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### The Suitability Instruments Application Based Decision Support System to Identify Children with Physical Disabilities

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**Abstract:** The aim of this research was to determine the suitability instrument application based decision support system (DSS) to identify children with physical disabilities. Research was conducted in the area of Central Java province with the number of the sample of 40 teachers from 16 special schools and four regular schools or inclusive schools, taken by purposive random sampling. Data was collected by using questionnaire after teachers use software identification instruments based DSS in children with physical disabilities. The suitability of the instrument application was seen from the aspect of visible, interest, simple and useful. Data was analyzed by using quantitative descriptive techniques. Results of the study concluded that the application of instruments based DSS on visibility has a very high score, 62.5% very good and 37.5% good in identifying children with physical disabilities.

**Keywords:** Identification, decision support system (DSS) , children with physical disability, special school, inclusive school.

### INTRODUCTION

Data in the Ministry of Health of the Republic of Indonesia (2012) as many as 5.755.525 children have physical disabilities, consisting of 3.5 million children with visual impairment, 1,652,741 children have hearing impairment and 602.784 children with physical handicaps. Visual impairment or blind children who can not see at all, and those with low vision. While hearing impairment or deaf children, including those who can not hear at all, and those who still have residual hearing ability. Children with physical handicaps, they are made up of children who showed symptoms of the hands or feet are weak, stiff, incomplete or children with impaired motor coordination.

Generally physical disabilities have difficulty in activities of daily living, including the activities in the school (Salim, 2016a; Gunarhadi, 2016). Teachers in regular schools and special school had difficulties in identifying, and designing intervention for children with physical disabilities. If this situation is not to look

for solutions, teachers will have difficulty in preparing intervention programs according to the condition of each child's disabilities. This time there are already some instruments identification for children with physical disabilities i.e American Psychiatric Association: Highlights of Change from DSM-IV TR to DSM-V. (2013), the Ministry of Education and Culture of the Republic of Indonesia (2006), and Musjafak, 1995, but the instrument are still manual, not in the form of computer-based software applications.

Decision Support System (DSS) is computer-based information systems that support individuals in decision-making. Decision Support System can be fully computerized, it can by humans or a combination of human and computerized (Sprague, R. 1980; Salim, A. 2015). The instrument identification and assessment are four classifications components, namely (1) Input as disabilities characteristics as indicators included as a data base to analyze; (2) Knowledge of the user who inputting data characteristics disabilities based on monitoring/test/ interview the child, (3) Output of data which has been transformed from a DSS application and (4) The decision that produced a classification of disabilities that can be used as consideration in planning intervention/learning programs for disabilities (Salim, 2015; Gunarhadi, 2014).

DSS applications built using web-based services. This application should be run online, but we can also run the application offline on our computer (Salim, 2015). Previous support software must be installed in order to access this application. This is because the system is still in the development process, and the system has not been registered patents. The application is Xampp-win32-1.7.3.exe on the CD Software. Once the application is installed, then forwarded to install the application on a local server. If it has finished both of those activities, the DSS application is ready for use.

The suitability of the instrument application was seen from the aspect visible, interesting, simple, and useful. (Sprague, R. 1980; Salim, 2015). Whether the application of instruments identification based DSS has high suitability to identify children with physical disabilities? This research is expected to provide answers to these problems.

## **RESEARCH METHODS**

The suitability study of the instrument application based DSS to identify children with physical disabilities included as part of the development research, research models used in this research is the Research and Development (Borg & Gall, 2003) and continued the experiment.

The research was conducted in 10 districts/cities in Central Java province, which is taken by purposive random sampling in 16 special schools and 4 inclusive schools and the sample as many as 40 teachers. Data were collected by using questionnaire. Assessment instruments by the teacher after teacher applying/ using *software* identification and assessment instruments. The suitability of the instrument application was seen from the aspect visible, interesting, simple, and useful. Instruments questionnaire contains teachers' assessment of the application instruments of children with physical disabilities.

Every teacher who became the subject of study were asked to try the application software instrument identification and assessment of children with physical disability, then evaluate it by giving a value of 4 = very good / appropriate / proper, value 3 = good / appropriate / right, the value of 2 = less good / appropriate / right, and a value of 1 = very good / appropriate / right. Data were analyzed by using quantitative descriptive percentages. Feasibility application instrument identification and assessment of children with physical disabilities seen from the amount of the percentage of respondents' answers.

- ❖ Very feasible if > 80% of subjects rate it very good / appropriate / right
- ❖ Feasible if 70% - 80% of subjects judge good / appropriate / right
- ❖ Less feasible if 60% - 69% of the subjects rate the less good / appropriate / right
- ❖ Not feasible if <60% of the subjects rate is not good / appropriate / right

## RESULTS AND DISCUSSION

It has been declared on the methodology that the suitability of the instrument application was seen from the visible aspect, interesting, simple, useful, legitimate, and structure. The results of field research with teacher respondents as many as 40 peoples showed the data as follows:

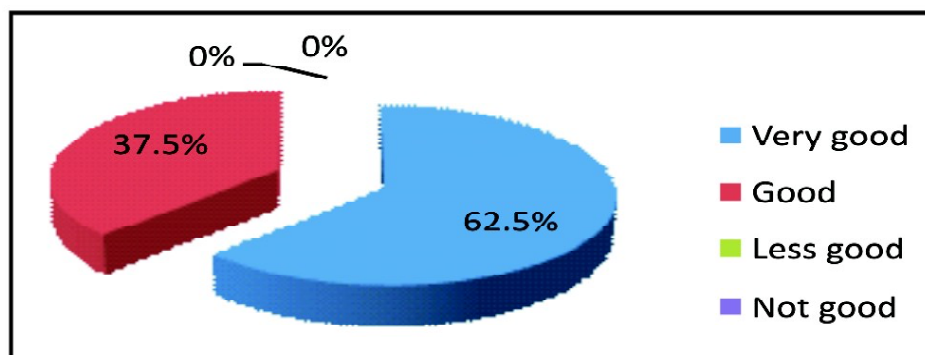
### 1. The visibility aspects of application instruments based DSS

The first research objective was to determine the visibility aspect of application instruments based DSS. A total of 40 teachers assess application visibility based instruments DSS, obtained the following data:

**Table 1**  
**The visibility of instrument applications**

<i>Evaluation</i>	<i>Number of Respondents</i>	<i>Percentage</i>
Very good	25	62.5%
Good	15	37.5%
Less	0	0%
Not Good	0	0%
Total	40	100%

The result of data analysis of the percentage known as much as 62.5% of teachers said that the visibility aspect of application instruments based DSS was “very good” and 37.5% said “good”. There were no teachers stated “less” and “no good”. From table 1 above may be drawn as follows:



**Figure 1: Display the visibility of application instruments based DSS**

The quality resolution/layout application instrument identification of children with physical disabilities by 40 respondents state 30% “excellent”, 65% “good”, less good 0% and 5% is not good. From these data may be presented in the following diagram:

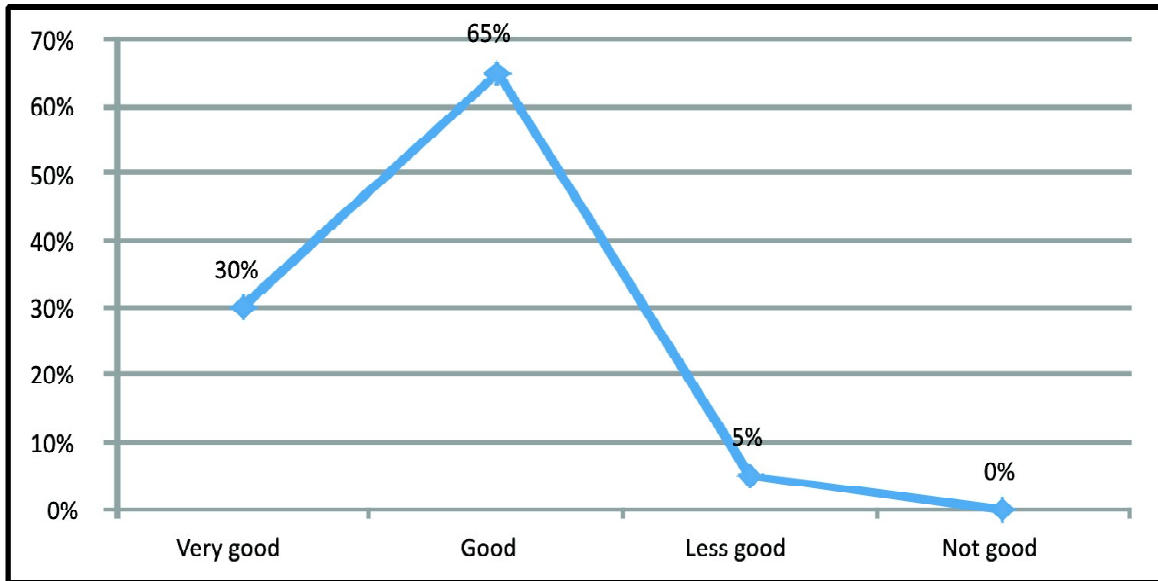


Figure 2: Quality resolution/layout of application instrument identification

## 2. The attractiveness of the instrument applications

The data collected on the attractiveness of the instrument application to identify children with physical disability obtained the following data:

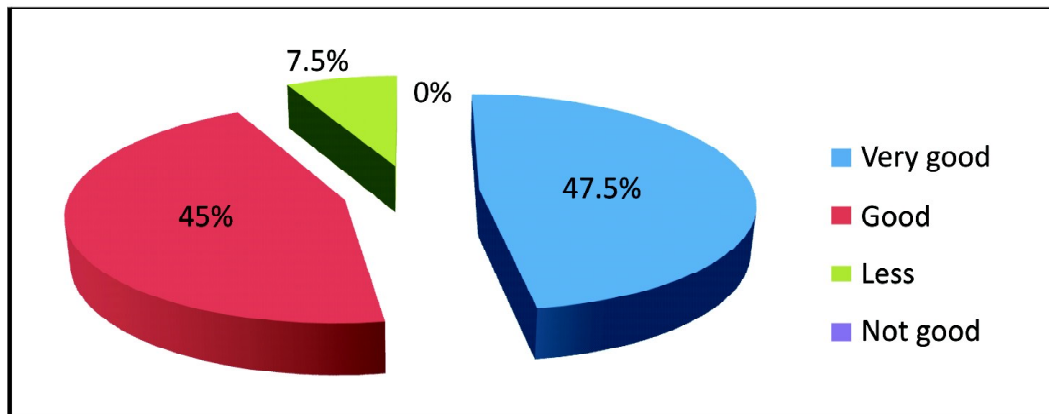
Table 2  
The attractiveness of the instrument applications

Evaluation	Number of Respondents	Percentage
Very good	19	47.5%
Good	18	45%
Less	3	7.5%
Not Good	0	0%
Total	40	100%

From table 2 above can be seen that out of 40 respondents rate the application identification and assessment of children with physical disabilities express very good 47.5%, good 45%, and less good 7.5%. From these data can be presented in the form of images as follows:

## 3. The simplicity of application

The result of the simplicity of data collection instrument application to identify children with physical disabilities obtained the following data:



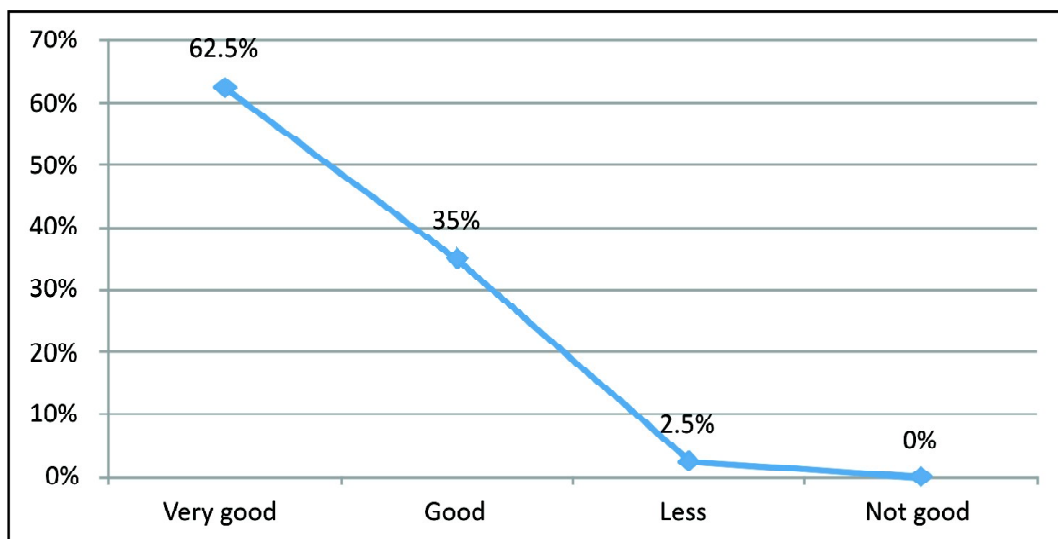
**Figure 3: The attractiveness of the instrument applications**

**Table 3**  
**Simplicity of application**

<i>Evaluation</i>	<i>Number of Respondents</i>	<i>Percentage</i>
Very good	25	62.5%
Good	14	35%
Less	1	2.5%
Not Good	0	0%
Total	40	100%

The above data show that as many as 62.5% of teachers assess the simplicity of application of instruments is “very good”, 35% “good” rate and 2.5% “less good”

From Table 3 above may be presented in the following diagram:



**Figure 4: Simplicity instrument applications**

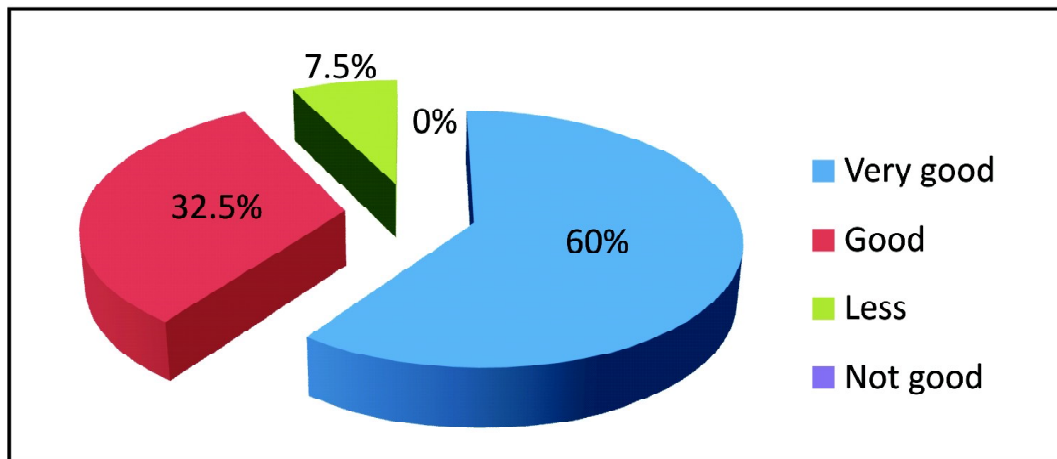
4. The usefulness of the instrument application

The mean by usability aspect here is the usefulness of the results of identification by using the applications instruments based DSS in determining the child's disabilities. The data collected on the usefulness of the instrument application to identify children with physical disability obtained the following data.

**Table 4**  
**The usefulness of the instrument application**

<i>Evaluation</i>	<i>Number of Respondents</i>	<i>Percentage</i>
Very good	24	60%
Good	13	32.5%
Less	3	7.5%
Not Good	0	0%
Total	40	100%

From Table 4 above can be seen that a number of 40 respondents regarding the assessment of the application assessment disabilities useful for the identification of needs and assessment disabilities ie 24 respondents answered very good, 13 good responder, 3 respondents are less good and 0 respondents have not been good. When expressed in percentage to 60% excellent, 32.5% good, 7.5% less good and 0% is not good. From these data may be presented in the following diagram:



**Figure 5: The usefulness of the instrument application**

## DISCUSSION

Children's physical disability such as visual impairment, hearing impairment and physical handicapped actually have symptoms that can be easily identified through symptoms appear eye (Salim, 2015; Gunarhadi, 2016), but the impact of their disabilities such as the ability of activity of daily living, intellectual ability, communication ability are often difficult for teachers in identification. Application instrument to identify children with physical disabilities have developed based DSS, in fact it have a very high suitability in identify

children with physical disabilities, in terms of visible (90%), interesting (97.5%), simple (62.5%), usefull (92.5%), The results of this study are consistent with the statement Sprague (1980).

All teachers, including teachers, child physical disabilities (blind, deaf and physically disabled) are required to have a correct understanding on Characteristic protégé (Musjafak, 1995; Gunarhadi, 2014). This capability includes the demands pedagogical (Kauffman, 1998). Characteristic students can be known through idnetifikasi and assessment. A complication of these instruments can be applied and used by teachers before preparing lesson plans (Gunarhadi, 2014; Salim, 2016).

Teacher competence in using the instrument application identification of children with physical disabilities can be improved through training (a) the introduction of the concept of DSS, (b) install a computer with aCD-win32-1.7.3.exe Software Xampp program on a local server, (c) training in the use of software applications instruments, (d) use the instrument application for disability identification of children. The program may be awarded to a good teacher in a special school teachers and teachers in regular schools. It is important to remember two education units are equally responsible in preparing lesson plans in accordance with the characteristics of learners.

## CONCLUSION

Results showed the visibility aspects 90% of respondents said application instruments have a “good” view, attractiveness of the instrument applications was “very good” (47.5%) and “good” (45%), simplicity of application “very good” (62,5%) and “good” (35%), and the usefulness of the instrument application was “very good” (60%) and “good” (32.5%). Results of the study concluded that the application of instruments based DSS has a very high suitability in identify children with physical disabilities

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