THE APPLICATION OF DECISION SUPPORT SYSTEM TO IDENTIFY CHILDREN WITH INTELLECTUAL DISABILITIES

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ABSTRACT: The research is intended to measure the accuracy of Decision Support System (DSS) to identify the characteristics of children with intellectual disabilities. A number of 40 teachers in Central Java, Indonesia were assigned as the sample comprising 16 special school teachers and 4 inclusive school teachers. As respondents, these teachers are required to (a) have a training on sofware application of DSS program of identification instrument, (b) have an experience on using DSS program, (c) have full commitment to the research activity. The data was collected from questionnaire and analized by quantitaive description. The reseacrh concluded that DSS program indicated the accuracy of 99,8%, and as many as 92.5% of teachers commented that DSS program was easy to use for identification of children with intellectual disabilities.

KEYWORDS: Identifition, Decision Support System (DSS) , Intellectual Disabilities,

INTRODUCTION

Basically, children with disabilities regarding the physical, emotional, intellectual, and social problems, including those of gifted and talented have the right access to education (UU Nomor 20 Tahun 2003). Based on the characteristics (Gargiulo, 2004; Salim, A., 2015), children with disabilities are catagorized into (1) children with permanent disabilities such as visual impairment, hearing impairment, and physical handicap, and (2) children with temporal disabilities in term of developmental and academic disabilities. Due to deprived environment, natural catastrophy, or language problems, wrong reinforcement, some children may have reading, writing, or mathematic problems. Without intervention, such children may have more serious difficulities that can lead to permanent problems (Salim, 2016, Asj'ari, 2006, Kauffman, H.1998).

From a different point of view (Gearheart, W. 1976; Amin, M. 1996; Gunarhadi, 2016), disabilities can be classified into several group such as visual impairment, hearing and speech impairment, intellectual disabilities, and behavioral problems. These kinds of problems may not be detected during the classroom activities (Gunarhadi, 2014). Teachers may not be able to identify the real problems the children may have (Salim, 2016). In consequence, teachers can mislead in designing and giving them their learning programs either in a group or individual (Salim, A., Yusuf, M., Sunardi. 2009). To give a solution to this probem, there has already been an instrument which is developed by American Psychiatric Association: Highlights of Change from DSM-IV TR to DSM-V. (2013). Similarly, Ministry of Education and Culture has provided similar instrument which is operationally in manual system. That the reason why computer based system of intervention is needed.

Decision Support System (DSS) is a computer based-system that can be used to make decision on the result of identification (https://en.wikipedia.org/wiki/Decision support system). DSS deals with making decision in terms of management, operation, and planning. In making decision, the support system is designed fully computerized, human, or combination of both systems. DSS is knowledge based in nature. It's functions to help a decision maker to compile data and information, document, or business model as how to identify, solve problems, as well as make decisions (Sprague, R. 1980).

As an instrument used for identification of children with intellectual disabilities, DSS has four classifications of component i,e (1) input of data base to analize the characteristics of children with intellectual disabilities, (2) the user's knowledge on interpreting the data of childrens' characteristics yielded for observation, assignment, or interview, (3) output in the form of data which is transformed from the DSS application, (4) decision made by the user on the final result of identification for the sake of educational intervention of children with intellectual disabilities.

DSS application is built on the web based-service where the operation is online, but offline is also possible through our computer which is already installed with DSS system. This sytem is still under the process of devlopment since it is not registered in copy right (patent).The application so called Xampp-win32-1.7.3.exe is already in CD software. Once the application is installed, it is connected to local server. Up on the accomplishment of these process, DSS is operationally applicable for use.

The purpose of this research, then, is (1) to describe whether not it is an accurate instrument to identify the charaterisllectual disabilities, (2) whether or not this instrument is useful for teachers in the identification activities. In this case, teachers can make use of this DSS application so that they can design the educational program of intervention for children with intellectual dsabilities as puntual as possible.

METHOD OF RESEARCH

This study is a part of research and development (Borg & Gall, 2003) which is continued to the step of experiment. The research was involving 40 teachers from 16 Special Schools, and 4 inclusive schools in 10 regencies of Central Java. Data was collected by means of questionnaire on accuracy of function of DSS application to process the identification of children with intelectual disabilities. The evaluation of instrument was conducted by teaching upon the accomplishment of DSS application to the process of identification. In this case, every teacher was required to practice using the DSS application sofware to identify the characteristics of children with intellectual disabilities.

RESULTS AND DICUSSION

Based on the the analysis, the research indicated the following results
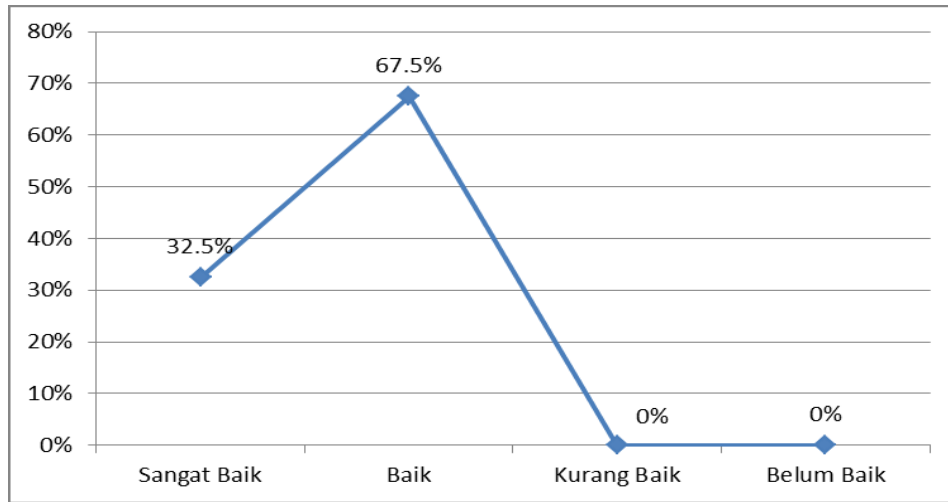
The degree of accuracy of DSS application.

The result of the evaluation from 40 teachers showed the following as seen in the following table.

Table 1. Teachers' evaluation on the DSS Application

Evaluation	Number of Respondents	Percentage
very good	13	32,5%
good	27	67,5%
Less	0	0%
Not good	0	0%
Total number	40	100%

From the above table, the score shows 13 respondents (32,5%) stated that DSS application was very good, 27 of them (67,5%) stated good, and zero respondents stated not good. In percentage, it can be described as seen in the following diagram:

**Diagram 1:Accuracy of DSS application for Identification**

Practical use of DSS Application for Identification

The data of evaluation given by 40 teachers on DSS application is seen in the following table:

Tabel 2: Teacher assessment data on the usefulness of the instrumen identification applications

Evaluation	Number of Respondents	Percentage
very good	21	52,5 %
good	16	40 %
Less useful	3	7,5 %
Not useful	0	0 %
Total number	40	100 %

The above table shows that among 40 respondents, 21 of them (52%) stated that the DSS application was "very good", 16 of them (40%) stated "good" and 3 (three) respondents (7.5%) stated "less useful". Described in the pie graphics, the data shows the following composition:
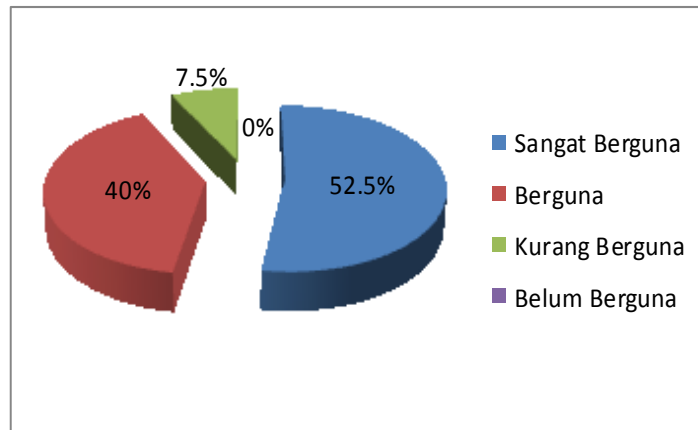
Graphic 2. Practical use of DSS Application for Identification.

Teachers in Special Schools and in inclusive schools are required to have pedagogic competence, professional, social and personal competence (Salim, 2016). The ability to identify the children with intellectual disability is one part of the indicator of professional competence of special school teachers and inclusive schools. In this study, teachers were asked to practice the use of instrument applications based on DSS. The results showed 32.5% stated that DSS application was very good, 27 of them (67.5%) stated good, and zero respondents stated not good. This means that the DSS application has high accuracy in identifying children with intellectual disability. The results are consistent with research by Gunarhadi (2016) and Salim, (2016a) that through the continuous professional training program, the teacher competence can be improved.

Results of the study showed that 40 respondents (52%) stated that DSS applications based instruments was very good, 16 of them (40%) stated good and 3 (three) respondents (7.5%) stated less useful. This means that the application instrument has excellent usability according to teacher assessment. The development of instruments to improve the performance of teachers, especially in developing learning device has a very important (Salim, A. 2016.a; Gunarhadi. 2014). Because of the pervasiveness of the development of this research, the teacher can use the decision resulted from the use of instrument-based applications every time to start the learning program. The learning program should be made appropriately adjusted to the needs and characteristics of children with intellectual disability.

CONCLUSION

Based on the teachers' evaluation on DSS application was worthwhile for identify of children with intellectual disability. The research concluded the accuracy of the instrument of DSS application is "very good" (32.3%), and "good" (67.5%). Most of the teachers commented that DSS application was very useful (52.5%), just useful (40%), and less useful as an instrument of identification of children with intellectual disabilities (7.5). In short, the DSS application has high accuracy and appropriate function of instrument to identify children with intellectual disabilities.

REFERENCES

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

Amin, M. (1996). *Ortopedagogik C (Pendidikan Anak Terbelakang)*. Jakarta: Depdikbud.

Assjari, Musjafak. (1995). *Ortopedagogik Anak Tunadaksa*. Jakarta: Proyek Pendidikan Tenaga Guru Dikti Depdikbud.

Borg, W. R. & Gall, M. D. (2003). *Educational Research*. New York & London: LongmanInc.

Direktorat Pembinaan Sekolah Luar Biasa. (2006).*Identifikasi Anak Berkebutuhan Khusus*.Jakarta: Direktorat Jenderal Manajemen Pendidikan Dasar Dan Menengah Departemen Pendiidkan Nasional.

Gargiulo. Richard M. (2004). *Special Education in Contemporary Society: an Introduction to Exceptionality*. Australia. Canada. Mexico. Singapura. Spain. United Kingdom. United States: Thomson.

Gearheart, Weishahn. (1976). *The Handicapped Child in the Regular Classroom*. Saint Louis: The CV.Mosby Co.

Gunarhadi. (2016). The effect of Cluster–Based Instruction on Mathematic Achievement in Inclusive Schools*. International Journal of Special Education*. 31 (1) 78-87

Gunarhadi. (2014). The Impact of Quantum Teaching Strategy on Student Academic Achievement and Self Esteem in Inclusive Schools. *Malaysian Journal of Learning Instruction, 11 (2014), 191-206.*

https://www.cia.gov/library/publication/the world-factbook/ geos/id.html

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

Kauffman, Hallahan. (1988). *Exceptional Children: Introduction to Special Education. fourth edition*. Prentice-Hall International, Inc.

Kemendikbud, (2006), *Panduan Pusat Layanan Hambatan fisik,* Direktorat PPKLK Dikdas, Jakarta

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

Salim, A. (2016). The Mastery Of Pedagogic Competency Among The Teachers Of Special School In Surakarta Area. *Proceeding:* International Seminar "Society Empowerment Through Psychology and Education Approach. Yogyakarta: University of Mercu Buana. Pp.124-134

Salim, A. (2016.a).Effectiveness of Modified Curriculum and Instruction to Improve Learning Achievement in Social Science Among Childrent with Potential, Intellectual, limitation in Inclusive Elementary Schools*.Proceeding:* International Conference on Special Education in Souteast Asia Region. Kuala Lumpur: National University of Malaysia. Pp. 189-193.

Salim, A.; Gunarhadi; Moh. Anwar. (2015). *Pembelajaran Terdiferensiasi Anak Berkebutuhan Khusus di Sekolah Inklusif.* Surakarta: UNS Press

Salim, A.; Munawir Yusuf; Sunardi. (2009). *Pendidikan anak Berkebutuhan Khusus Secara inklusif.* Surakarta: FKIP UNS.

Undang-Undang Republik Indonesia No. 20 Tahun 2003 tentang Sistem Pendidikan Nasional.