

# The Utilization of Learning Device Information System (SIPP) as a Child Development Report Preparation Tool (RAPOT) in Kindergarten

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## ABSTRACT

The learning device information system (SIPP) is a system designed to compile a child development report by entering the input menu for daily and weekly assessment reports, anecdotal notes and child development reports in tables and narrative forms. The purpose of this study is to find out whether the learning device information system can help teachers compile report cards quicker and easier. The qualitative research method is used, with data collection techniques using observation, documentation, and interviews. Data analysis was performed using descriptive statistical techniques presented in narrative and table forms. The results showed that the preparation of report cards using SIPP could be completed in a faster and easier time than using the method that had been used in schools because the scores listed on the report cards were the accumulated value of daily and weekly assessments that were entered automatically into the report cards. In addition, there is also a photo input menu that can be included in the narrative section of the report card to make it easier for parents to understand the developmental achievements that have been reached by children. Based on these results, it can be concluded that the learning device information system can help teachers compile report cards in an easier and faster way.

**Keywords:** learning device information system, child development reports, kindergarten.

## 1. INTRODUCTION

Compiling a child development report is a routine task of the teacher after carrying out a series of learning activities within a certain period of time. Preparing development reports is also an indicator of pedagogical competence where teachers must be able to organize and produce assessment reports, evaluate processes, and early childhood learning outcomes. Furthermore, the results of the assessment must be communicated to stakeholders [1]. The existence of a report on the children's development assessment results allows parents to find out more about their children's achievements and to know if there are some follow-ups that must be done. Likewise, on the other hand, if the child has not been able to reach a part of its developmental aspect, then parents can determine what stimulation should be given. This also applies to teachers in decision making. Kostelnik explains that "Each of this teacher is involved in ongoing, strategy, and purposeful assessment and evaluation. Daily, they

are active in documenting what the children in their classroom know and will need to know, the progress being made toward learning and developmental goals, and whether various aspects of their program are supporting each child's growth" [2].

In the process of compiling these children development reports, most teachers use computer assistance with Microsoft Excel and Microsoft Word programs. There were no significant obstacles found for teachers in the operation of the two programs or in using computers. Even though, there are also many institutions that still use "real report cards" in which the teachers can fill in the cards by hand writing. The obstacles encountered by the teacher based on the results of interviews conducted with 13 respondents, 43.1% experienced difficulties in completing daily assessments related to the selection of basic competencies (BC) which were often confused; and 37.4% experienced difficulties in compiling report

cards, especially for uploading photos of children's activities, as well as writing a narrative.

Several applications related to the preparation of assessments can be found, including the *Aplikasi Laporan Perkembangan Anak PAUD (ALCAPAP)* [Early Childhood Development Report Application] issued by PT Penerbit Erlangga. ALCAPAP is made based on Microsoft Excel which contains features to help teachers, including in making report cards [3]. There is also an application called SIPENDI or *Sistem Informasi Penilaian Perkembangan Anak Usia Dini* [Information System for Early Childhood Development Assessment], which is done by installing applications and is limited to assessing child development [4]. Related to the making of report cards, an application called PAPHON: PAUD Assessment System is available, and the system is used by being downloaded. [5] These three applications can be used by installing the application into a computer so that it can be used by teachers. Until now, there has not been an online application that uses an information system for compiling report cards. Because of that matter, a Learning Device Information System (SIPP) was created by using a programming language, which is PHP MySQL that can be accessed online. This will certainly make the work faster and easier, because teachers can access it anytime, anywhere, using various kinds of technological tools, such as laptops, cellphones, and iPads.

Based on this explanation, the formulation of this research is how the learning device information system can help teachers in compiling report cards quicker and easier. The research objective is to describes the use of learning device information systems in helping teachers compile report cards faster and easier. This research is expected to be especially useful for teachers to facilitate the preparation of children development reports; for the principal to directly monitor the teachers' performance in compiling reports on child development, as well as to see the report cards of each child without having to wait for to be sent by the teacher; as well as for parents, can see the progress of the child's development as a whole with complete information sent electronically.

### **1.1. Early Childhood Development Assessment Report**

Each child develops in his own order and timing. Yet every child goes through the same developmental processes and the same aspects of development. In the Regulation of the Minister of Education and Culture No. 137 of 2014 clearly states that the aspects of early childhood development include the development of religious moral values, physical motor skills, language, cognitive, and social emotional [6]. All aspects of development must be well stimulated so that children's development can be achieved optimally. The results of stimulation must of course be seen and assessed in accordance with the principles of assessment.

Assessment is the application of various methods and the use of various assessment tools to obtain information about the extent to which student learning outcomes can achieve a predetermined minimum competency [7]. According to Ralph Tyler, assessment is a process of collecting data to determine the extent, in what terms and which parts of educational goals have been achieved. While Brewer's assessment is the use of a comprehensive evaluation system (comprehensive) to determine the quality of a program or the progress of a child [8]

In the Guidelines for Assessment of Early Childhood Education Learning issued by the Directorate General of Early Childhood Education and Community Education (2015), it is written that the scope of the assessment includes child growth and development [9]. The scope of the growth assessment includes physical measurements as measured in units of length and weight. Meanwhile, the assessment of development includes a variety of information related to increasing children's psychological function, namely moral and religious values, motor physical development (gross and fine motor movements, and physical health), social emotional, communication (speaking and language), cognitive (knowledge ), and art (creativity). The six development programs which are the assessment areas lead to the achievement of Core Competencies which are the Standards for Child Development Achievement.

The assessment tools used in kindergarten are generally non-test assessment tools, which consist of assigning assignments, observations, conversations, anecdotal notes, and portfolios. Regarding the assessment tools used, Wolfgang & Wolfgang wrote that "the primary assessment tool of the play-activity (child-centered) curriculum is the direct observation of children." [10] Based on what Wolfgang & Wolfgang wrote, it is clear that for early childhood children who focus on playing activities, the assessment tool used is direct observation. In making observations, it is necessary to record as evidence as well as remind him of everything he has observed. The techniques used in taking notes were: checklists, anecdotal notes, and works [8]. The results of the assessment technique are then analyzed until then an assessment result is obtained in the form of report cards.

### **1.2. Learning Device Information System**

Information systems are components that work together to collect, process, store, and display information to support decision making, coordination, management, analysis and visualization in an organization [11]. An information system is a system within an organization that is a combination of people, facilities, technology, media, procedures, and controls aimed at getting important lines of communication, processing certain types of routine transactions, giving management signals to events - important internal and

external events and provides an information base for good decision making [12].

Information systems have been used in various fields of life, including in accounting. The results of research conducted by Koloay, Morasa, and Elim show that the accounting information system at PT. Pos Indonesia (Persero) Manado has played a good role, especially in the effectiveness of its accountability accounting reporting [13]. Similarly, the results of research conducted by Prananda & Datu, where PT. Etmieco Sarana Laut has applied differential management accounting information in the process of making fixed asset investment decisions, namely making the decision to buy a Boiler Dryer machine based on cost savings [14]. In the field of education, there are also many, including the results of Nugroho's research which states that the web-based school academic system makes it easy for teachers to manage school academic data [15]. In kindergarten itself, information systems have been used. This is known, among others, from the results of research conducted by Meliana, et al regarding Kindergarten Management Information Systems which aims to facilitate admins, school principals and prospective registrants in the

registration process, class division and administrative data collection more easily, quickly and efficiently both in in terms of time, place, cost and manpower, especially in Mekar Saridi Kindergarten (TK) Ambawang Village. So that the existence of a web-based school academic information system makes it easy for teachers to manage school academic data [16].

The learning device information system (SIPP) is an information system designed to provide features for filling out daily assessments, weekly assessments, anecdotal notes, and features for filling in report cards. Except, the report card filling feature is equipped with the inclusion of BC that has been previously selected, making it easier for teachers to see the BC that is used every day. In the daily assessment feature, there are choices of markings available with the symbols BB (*belum berkembang* [not yet developing]), MB (*mulai berkembang* [starting to develop]), BSH (*berkembang sesuai harapan* [developing as expected]), and BSB (*berkembang sangat baik* [developing very well]). The teacher can select the markings by clicking on the symbol provided without writing it down repeatedly for each child and each activity indicator. The following is a display of the daily assessment features, weekly assessments, and report cards.

**Penilaian Observasi Harian**  
 Semester 1, Bulan September, Minggu 1  
 Tanggal : Senin, 02 September 2019  
 Tema : Aku Bangga Menjadi Diriku (4 Minggu)  
 Subtema : Identitasku (1 Minggu)  
 Materi : Mengenal Ciptaan-ciptaan Tuhan; Do'a sebelum dan sesudah kegiatan; Pemahaman tentang Perilaku Mandiri; Kegiatan untuk latihan motorik Kasar; Kegiatan untuk latihan motorik halus; Pemahaman tentang perilaku sikap ingin Tahu; Bentuk dua dimensi: lingkaran, segitiga, persegi, persegi panjang; Cara menjawab dengan tepat ketika ditany; Membuat Hasil karya dan aktivitas seni

Program Pengembangan	Kode	Adelia	Adeyri	Affan	Agla	Ares	Aretha	Athmar	Azzam	Fareli	Farabi	Gilang	Iyara	Qiya	Rahma	Robi
Nilai Agama dan Moral	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.1 - 4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fisik Motorik	3.3 - 4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sosial Emosional	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kognitif	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.6 - 4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Penilaian Observasi Mingguan**  
 Semester 1, Bulan September, Minggu 1  
 Tema : Aku Bangga Menjadi Diriku (4 Minggu)  
 Materi : Mengenal Ciptaan-ciptaan Tuhan; Do'a sebelum dan sesudah kegiatan; Pemahaman tentang Perilaku Mandiri; Kegiatan untuk latihan motorik Kasar; Kegiatan untuk latihan motorik halus; Pemahaman tentang perilaku sikap ingin Tahu; Bentuk dua dimensi: lingkaran, segitiga, persegi, persegi panjang; Cara menjawab dengan tepat ketika ditany; Membuat Hasil karya dan aktivitas seni

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Nilai Agama dan Moral	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.1 - 4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fisik Motorik	3.3 - 4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sosial Emosional	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kognitif	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.6 - 4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bahasa	3.10 - 4.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.12 - 4.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Figure 1. daily assessment filling form (left) and weekly assessment (right)

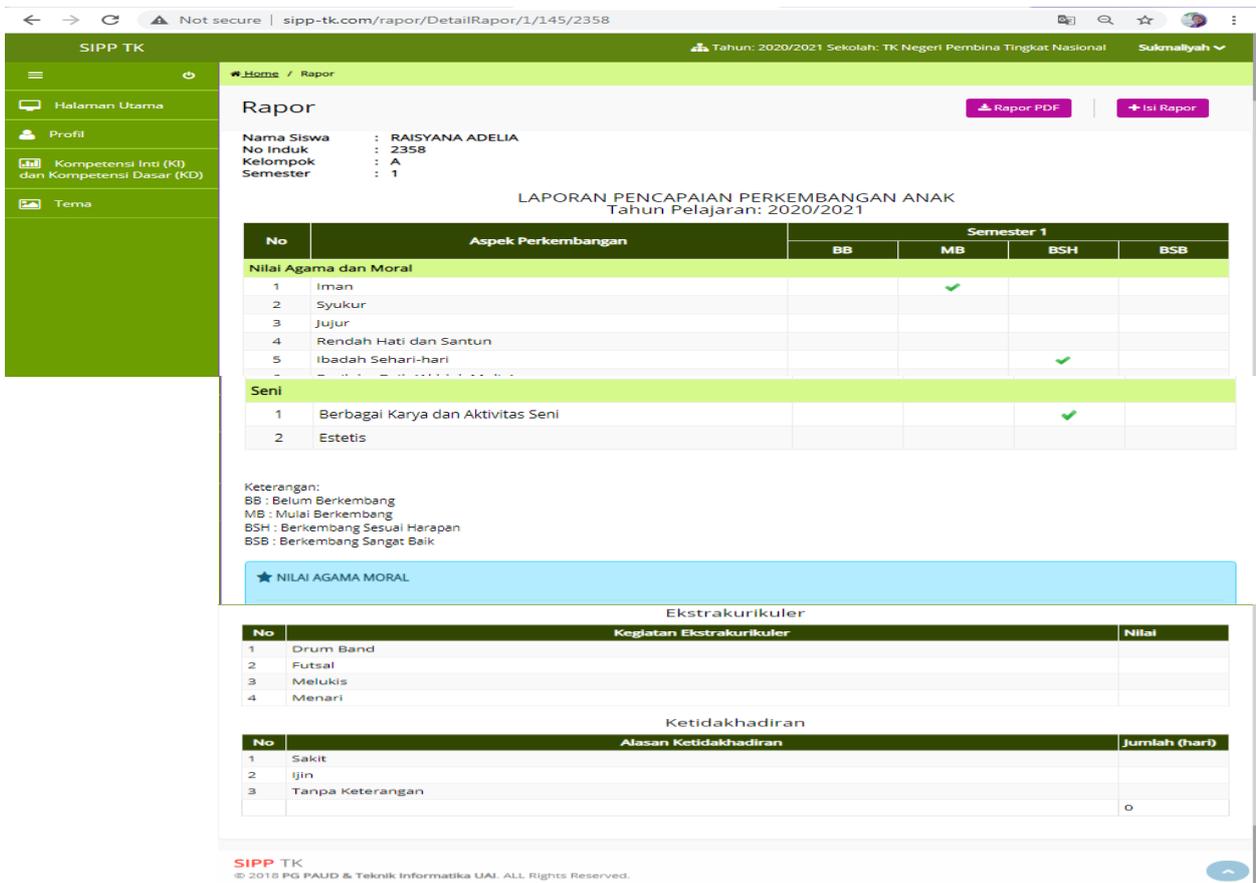


Figure 2. Report filling features

2. METHOD

The research was conducted using qualitative methods in accordance with the research objectives, which is describing the use of learning tools information systems in helping teachers compile report cards quicker and easier. The research subjects were 13 people consisting of teachers and school principals who were determined by purposive sampling technique, with the criteria being kindergarten institutions that used group learning models or area learning models, were in the Kebayoran Baru district, and were willing to use SIPP.

Data collection was carried out by observation, documentation and interviews. Observations were made when mentoring was carried out after the SIPP socialization activity through the Zoom Cloud meeting by observing the subject while compiling a child development report using SIPP; documentation is done by looking at the results of the preparation of development reports that have been made, which include daily assessments, weekly assessments, anecdotal notes, and report cards. Meanwhile the interview was conducted by giving a questionnaire with

Google Form filling application which was carried out at the SIPP socialization activity using the Zoom Cloud meeting before the delivery of the socialization material and at the time of mentoring the use of the SIPP. The use of the questionnaire in Google Form was carried out considering that interviews were not possible during a pandemic.

The data analysis technique was carried out using the Miles and Hubberman model, which includes data collection, data reduction, data presentation, and drawing conclusions. The data from the questionnaire results were also analyzed using descriptive statistics, by looking for the mean, minimum, and maximum values, especially to determine the level of difficulty (with very difficult to very easy criteria) and the time for preparing progress reports (with very long to very fast criteria) using the SIPP. The validity of the data is done by testing the credibility of the data using triangulation techniques where checking information is carried out from the data obtained through observation, documentation, and interviews.

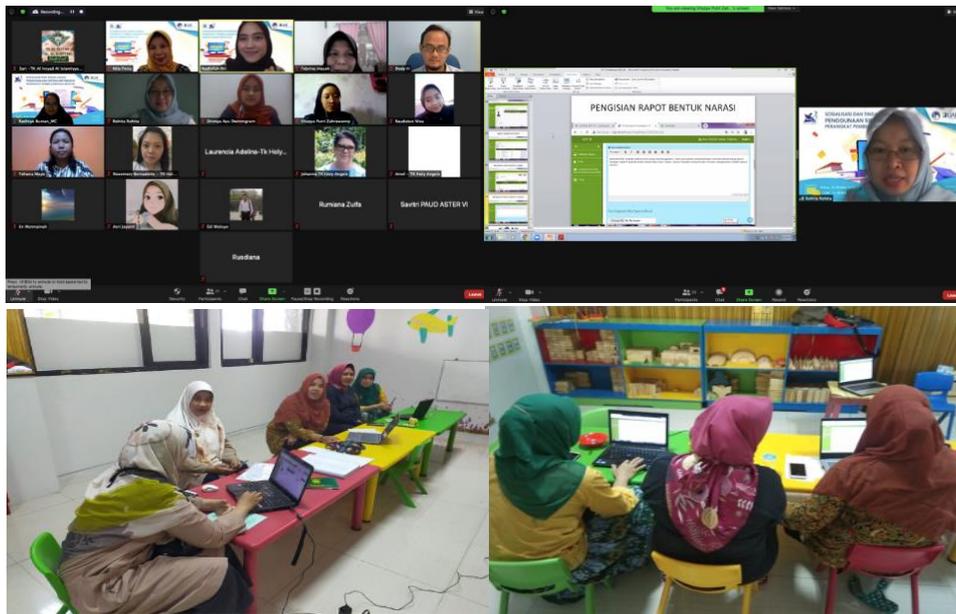


Figure 3. Zoom meeting (top); assistance in filling out report cards with SIPP (below)

3. RESULTS AND DISCUSSION

The research was conducted by providing information in the SIPP socialization, explaining how to

use it, giving research subjects the opportunity to try, providing assistance, and then providing a questionnaire. The results of the questionnaire are shown in the following table

Table 1. The process of filling out child development reports through SIPP

Component	Very Difficult	Difficult	Quite Easy	Easy	Very Easy
The process of filling out anecdotal notes	0	0	7	10	5
The process of filling in the Daily Assessment	0	0	7	9	6
The process of filling in the Weekly Assessment	0	0	8	7	7
Rapot filling process	0	0	8	9	5
Amount average			5.6	12	4.4
%			27%	54.5%	18%

Based on table 1, it can be seen that the process of filling out child development reports through SIPP, which includes filling in anecdotal notes, filling in daily assessments, filling in weekly assessments, and filling in

report cards, can be done: 21.15% said very easily, 44.23% said easily, and 34.62% said quite easily. No one has significant difficulty using it.

Table 2. Comparison of the time for preparing child development reports, using SIPP and without using SIPP

Without Using The SIPP					Component	Using The SIPP				
Very Fast	Fast	Middle	Slow	Very Slow		Very Slow	Slow	Middle	Fast	Very fast
30'	60'	80'	100'	120'		120'	100'	80'	60'	30'

3	6	2	2		Time to fill out anecdotal notes	4	4	5	
3	4	4	2		Time to fill in daily assessments	4	6	3	
3	5	3	2		Time to fill out weekly assessments	3	6	4	
3	3	3	2	2	Time to fill in report cards	1	3	6	3
3	4.5	3	2	0.5	Amount average	0.25	3.5	5.5	3.75
23.07	34.62	23.08	15.38	3.85	%	1.92	26.92	42.31	28.85

Meanwhile, in relation to the time it takes to complete the process of compiling a child's development report into report cards, the difference can be seen in table 2 above. Before using SIPP, 23.07% stated that compiling a child development report could be completed very quickly and 34.62% stated that it could be done quickly. However, after using SIPP, 28.85% stated that compiling a child development report could be completed very quickly and 42.31% stated that it could be completed quickly. There is a difference of 5% and 8% faster than the method commonly used by teachers in schools using Microsoft Excel or Microsoft Word. Based on table 2 it can also be seen that 3.85% said very slow and 15.38% stated slow in compiling a child development report without using SIPP. Furthermore, it was also known that 46.15% agreed and strongly agreed that compiling a child development report using SIPP was easier and faster than not using SIPP.

Of course, it is not an easy thing to prepare a child development report. Even though making progress reports is a routine activity that is carried out by the teacher regularly, accuracy is needed in the process so that the assessment is in accordance with the achievements of the child. Assessment is carried out using various assessment techniques. Then collected until the child's results are clearly shown. The teacher's work does not stop with the collection of scores, but until how they make the reports presentation be easily read by the users, in this case the parents who have various backgrounds. In terms of time, of course, the process of making child development reports cannot be said to be fast because it also cannot be done easily. The process of transferring from the daily assessment of each child, then within one week the achievement of each indicator from 1 development aspect is seen, then the average or highest value is looked for, until it appears to be a weekly score. Furthermore, the weekly scores are recapitulated to get the monthly and semester scores. This is done for every child, and in all aspects of development. This becomes an obstacle, as written by Guddemi and Case (2004), claimed that: "Another assessment challenge for young children is that it takes time to administer assessments properly. Assessments

primarily should be administered in a one-on-one setting to each child by his or her teacher" [17].

The existence of SIPP can save time in the assessment processing process. The daily values that the teacher input into the SIPP will automatically be included in the weekly assessment on the indicators and aspects of the intended development. Each teacher enters the daily score according to the child's name and the same developmental aspect, the input value will be directly included in the weekly assessment which is the average value of the daily assessment. Likewise, in the assessment in report cards. The weekly scores that appear in the form of the symbols BB, MB, BSB, and BSH, will be directly included in the report card with the average score raised. So, teachers no longer need to calculate the average score. In addition to entering values in the form of the symbols BB, MB, BSB, and BSH, a space is provided to present the information given in a narrative writing, where the teacher can briefly explain the abilities achieved by the child in each aspect of their development. Photos of activities can be included to support the information presented. All of these processes can be done more quickly using SIPP compared to manual processes using Microsoft Excel and Microsoft Word with an average comparison between those who say very fast and fast in each method.

The existence of SIPP has been proven to help teachers in making child development reports in an easier and faster way. The convenience is obtained by teachers including: first, teachers no longer need to fill in BC in filling out daily assessments either manually or handwritten or by copy and paste. The required BC has been listed automatically in the assessment as a result of filling in the weekly assessment plan in the previous section. Second, when giving an assessment in the form of symbols such as BB, MB, BSH, or BSB, teachers no longer need to write, type, or copy and paste. A menu is available for selecting the symbol that will be used according to the children's achievements. Third, the score in the form of those symbols will automatically be included in the weekly assessment, until the report card is filled in the table section. Fourth, the availability to upload photos in the narrative report card section to

strengthen the assessment given by the teacher so that parents can understand the success that the child has achieved while participating in learning activities in one semester.

So far, report cards are mostly made using manual methods, like writing on report cards in the column provided, or making them using Microsoft Excel and Microsoft Windows. Not yet found an application that can be used online for making report cards. Meliana, et al. has made what is called SIMTK, but the allocation is more for assistance to make it easier for admins, school principals and prospective registrants in the registration process, class division and administrative data collection. One of the studies that was also conducted was the research of Fitriawati and Lestari (2018), with the title "Design of the Information System for Kindergarten Learning Plan Used Scrum Methodology" [18]. In this study, it is explained about the making of learning planning which includes semester programs, weekly learning implementation plan, and daily learning implementation plan. However, no information is available on how to make report cards as a report on children's progress. Another study conducted by Nah (2011), with the title "child assessment in early childhood education and care setting in South Korea" emphasizes the implementation of the assessment and writes that "several problems remain; observations of each child are not planned systematically, observations of children in diverse contexts with multiple participants are lacking, and the results of observations are not integrated into summary evaluations in many cases", thus providing recommendations to policy makers by writing "unified frameworks, tools, recording forms, and guidelines for child assessment need to be provided" [19]. This can be interpreted that the making of child development reports has not been carried out optimally in kindergarten institutions, especially in Korea, so that tools, notes, and guidelines are needed in their implementation. SIPP provides not only a tool for conducting assessments, but also can be used to make progress reports with ready-to-fill templates and features tailored to the needs of report making, especially in Indonesia. The data inputted in the SIPP can be stored for a long time and will not fill the memory of the device used. This is another advantage of an online SIPP.

The making of report cards is very necessary so that every interested party can clearly know the achievements that have been reached. However, the fast time in making report cards can certainly be used by the teacher to do other positive activities. So, it is not impossible that a report card using SIPP will improve teacher performance in other aspects. This is in line with what was conveyed by Machmud who saw information systems from the field of management, where management information systems played a positive role in increasing employee work effectiveness [20]. Utilization of information systems, in this case SIPP, will also be able to improve teacher performance,

especially in making decisions regarding child development. The use of SIPP in making progress reports not only can save time, but also save energy and costs. The little time spent in the production of progress reports has an impact on how little energy has to be used. Likewise, with costs. The existence of SIPP can avoid mistakes and reduce the use of paper by using Microsoft Word or Microsoft Excel, teachers had to print report cards up to pages, now only need to be downloaded and then sent to parents. This is in accordance with Jogiyanto's statement, that the benefits of information systems are reducing costs, reducing errors, increasing activity speed, improving management planning and control [12].

It is hoped that the use of SIPP to assist teachers in upgrading child development reports can also improve the quality of early childhood education institutions themselves. Because the ability of teachers to utilize technology and information systems will improve the quality of the institutions where they work. Aswati, et al, said that the use of information systems for every internal activity in higher education will also be a factor of success and progress of higher education [21]. Likewise, he hopes with early childhood education institutions that is hopefully will be more successful, more advanced, and have more quality by utilizing the information system, especially the learning device information system (SIPP).

#### 4. CONCLUSION

Providing reports on children's development to parents is the teacher's obligation as a form of accountability. The report provided contains various information about the achievements that have been reached by the child and how to follow up on them. Compiling a child development report is a routine thing to do but it takes a lot of time to complete. The use of SIPP in preparing child development reports makes it easier for teachers because the daily assessments that are included in the SIPP will automatically be included in the weekly assessment then also included in the report card. By using SIPP, the teacher's job to make children development reports can be carried out easily and quickly.

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