# Identification And Assessment Of The Effectiveness Of Instruments Children With Special Needs Based Decision Support System (Dss) Disorders In Children With Physical And Motor Disorders

[1*]**Dewi Sri Rejeki**, [2]**Mahardika**, [3]**Hermawan**

[1, 2, 3] Special Education, Guidance and Counseling, Sebelas Maret University Surakarta

**Abstract** This article is part of a research and development aimed at develop the instrument identification and assessment of children with motor disorders based decision support system (DSS). This study aims to determine the effectiveness of the instruments of identification and assessment of children with special needs (ABK) based DSS in children with physical and motor disorders. The research was conducted in 10 districts / cities in Central Java province, which is taken by purposive sampling in 16 schools (SLB) and Inclusive Schools and the sample of 40 teachers. Collecting data using DSS application eligibility questionnaire instrument for the identification and assessment of children with physical and motor disorders. The use of questionnaires after teachers applying / using software identification and assessment instruments based DSS in children with physical and motor disorders. Feasibility DSS application instrument for identification of children with physical and motor disturbances seen from the aspect*Visible, Interesting, Simple, Useful, Accurate, Legitimate, Structure.* Methods of data analysis using quantitative descriptive technique. Results showed 90% of respondents said identification and assessment instruments is very suitable to determine ABK, with 80% accuracy for decision-making, 92% said very useful, 92.5% said very easy to use, 95% speed up the process of identification and assessment, 92.5% hasiln yes can be accounted for, 97.5% the process is simple, 95% judge the procedure is easy, and 92.5% looks very attractive instrument for use by teachers. Conclusion of the study that instrument-based identification and assessment of children with special needs-based DSS decision support system (dss) is very effective for the identification and assessment of children withphysical and motor disorders

**Keywords**: Identification and assessment instruments, Decision Support System (DSS), physical and motor disorders

## 1. Research Background

Reading skills have an important role in human life. Reading is one of four language skills (listening, speaking, reading, and writing skills) that must be learned by children in the school (Tarigan, 2008: 1). In this case, reading can be interpreted to understand the written text by reading inwardly or reciting written texts orally.

Today the trend of growth of children in Indonesia showed the numbers are getting bigger and wider the spread, not only in urban areas but up to villages and remote areas.

According to data from the Ministry of Social Affairs, in 2015, the number of people with disability in Indonesia reached 3.11%, or by 6.7 million people. Meanwhile, according to the Ministry of Health, the larger the number of persons with disabilities, namely: 6% of the total population of Indonesia. However, when referring to the UN World Health Organization (WHO) more strict, the number of people with disability in Indonesia reached 10 million, while the average number of persons with

* Corresponding author: Dewi Sri Rejeki

tamat3303@gmail.com

disabilities in developing countries by 10% of the total population.

This time predicted that the number of blind children in Indonesia as many as 3.5 million, equal to the number of people in Singapore. http://www.merdeka.com/ peristiwa/ number- blind-in- Indonesia- equivalent-to-population -singapura.html. While the number as many as 602 784 people deaf children and children with physical disabilities as much as 1,652,741 people.

UNESCO (2011) reported a record 35 million persons with physical barriers around the world. This means an average of 6 out of 1000 people in the world suffer from physical barriers (physical https://id.wikipedia.org/wiki/Hambatan). Research Center for Disease Control (CDC) in the US (2008), states that the comparison of physical barriers is 1: 80. In the United States and outside the United States the number of physical barriers interference close to 1% of the population (DSM-5 ™). Physical barriers Yayasan Indonesia declared an increase in the prevalence of physical barriers, where ten years ago the number of child physical barriers in Indonesia is estimated at 1: 5000 children, now increased to 1: 500 children. 2,000 years ago, the staff are part of Psychiatry Faculty of Medicine, University of Indonesia estimates that there are approximately 6,900 children in Indonesia physical barriers (Moore, 2010).

In Indonesia, in 2015 the number of people with physical handicap is estimated at 2.4 million people. It was based on data released by the Central Bureau of Statistics. In that year the number of Indonesia's population reached 237.5 million with a growth rate of 1.14 percent (Republika,April 9, 2013). Number of patients with physical barriers in Indonesia is estimated to have the addition of about 500 people each year. Through the above data it is increasingly apparent that the growth of child physical barriers increases, the need for efforts made. Currently the government's efforts to expand opportunity and access to education. also construct physical barriers therapy centers in several cities in Indonesia. He expects that through the physical barriers child therapy center will be conditioned so as to have specific skills before going to school. Skills include associate, communicate, socialize and gain proficiency bina themselves in accordance with the level of development.

Task early special education teacher for children with physical barriers is the identification and assessment. Results of identification will be followed by an assessment, the results of which will be the basis for the preparation of the learning program according to their ability and inability. Assessment is an activity screening of children who have been identified as a child with a physical handicap. The assessment can be done by special education teachers and other professionals are available according to their competence.

The identification and assessment above is characteristic of other duties as a special education teacher outside lessons. Accuracy of the results of the identification and assessment define the lesson plan. The difficulty level of the identification and assessment activity is higher than the preparation of teaching and learning itself. The difficulties caused by (a) the level of teacher competence; (B) there is no software application that can be used to be used as an assessment tool; (C) the diversity of children.

Physical barriers are visually impaired children who lost partially or completely the ability of sight, so that necessitate specialized services in education and life. Because suffered impaired vision, blind encounter barriers such as difficulty / inability to read lettering alert, difficulty in mobility, and so on. Blind People in need of special education services is the ability to read write and count is required in Braille for the blind. For low vision (they have little ability to see) needed a magnifying glass or a large block letters, media that can be touched and heard or enlarged. In addition, the necessary orientation and mobility exercises to equip visually impaired to be able to move from place to place the other one without the help of others.

In general, the visually impaired have characteristics (a) Less viewed (fuzzy), unable to recognize people at a distance of 6 m, (b) Difficulty taking small object nearby, (c) Unable to write in a straight line, (d) Section ball black eyes cloudy / dry scaly, (e) Eyes sway continues, (f) often grope and stumble when walking, (g) severe inflammation in both eyes, (h) Not being able to see.

When viewed from the perspective of education, the visually impaired are grouped into

1) They were able to read standard print letters.
2) Being able to read standard print letters, but with the help of a magnifying glass.
3) Being able to read the letters printed in large size (font size no. 18).
4) Being able to read print letters in combination, regular print and large prints.
5) Use Braille but could still see the light.

Physical barriers deaf child is a child who lost all or most of their hearing power so impaired to communicate verbally. Although it has been given help with hearing aids, they still require special education services.

Characteristics of children with hearing impairment physical disorders are as follows:
1) Often tilted his head in an effort to hear.
2) Much attention to vibration.
3) Late in language development
4) No reaction to sound or voice,
5) Late development of language,
6) Often use gestures to communicate,
7) Less or no response in the talk,
8) Greeting words are not clear, quality sound odd / monotonous,

Learning needs of deaf children, in general no different with children in general. But they require attention in learning activities, among others:
1) Do not encourage children to speak the way back to him
2) Children should be seated at the front, so it has the opportunity to easily read the lips of the teacher.
3) Note the posture of children who often tilted his head to listen.
4) Encourage the children to always pay attention to the teacher's face, talk with the child facing position and, if possible head parallel to the child's head teacher.
5) Teacher talk with ordinary volume but with the movement of the lips should be clear.

Children's physical barriers with physical disabilities are children who have persistent abnormalities or defects in the limbs [the bones, joints, muscles]. They suffered because kelayuhan muscle movement disorders, or neurodegenerative disorders of the brain (called Cerebral Palsy / CP). In terms of physical function, physical impairment is defined as someone who physically and her health impaired that abnormalities in the interaction with the social environment. To improve the functionality required special education programs and services. Terminology in paralysis paralysis divided according to regions. Next to the bodies referred hemiparalise paralysis, paralysis of both lower limbs called paraparalise.

Characteristics of children with physical disabilities can be described as follows:
1) Fingers stiff and can not be grasped,
2) There are parts of the limbs that do not complete / incomplete / smaller than usual,
3) Difficulty in movement (not perfect, not bending / uncontrolled, vibrate)
4) There are defects in the limbs,
5) Withered limbs, stiffness, weakness / paralysis,

For the purposes of identification instrument development and assessment of children with physical barriers, then by the attributes described above is described in the essential indicators as basis for the development of the content of this instrument. So the end result is the use of these instruments identify or suspect that a child is observed, including children with physical barriers. The final decision needs further observation to be done by a competent professional. Every symptom in the interest of the development of this instrument is composed of several indicators, in the development of this instrument consists of 19 indicators. Indicators have different weights, up to the specified parameters are met.

**Table 1** Blue print instrument development

| No. | | | Indicator |
|---|---|---|---|
| | Blind barriers child | 1 | Less notice (fuzzy), unable to recognize people at a distance of 6 m |
| | | 2 | Difficulty taking small objects nearby |
| | | 3 | Unable to write in a straight line |
| | | 4 | Part black eyeball cloudy / dry scaly |
| | | 5 | Often grope and stumble when walking |
| | | 6 | Severe inflammation in both eyes |
| | | 7 | Not being able to see. |
| | Physical barriers deaf child speech | 8 | Often tilted his head in an effort to hear. |
| | | 9 | Much attention to vibration. |
| | | 10 | Late in language |

| No. | | | Indicator |
|---|---|---|---|
| | | | development |
| | | 11 | No reaction to sound or voice |
| | | 12 | Often use gestures to communicate, |
| | | 13 | Less or no response in the talk, |
| | | 14 | Greeting words are not clear, quality sound odd / monotonous, |
| | Children's physical barriers motor | 15 | Fingers stiff and can not be grasped, |
| | | 16 | There is the limb is not complete / incomplete / smaller than usual, |
| | | 17 | Difficulty in movement (not perfect, not bending / uncontrolled, vibrate) |
| | | 18 | There are defects in the limbs, |
| | | 19 | Witheredlimbs, stiffness, weakness / paralysis, |

The indicator has a database for the identification and assessment of the development of digital instruments. Digital identification and assessment instruments in this study using the application Decision Support System (DSS).

*Decision Support System* (DSS) is **Decision Support System (DSS). DSS** is a computer-based information Systems to support the business or organization decision-making activity (https://en.wikipedia.org/wiki/Decision_support system). DSS airport management, operations, and planning levels of the organization (usually the middle and higher management) and help to make a decision, which may rapidly change and not be easily determined in advance (Unstructured and Semi-Structured decision problem). Decision support systems can be completely computerized, human, or a combination of both. While academics have considered DSS as a tool to supportdecision-making process, DSS users see DSS as a tool to facilitate the process of organization. Some authors have extended the definition to include any DSSsystem that can support decision-making, Sprague (1980) DSS defines the following characteristics:

a. DSS tend to be aimed at the less-structured, underspecified problem the top level manager usually face;

b. DSS tries to combine the use of models or analytic techniques with traditional data access and retrieval functions;

c. DSS specifically focuses on the features - features that make them easier to use by people of non - computer in interactive mode; and

d. DSS stressed flexibility and adaptability to accommodate changes in environment and decision-making performed by the user.

DSS includes knowledge based system, A well-designed DSS is interactive software-based system intended to help decision makers compile useful information from a combination of raw data, documents, and personal knowledge, or business models to identify and solve problems and make decisions.

There are several ways to classify DSS applications. Not every DSS fits neatly into one category, but it may be a mixture of two or more architecture. Holsapple and Whinston DSS classified into six following framework: a text-oriented DSS, DSS-oriented database, spreadsheet-oriented DSS, Solver-oriented DSS, rule - oriented DSS and DSS compound. DSS compounds are the most popular classifications for DSS. This is a hybrid system that includes two or more of the five basic structure described by Holsapple and Whinston. The support given by DSS can be separated into three distinct, interrelated categories: Personal Support, Support Group, and Organizational Support.

The components of DSS can be classified as: a) Input: factor, figures, and characteristics to analyze; b) Knowledge and Skills users: Feedback require manual analysis by users; c) Output: The data that has been transformed from where DSS "decisions" are generated; d) Decision: The results produced by the DSS based on user criteria

The DSS applications built using web-based services. So this application should be run online, but we can run the application offline on our computer. Seblumnya should ininstal supporting software in order to access this application. The application is Xampp - win 32 -1.7.3. exe on the CD Software. Once the application is installed, then forwarded to install the application on a local server. If you have finished both of those activities, the DSS application is ready for use.

## 2. Research Methodology

The method used in this study is a model of research and development or Research and Development (R & D) (Borg & Gall, 2003: 772) and continued the experiment. Model development in this study through the stages of conceptual models, theoretical models, hypothetical model and the final model. The conceptual model is a model that is analytical, specifying the components of the product, analyzing the components in detail, and shows the relationship between the components that will be developed. Theoretical model is a model that describes the framework that is based on the relevant theories and supported by empirical data. Hypothetical model is a model that has received the input of experts and practitioners through a focus group discussion (FGD). The final model is a model that has been extensively tested empirically.

The research was conducted in 10 districts / cities in Central Java province, which is taken by purposive sampling in 16 schools (SLB) and Inclusive Schools and the sample of as many as 58 teachers. Collecting data using DSS application eligibility questionnaire instrument for the identification and assessment of children with physical barriers. The use of questionnaires after teachers applying / using software identification and assessment instruments based DSS in children with physical barriers. Feasibility DSS application instrument for identification of children with physical barriers from the aspect *Visible, Interesting, Simple, Useful, Accurate, Legitimate, Structure.*

Questionnaires contain teachers' assessment instrument application identification and assessment of children with physical barriers and motor, includes:
(a) Clarity display application assessment instrument ABK physical barriers
(b) Quality resolution / sharpness garfis / layout
(c) The attractiveness of the application to use the assessment instrument ABK
(d) Conformity assessment instrument applications ABK with the needs of teachers / officers assessment
(e) ABK simplicity of application assessment instrument in use
(f) Conformity assessment instrument applications ABK with reality.
(g) ABK assessment application useful for the identification of needs and asemen ABK

(h) ABK assessment application is easy to use
(i) Application assessment ABK has the accuracy of results in decision-making
(j) ABK assessment applications accelerate the process of identification and assessment ABK
(k) The results of the assessment ABK application usage can be accounted for righteousness.
(l) Ease understand the procedures for using the assessment instrument

Every teacher who became the subject of study were asked to try the application software instrument identification and assessment of children with physical barriers, then give an assessment to give 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 teacher assessment resultsusing quantitative descriptive techniques percentage. The effectiveness of the instrument identification and assessment of children with physical barriers and motor seen from the magnitude of the percentage of respondents.

Told
a) Very effective if> 80% of subjects assess very good / appropriate / right
b) Effective if 70% - 80% of subjects judge good / appropriate / right
c) Less effective if 60% - 69% of the subjects rate the less good / appropriate / right
d) Ineffective if <60% of the subjects rate is not good / appropriate / right

## 3. Results and Discussion

The results of field research with teacher respondents as many as 40 people, showed the data as in table 2. Results showed 90% of respondents said identification and assessment instruments is very suitable to determine ABK, with 80% accuracy for decision-making, 92% said very useful, 92.5% said very easy to use, 95% speed up the process of identification and assessment, 92.5% hasiln yes can be accounted for, 97.5% the process is simple, 95% judge the procedure is easy, and 92.5% looks very attractive instrument for use by teachers.

## 4. Conclusion

Conclusion of the study that instrument-based identification and assessment of children with special needs-based DSS decision support system (dss) is very effective for the identification and assessment of children with physical barriers and motor.

**Table 2.** Effectiveness Of Application Of The Instrument Identification And Assessment Of Children With Physical Barriers And Motor

| No. | Statement | scores answers | Total answers | percentage | amount |
|-----|-----------|----------------|---------------|------------|--------|
| 1 | Application assessment ABK has a clear display. | 4 | 25 | 62.5 | 100 |
| | | 3 | 15 | 37.5 | |
| | | 2 | 0 | 0 | |
| | | 1 | 0 | 0 | |
| 2 | Quality resolution / sharpness garfis / layout | 4 | 12 | 30 | 95 |
| | | 3 | 26 | 65 | |
| | | 2 | 2 | 5 | |
| | | 1 | 0 | 0 | |
| 3 | ABK interesting assessment application to use | 4 | 19 | 47.5 | 92.5 |
| | | 3 | 18 | 45 | |
| | | 2 | 3 | 7.5 | |
| | | 1 | 0 | 0 | |
| 4 | ABK assessment application according to the needs of teachers / officers assessment | 4 | 20 | 50 | 87.5 |
| | | 3 | 15 | 37.5 | |
| | | 2 | 5 | 12.5 | |
| | | 1 | 0 | 0 | |
| 5 | ABK assessment application is simple in use | 4 | 25 | 62.5 | 97.5 |
| | | 3 | 14 | 35 | |
| | | 2 | 1 | 2.5 | |
| | | 1 | 0 | 0 | |
| 6 | ABK assessment application rate according to reality. | 4 | 20 | 50 | 90 |
| | | 3 | 16 | 40 | |
| | | 2 | 3 | 7.5 | |
| | | 1 | 1 | 2.5 | |
| 7 | ABK assessment application useful for the identification of needs and asemen ABK | 4 | 24 | 60 | 92.5 |
| | | 3 | 13 | 32.5 | |
| | | 2 | 3 | 7.5 | |
| | | 1 | 0 | 0 | |
| 8 | ABK assessment application is easy to use | 4 | 21 | 52.5 | 92.5 |
| | | 3 | 16 | 40 | |
| | | 2 | 3 | 7.5 | |
| | | 1 | 0 | 0 | |
| 9 | Application assessment ABK has the accuracy of results in | 4 | 11 | 27.5 | 80 |
| | | 3 | 21 | 52.5 | |

| No. | Statement | scores answers | Total answers | percentage | amount |
|---|---|---|---|---|---|
| | decision-making | 2 | 6 | 15 | |
| | | 1 | 2 | 5 | |
| 10 | ABK assessment applications accelerate the process of identification and assessment ABK | 4 | 24 | 60 | 95 |
| | | 3 | 14 | 35 | |
| | | 2 | 2 | 5 | |
| | | 1 | 0 | 0 | |
| 11 | The results of the assessment ABK application usage can be accounted for righteousness. | 4 | 21 | 52.5 | 92.5 |
| | | 3 | 16 | 40 | |
| | | 2 | 2 | 5 | |
| | | 1 | 1 | 2.5 | |
| 12 | The procedure for applying is easy to understand | 4 | 21 | 52.5 | 95 |
| | | 3 | 17 | 42.5 | |
| | | 2 | 2 | 5 | |
| | | 1 | 0 | 0 | |

# References

Abdul Salim. (2010). Identifikasi Dan Asesmen Anak Berkebutuhan Khusus. Makalah Disampaikan Pada Workshop Bagi Para Guru Di BP-Dikjur Dinas Pendidikan Propinsi Jawa Tengah Tanggal 10-13 Mei 2010.

Abdul Salim. (2008). Materi, Metode Dan Penilaian Dalam Pembelajaran Pengembangan Gerak Di Sekolah. Makalah Di Sampaikan Pada Workshop Nasional Peningkatan Profesionalisme Guru Sekolah Luar Biasa Yang Diselenggarakan Kerjasama Antara Asosiasi Profesi Pendidikan Khusus Indonesia (APPKhI), Direktorat Profesi Pendidik Ditjen PMPTK Depdiknas Dan Program Studi Pendidikan Khusus Universitas Sebelas Maret Surakarta 1-3 Februari 2008.

Abdul Salim. (2006). Hambatan Dan Kebutuhan Anak Tunadaksa. Makalah Disampaikan Pada "Pelatihan Teknis Dosen PLB Bidang Kekhususan Tunadaksa" Direktorat Ketenagaan Direktorat Jenderal Pendidikan Tinggi Depdiknas Tanggal 3 – 8 Juli 2006. .

Abdul Salim, (2000), *Pengembangan Instrumen Standar Indonesia untuk Identifikasi Kretinisme,* Jurnal Rehabilitasi dan Remediasi, No. 21 Th.IX, Surakarta: PPRR LPUNS.

Abdul Salim, (1996), Rehabilitasi Anak Luar Biasa, Jakarta: Pusbangkurrandik Balitbang dikbud.

Abdul Salim. (1997). Pendidikan bagi Anak Cerebral Palsy. Jakarta: Proyek Pendidikan Tenaga Akademik Dikti Depdikbud.

American Psychiatric Association. Highlights of Change from DSM-IV TR to DSM-V. United States : American Psychiatric, 2013.

Borg, W.  R.  & Gall, M.  D -, (1983). *Educational research*.  New York & London: Longman.

David Werner, (2002), Anak-anak desa yang menyandang  cacat, Madang: Yayasan Bakti Luhur.

Dodd, Susan, (2005), *Understanding Hambatan fisikm*, Australia: Elsevier.

http://www.republika.co.id/berita/nasional/umum/13/04/09/mkz2un-112000-anak-indonesia-diperkirakan-menyandang-hambatan    fisik, Selasa, 09 April 2013.

https://en.wikipedia.org/wiki/Decision_support_system.

Kemendikbud, (2013), *Panduan Pusat Layanan Hambatan fisik,* Direktorat PPKLK Dikdas, Jakarta.

Moore, aleycia. (2010). *Jenis Kelainan Pada Anak*. Jogyakarta : Kalamboti.

Musjafak Assjari. 1995. Ortopedagogik Anak Tunadaksa. Jakarta: Proyek Pendidikan Tenaga Guru Dikti Depdikbud.

Sprague, R;(1980). "A Framework for the Development of Decision Support Systems." MIS Quarterly. Vol. 4, No. 4, pp.1-25.

Toha Muslim. (1996). Ortopedi dalam Pendidikan Anak Tunadaksa. Jakarta: Proyek Pendidikan Tenaga Guru Dikti Depdikbud.

Vokmar, et.all, (2004), Practice Parameter for the Assessment and Treatment of Sudjarwanto. 2005. Terapi okupasi untuk anak berkebutuhan khusus. Jakarta: Dikti. Depdiknas