose: The developed e-report card can increase efficiency and effectiveness and assist teachers, homeroom teachers, cadres, and health workers in managing the SDIDTK program so that valid, practical, and effective digital-based e-report applications can be obtained.

Method: The research design refers to the development of the 4D model, including defining, designing, developing and disseminating as proposed by Thiagarajan (1974). The stages carried out include steps 1, 2, and 3, while step 4 is carried out in the following year.

Result: The developed E-report card application is named SIDDIKA (Child health data and information application). The results of the material expert validation scored 73.5% (feasible). Media expert validation results scored 81.5% (very feasible). The test results on the child health data and information application design (SIDDIKA), which were carried out on users in the field, scored 84.1% (very feasible).

Conclusion: The developed E-report card application is suitable for use in the field to assist technically in the implementation of SDIDTK at the PAUD unit level and to help increase the coverage of children receiving growth and development monitoring.

Keyword : E-Rapport on Child Growth and Development, Early Childhood Education (PAUD)

ABSTRAK

Latar Belakang: Setiap anak berhak atas pemantauan tumbuh kembangnya tanpa kecuali, yang dilakukan pada tingkat keluarga; deteksi dini penyimpangan dilakukan oleh tenaga kesehatan terlatih dan pendidik PAUD/TK. Kegiatan ini belum mencapai angka yang ditargetkan yaitu hanya 59,28% pada tahun 2020. Optimalisasi tumbuh kembang anak dapat dikembangkan melalui PAUD terpadu Paysandú. Catatan penilaian proses dan hasil deteksi dini stimulasi tumbuh kembang anak digunakan oleh pendidik dan orang tua sebagai bahan penyusunan stimulasi lanjutan. Berdasarkan uraian tersebut, penulis memandang perlu untuk mensinergikan pelaksanaan program SDIDTK pada program pendidikan PAUD dengan membuat laporan pertumbuhan dan perkembangan.

Tujuan: Rapor elektronik yang dikembangkan dapat meningkatkan efisiensi dan efektivitas serta membantu guru, wali kelas, kader, dan tenaga kesehatan dalam mengelola program SDIDTK sehingga dapat diperoleh aplikasi e-laporan berbasis digital yang valid, praktis, dan efektif.

Metode: Desain penelitian mengacu pada pengembangan model 4D, meliputi pendefinisian, perancangan, pengembangan dan pendistribusian seperti yang dikemukakan oleh Thiagarajan (1974). Tahapan yang dilakukan meliputi tahap 1, 2, dan 3, sedangkan tahap 4 dilakukan pada tahun berikutnya.

Hasil: Aplikasi E-Raport yang dikembangkan diberi nama SIDDIKA (Aplikasi Data dan Informasi Kesehatan Anak). Hasil validasi ahli materi memperoleh skor 73,5% (layak). Hasil validasi ahli media memperoleh skor 81,5% (sangat layak). Hasil pengujian desain aplikasi data dan informasi kesehatan anak (SIDDIKA) yang dilakukan pada pengguna di lapangan memperoleh skor sebesar 84,1% (sangat layak).

Kesimpulan: Aplikasi E-rapor yang dikembangkan layak digunakan di lapangan untuk membantu secara teknis pelaksanaan SDIDTK di tingkat satuan PAUD dan membantu meningkatkan cakupan anak yang menerima pemantauan tumbuh kembang.

Kata kunci: E-Rapport, Pendidikan Anak Usia Dini (PAUD)

INTRODUCTION

Children are important assets for a nation, so the education and care provided must be able to improve the quality of children in the future. The quality of growth and development at this time will determine the quality of physical, mental, emotional, social health, learning ability and behavior throughout life.¹

As guaranteed in Law no. 35 of 2014, every child has the right to monitoring growth and development without exception. Early detection of deviations in growth and development needs to be done in order to be able to detect early deviations, so that early intervention can be carried out on deviations in child development as a corrective action so that growth and development returns to normal or the deviation does not get worse.²

The government's efforts to foster child growth and development are carried out through Posyandu activities, but the level of community participation in having their toddlers checked at Posyandu is still low. Based on Basic Health Research 2010 data, it was found that 50 percent of children under five in Indonesia did not visit the Posyandu regularly, this shows a tendency as the age of the toddler increases, the number of visits to the Posyandu decreases.³

Research results from the Ministry of Health in 2010 showed that the average Posyandu was abandoned when children were three years old and above, decreasing after children received complete basic immunization, even though detecting a child's growth and development disorder at an early age determines the success of its treatment by health workers. SDIDTK's activity coverage has yet to reach the targeted figure in 2010 of 90%. In addition, the children Posyandu activities carried out have not yet touched on aspects of monitoring growth and development as a whole.⁴

Since 2015, there has been a PAUD Integrated Posyandu program, which is a Posyandu that carry out additional development programs, including cognitive, language, physical, and social and development children emotional. Yunola, Bachtiar and Basyir's 2019 research results show that more than half of integrated Posyandu visits PAUD is not active (60.2%).⁵ Research by Melva Diana 2011 that optimizing child development is one of them can be developed through an integrated PAUD posyandu. From this description it is clear that PAUD institutions must carry out stimulation activities and early detection of growth and development.⁶

The results of Alrasid H's research in 2015 explained that the lowest score of parental satisfaction with education and childcare in PAUD was found in the aspect of the way teachers communicate with parents about children's development. Suggestions in this research need to increase communication to parents in the form of written notes (reports) about the growth and development of children.⁷ the performance of the Directorate of Family Health regarding the percentage of toddlers whose growth and development is monitored in 2020 has only reached 59.28%.⁸

The author considers it necessary to synergize the implementation of the SDIDTK program with the PAUD program by making growth and development reports. Report cards will be developed in the form *e-reports* to make it easier for teachers, midwives or cadres to communicate the results of growth and development checks to parents

METHOD

Research

Design The research for the development of digital-based growth and development e-reports was carried out referring to the development of the 4D model which includes define, design, develop and disseminate as proposed by Thiagarajan (1974).⁹

Population and Research Sample the research

Population is teachers, cadres and midwives as users of e-report cards growth and development The sample size was determined for limited trials, namely 6-8 people. Based on this, the sample was determined to consist of 8 PAUD teachers, 8 Posyandu cadres and 8 implementing midwives.

Data Analysis

Techniques Data Analysis Techniques to Obtain Information/Needs Analysis

The needs analysis phase and efforts to obtain information are used techniques interviews with teachers, cadres and midwives regarding the implementation of early detection checks on child growth and development that have been carried out at this time. The results of the interviews were then analyzed, conclusions were drawn from the results of the conversations, and used as input in product design.

Data Analysis Techniques for Expert Validation

At the expert validation stage the researcher created a questionnaire to be filled out by information technology experts and regarding responses to product designs made and expert input related to the material presented in the e-growth report card. Expert input is then analyzed, summarized and used as input for improving the draft growth and development report card.

Data Analysis Techniques for Assessment in the Trial

At the trial stage the researcher used a questionnaire to test the feasibility of the media from the assessment of respondents using e-reports, namely teachers, posyandu cadres and midwives. The total rating can be searched using the formula:

$$\text{Assessment score} = \frac{\text{Total score obtained}}{\text{Total highest score}} \times 100\%$$

Converting the score into this assessment statement can be seen in the following table:

Table 1: Media eligibility criteria¹⁰

Score	Classification
<21%	Very Inadequate
21-40%	Inadequate
41-60%	Adequate
61-80%	Eligible
81-100%	Very Eligible

RESULTS AND DISCUSSION

Stage 1: Define Stage

1. Analysis SDIDTK Coverage

Analysis of SDIDTK coverage was carried out based on data from reports on the implementation of SDIDTK Puskesmas which were summarized as data from the Tasikmalaya City Health Office. Data obtained that the percentage of toddlers aged 12-59 months who received SDIDTK services in the period January to July 2022 was only 20.98% of the 2020-2024 RPJMN target of 70% in 2021 and 75% in 2022.

2. Analysis implementation of SDIDTK in the Tasikmalaya City Health Office.

The data collection process used structured interviews with a small group discussion mechanism (*focus group discussion/FGD*). FGDs were conducted with 6 health center midwives and 6 cadres to gather data on the implementation of SDIDTK in the work area of the health center, including the implementation of SDIDTK activities in PAUD or kindergarten.

The results of the FGD can be concluded that not all toddlers can be accommodated to be examined by health workers at integrated PAUD Posyandu activities, need assistance from trained PAUD cadres/educators, difficulty accessing development monitoring instruments when in the field and aspects of monitoring growth and development that are examined are not comprehensive.

3. Analysis of the implementation of SDIDTK in PAUD

The data collection process used structured interviews with a *focus group discussion (FGD)*. FGDs were conducted with 6 kindergarten teachers to collect data on the implementation of SDIDTK in PAUD/Kindergarten schools.

From the results of the FGD it can be concluded that the children's health records made by educators in kindergarten/PAUD are still manual, and the SDIDTK activities of the Puskesmas have not monitored the overall aspects of growth and development. Health data and child development must be reported to the Health Center.

4. Analysis of the flow and concept of implementing SDIDTK.

Following are the results of related literature studies:

- a. Based on the Minister of Health of the Republic of Indonesia No. 66 of 2014 concerning Monitoring, Growth, Development and Developmental Disorders of Children, it can be concluded that the Development of Health Efforts for Kindergartners is a synergy between the Ministry of National Education and the Ministry of Health down to the basic level of Village which is carried out at the Kindergarten level (kindergarten).¹¹
- b. Based on the conceptual framework for fostering growth and development of toddlers and pre-school children in the Guidelines for SDIDTK, Ministry of Health, 2019 it can be concluded that stimulation and monitoring of child growth and development is carried out at the family level by parents, and early detection of irregularities is carried out by trained health workers and PAUD/TK educators.²
- c. Based on the level of service and SDIDTK implementing staff in the field, as stated in the Guidelines for SDIDTK, Ministry of Health, 2019, it can be concluded that early detection activities for deviations in child development are carried out at all levels of service, namely at the family and community levels carried out by parents, health cadres, PAUD center staff trained and trained kindergarten teachers, while at the Puskesmas level it is carried out by doctors, midwives and nurses.²
- d. In the Minister of Health of the Republic of Indonesia No. 66 of 2014 concerning Monitoring, Growth, Development and Disorders of Child Growth and Development, it can be concluded that monitoring the growth and development of children in kindergarten is a collaboration between parents, teachers and health workers.¹¹

- e. In the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 146 of 2014 concerning the early childhood education curriculum, it can be concluded that the role of educators in PAUD/TK units is very important in carrying out early detection of child growth and development and it is necessary to make notes and provide information to parents. Implementation of SDIDTK at the PAUD/TK unit level is part of the curriculum that must be implemented as part of the Education program at the PAUD/TK unit level.¹²
- f. In SDIDTK Guidelines, Ministry of Health, 2019 it can be concluded that in carrying out SDIDTK activities Health officers from Puskesmas must share roles with trained PAUD educators, build synergies/cooperation in carrying out inspections and reporting systems.²

5. Analysis of Similar Applications

Based on the results of observations on the PrimaKu and Primapro from the Indonesian Pediatrician Association (IDAI) and the results of observations on the Raudlatul Athfal (RA) Application Report from the Indonesian Ministry of Religion, it can be concluded that there is no application that monitors growth and development as a whole for the level PAUD/TK units that can be accessed and staffed by health workers, teachers and cadres with the aim of increasing the coverage of pre-school children conducted by SDIDTK and synergizing the Health Service and Community Health Center programs with PAUD units in monitoring children's growth and development.

6. Formulation of media development needs

Based on the explanation described above, the researcher concluded the need for a recording and reporting system that could help teachers, cadres and health workers which we developed in the form of an E-Report with the following flow:

- a. Application starts from the register/login menu user
- b. Fill in data and profiles of students in Kindergarten/PAUD
- c. The child's chronological age is calculated automatically in the application
- d. Then a link will be given to developmental instruments that are appropriate to the child's chronological age 5. In the application there will be a menu of individual child data recap and recap classes that can be downloaded/printed for stored data at school or as a data report to the Health Center
- e. In the application there will be a data entry menu that links to the E format Report on the growth and development of individual children which the teacher will deliver to parents in semester 1 and semester 2 each school year.

Stage 2: Design Stage (Design)

The name of the E Rapport application that was developed in the initial design was SIDDIKA (Stimulation Application for Early Detection of Children's Health)

Stage 3: Development Stage (Develop)

1. Validation

The e rapport development plan that has been prepared at the design stage is assessed/validated by experts (validators), namely material experts and expert's media, with the following results:

Table 2: Material expert validation results

No	Item	Score	Results
1	Effectiveness of using e-rapport	75%	Feasible
2	Completeness of material	73%	Feasible
3	Accuracy of material	72,5%	Feasible
	Average	73,5%	Feasible

From the table it is concluded that the results of the validation of the material expert on the initial design score were 73.5% (feasible). The following is the input of material experts on the initial design draft:

- a. It is better if the application is devoted to use at the PAUD unit level only in the form of student health records
- b. It is better if the e-report does not only contain data on growth and development but also contains data on other child health information
- c. The material used in the application must refer to the latest SDIDTK implementation guidelines

Table 3: Media expert validation results

No	Item	Score	Result
1	Aspect of efficiency of use	80%	Feasible
2	Aspect of appearance	83%	Very Feasible
	Average	81.5%	Very Feasible

From the table it is concluded that the results of the validation by media experts on the initial design score were 81.5% (feasible). The following is the input of media experts on the initial design draft: Add a description/label in the form field. The display is fixed by making the application background more colorful.

2. Revision of draft 1

At this stage the media that has been made and has been validated by experts is revised from the validation data. Then revisions were made so that it became a better e-report application. The following are revisions to the e-rapport design:



Figure 1: Design Revision of Children's Health Reports

In the draft / design revision of the application has been reviewed not duplication of use with a similar application. In this application the design was made specifically for use at the PAUD/TK unit level as a child health report that is submitted by PAUD teachers/educators to parents of students.

3. Trial

The trial was conducted to determine the practicality and effectiveness of using the e-raport application. This trial aims to determine the user's response to the application being developed. And

after testing it is expected to reach the final research product. The following is the data from the trial results conducted on 24 health workers, PAUD/Kindergarten educators and cadres.

Table 4: Results of a limited trial on the Use of the E Rapport Application (Child Health Data and Information Application/SIDDIKA)

No.	Item	Score	Results
1	Display aspect	80.1%	Eligible
2	Content Aspect	84.1%	Very Feasible
3	Aspect of usefulness	88.2 %	Very Feasible
	Mean	84.1%	Very Feasible

From the table it was concluded that the assessment of the trial results on the child health data and information application design (SIDDIKA) scored 84.1% (Eligible). User input at the trial stage is that it is hoped that there will be additional child health article features as material for educational media from teachers/educators to students and parents of students in Health/Parenting Education activities at schools.

4. Final application the final

Research product is the output of the research, namely to produce e-report products for health data and child growth and development. Based on input at the trial stage, the application has been added with an Article feature which contains articles about child health.

DISCUSSION

Child health data and information for implementation at the unit level of Early Childhood Education (PAUD) or Kindergarten (TK). In the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 146 of 2014 concerning the early childhood education curriculum, it is stated that: Early childhood is expected to grow and develop according to their age. Early detection is needed to find out whether a child is growing and developing according to his age. The ability of early detection is therefore needed by educators. Interviews with parents were conducted at the time the child registered to obtain initial information about possible obstacles to the child's development. Interviews were also conducted to provide information if during educational learning found growth and development that was not appropriate for a certain age. If developmental barriers are found, an agreement between parents and educators is needed for further treatment. Notes on the assessment of the process and results of early detection of child growth and development stimulation are used by educators and parents as material for preparing follow-up stimulation. If deemed necessary, these records can be used as material for consultation with relevant experts, including Puskesmas staff, therapists, psychologists and/or doctors.¹²

This application contains data on the child's medical history consisting of data on birth history, immunization history, history of breastfeeding, child health history and family health history. The results of the research by Hendrawan MA, Hernawan AD et al, showed that factors related to child growth based on indicators of height/age, namely history of exclusive breastfeeding, low birth weight, basic immunization and infectious diseases.¹³

This application contains data on children's health examinations consisting of tuberculosis screening, dental examinations, personal hygiene, growth checks and tests for early detection of development. Education units as an important component in efforts to educate the nation play a big role not only in efforts to promote and prevent the spread of disease, but are also the best place to start a character change and instill awareness of the importance of a culture of healthy living because in the long term it will certainly have an impact on improving people's quality of life.¹⁴

CONCLUSIONS AND SUGGESTIONS

1. One of the strategic efforts to improve the quality of early childhood education (PAUD) is through the fulfillment of essential needs in the form of education, health, nutrition, care, care, as well as protection and welfare for them. This effort can be done through educational institutions as a place for the learning process to take place. For this reason, early childhood education services will be more optimal if they are implemented in a holistic and integrated manner that cover all aspects that support children's growth and development.
2. The application of child health data and information (SIDDIKA) at the PAUD unit level can be used as a screening tool, medical records of children's health data and as a medium for health education which can be carried out once every 6 months/per semester. The examination results are stored as a report in the form of an e-report that can be submitted by educators to parents of students every semester.

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Ethical Clearance

This research has received ethical clearance "Ethical Exemption" from the Health Research Ethics Commission at Bakti Tunas Husada University Number 187/ec/kepk-bth/VII/2022.

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