

Mathematics Learning Process for Mental Retardation Students in *Pull Out* Class

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Abstract. This research aims to investigate: 1) the planning phase of the mathematics learning process for mental retardation students in *pull out* class, 2) the implementation phase of the mathematics learning process for mental retardation students in *pull out* class, 3) the evaluation phase of the mathematics learning process for mental retardation students in *pull out* class. This research is qualitative research with field research approach. The subjects in this research are vice principle, mathematics teacher, two mental retardation students, and two assistant teachers. Data in the form of mathematics learning process description and problems faced description were analyzed from observation of individual learning planning, observation of mathematics learning process, recorded interview. Results of this research are: 1) the assistant teacher preparing the IEP suitable to the conditions and needs of mental retardation students; 2) the assistant teacher teach basic geometry topic with special assistance (self instruction); 3) the evaluation test was made by assistant teacher and consulted with mathematics teacher and coordinator of inclusion section.

Keywords: *mathematics learning process, pull out, mental retardation*

INTRODUCTION

Based on Undang-Undang Nomor 20 tahun 2003 about national education system subsection 5 verse (1), “setiap warga negara memiliki hak yang sama untuk memperoleh pendidikan yang bermutu”. It means that every Indonesian has to be guaranteed to get a good quality education, include students with special needs in the education.

Most of student has same necessary and treatment in education, but also there are any student who has special needs in the education. The special needs of the student usually be found in student with genius intelligence nor student with intelligence under regular student. One kind of student with intelligence under regular student is mental retardation. World Health Organization [14] state “Mental retardation is a condition of arrested or incomplete development of the mind, which is especially characterized by impairment of skills manifested during the developmental period, which contribute to the overall level of intelligence, i.e. cognitive, language, motor, and social abilities”.

According to Individuals with Disabilities Education Act (IDEA), very important to provide the access for student with special needs in order to gets same curriculum like as the regular student and hope both of them get same instruction on same important concept [3]. According to Roy [9], mental retardation student perhaps to has problem about communication, self handling of self, social ability on daily activity, group interaction, healthy and safety. But the mental retardation student has different problem with the other.

There are three levels of condition which be found in mental retardation student are mild, moderate, and severe. Although mild mental retardation student has intelligence problem, but they are educable, that is they can be educated. One of education institutions for mental retardation student is special school. Suitable with the evolution, rise up the inclusive education system.

The inclusive education can be accommodate the education for regular student and student with special needs on one place. Learning process and topics in inclusive education modified suitable with condition and problem that came by mental retardation student. Sue Stubbs [12] explained that “regular school with inclusion orientation is the most effective way to fight against discrimination attitude, create open minded society, build inclusive society, and reach education for all. More than that, inclusion school give the most effective education of majority student and increase education efficiency so that can be press cost for education system.

In Surakarta, there are four senior high school which organize inclusive education, SMA N 6 Surakarta, SMA N 8 Surakarta, SMA Muhammadiyah Surakarta, and SMA ALFIRDAUS Sukoharjo. But between four school which handle mental retardation student just in SMA ALFIRDAUS. SMA AL FIRDAUS build in 2005, then in 2012 SMA ALFIRDAUS gets appreciation as the best inclusive education organizer in Indonesia [10]. Kinds of student with special needs in SMA AL FIRDAUS are autism, deaf, mental retardation, slow learner, and distraction.

The student with special needs in SMA AL FIRDAUS gets topic that learned by regular student. One of topic have to learn to mental retardation student is mathematic. The statement same with that point, Steedy, et al [11] said that school must teach mathematic and student must studies mathematic. Based on pra survey result, had information that topic mathematic learned by mental retardation student is algebra (addition, multiplication, reduction, division), social arithmetic (buy and sell), and elementary geometry. During mathematic learning process in reality, mental retardation student has many problem that looks from some aspect like counting, algebra operation, and problem solving [5]. But, for mental retardation student in SMA AL FIRDAUS, that topics modified with reduction of difficulty task.

Geometry topic is topic that hard enough, because there are much kind and formula have to known by mental retardation student. In learning process needed learning design that consider condition of mental retardation student so that mental retardation student can study suitable with their capacity. But in the reality, teacher only give the same education service between the normal student and mental retardation student. There is no special treatment for mental retardation student. The teacher only want gets the achievement suitable with the government program. Whereas not suitable with al mental retardation student and does not based on each individual needs [5].

Inclusive education has three types of curriculum, 1) full regular curriculum, 2) regular modified model, 3) Individual Education Program (IEP) curriculum model. Mental retardation student in SMA AL FIRDAUS gets curriculum with IEP model on geometry topic. That matter do with pulling out student from regular class, then assistant teacher give geometry topic in a special room. When mental retardation student in pull out class, mental retardation student only get assistance from assistant teacher while the mathematic teacher teach another topic in regular class. According to Mc.Donnel [7] learning preparation that consider individual need of student special with special needs and regular student is more important that learning result. Same with that statement Kemis and Rosnawati [5] said that to increase the success of mental retardation student can do with improve the learning process. Specifically is determine the right learning method and learning strategy.

METHOD

This research paper belongs to qualitative research. The method to analyze of this data is field research. This study is analyze the geometry topic mathematics learning process in the pull out class. Based n the purpose, the researcher analyzes this process by using field research. The problem f this study to learning background of the situation and environment instrument of a social unit, group, instrument and society.

The research of this study was researched at SMA in Sukoharjo in April until May 2016. This research consists of 6 subjects of research. The subjects are two mental retardation students, two assistant teachers, the mathematics teacher. The technique of collecting subjects is suitable purposive sampling. This method of collecting data in this research are analyze the document method, observation method and interview method. Document analyze method is analyze the document or the noted evidence that saws the some or the whole of characteristic management (McDnough and Garret, 1992). The document in this research refers to the IEP document. The kinds that analyze in the IEP document n planning by mathematics teacher and geometry topic. Observation method is observation in a subject t get information that suitable with the reality [4]. Observation is to collecting the data that suitable with the mathematic learning in the geometry topic in pull out class the kind at observed is assistant teacher activity during process the geometry topic, interaction between mental retardation student with assistant teacher during learning process. Interview method is a research technique that has relation between researcher and subject until became has verbal interaction[1].

The main instrument in this study is the researcher has purpose to serve and collects the data from the data source support instrument is IEP document sheet by assistant teacher and the interview rules. The technique of validity data that use in this research is triangulation. Triangulation that uses in this research is triangulation source. Then, in this research the technique of collecting data are collecting the data source, reduction of the data, presentation of the data, and makes a conclusion.

RESULT AND DISCUSSION

In the pull out class of the mathematics learning, there are three steps. The steps are planning, implementation, and evaluation. Based on Permendiknas No. 32 tahun 2013 explain that setiap “satuan pendidikan melakukan perencanaan pembelajaran, pelaksanaan proses pembelajaran serta penilaian proses pembelajaran untuk meningkatkan efektivitas ketercapaian kompetensi lulusan”. It means that every school in Indonesia have to do planning step, implementation step and evaluation step. According to the analyze of the IEP document that makes by assistant teacher, observation data and the result data of mental retardation student data of social XI SMA ALFIRDAUS Sukoharjo executes the planning step, execute the learning process and the evaluation step in the pull out class

PLANNING STEPS

Related with pull out class of the mathematics learning process in geometry topic the step of learning process very needed before the learning is begin. Based on Diknas (2008), “kemampuan guru dalam merencanakan kegiatan pembelajaran dapat dilihat dari cara penyusunan program kegiatan pembelajaran yang dilakukan oleh guru yaitu mengembangkan silabus dan RPP”, but in the pull out class of the mathematics learning, the assistant teacher just develop IEP that specially to each inclusion student. The IEP of student is different to each other it causes the ability and the needs of students with another is different. For the first subject and the second subject the plan by assistant teacher is consultation with mathematics teacher and the coordinator of inclusion field for gives the limit of geometry topic that learn by first subject and second subject. The condition of first subject and second subject that review from the IQ has significant differences. The IQ of first subject is 57 WIBS and the IQ of second subject is 68 WIBS. Beside that for the limit of topic between first subject and second subject is not different significantly, it causes of the problem both of them is different. The first subject and the second subject in the class of geometry topic about the matter of around and two dimensional figure. But, for the around and the areas is limited for the square and rectangle while for the other two dimension figure only introduce to the first subject and the second subject can makes different between the square and rectangle. Beside with looking for the condition of the first subject and the second subject that their ability has the limit in number are until number 7 the for area topics limits in the square and rectangle. After assistant teacher consulted the limits of topic to related people. The assistant teacher makes the IEP in the early of semester. The IEP that makes is a long plan during a semester that will be doing with first subject and second subject. In the plan step assistant teacher also makes the exercise that will be solve by first subject and second subject. Because to understand the topic of geometry first subject and second subject that mental retardation student need the practice and several times to repeat the topic and strength their mind memory about geometry topics.

Based on the management of inclusion education that makes Direktorat Pembinaan Sekolah Luar Biasa, Direktorat Jenderal Manajemen Pendidikan Dasar dan Menengah, Departemen Pendidikan Nasional tahun 2009, “ada tiga pengembangan kurikulum, yaitu: 1) model kurikulum reguler penuh, 2) model kurikulum reguler dengan modifikasi, dan 3) model kurikulum PPI”. It means Inclusive education has three types of curriculum, 1) full regular curriculum, 2) regular modified model, 3) Individual Education Program (IEP) curriculum model. After known the result of plans about the mathematics learning process in the geometry topic, it can conclude that learn the geometric topic in the pull out class uses curriculum model of IEP. In the curriculum model of IEP, the first subject and second subject follows the geometry topic in the special class with the topic and special guidance from assistant teacher.

IMPLEMENTATION STEP

The Implementation step of mathematic learning process in the inclusion class involves 1) implement the apperception, 2) serve the topic of study, 3) implements the method, source media source and the exercise that suitable with the early of ability and the student characteristic, 4) push the student to active, 5) demonstrate the master of topic and relevant in the relief. Based on the analysis of the data when the apperception activity of assistant teacher reminds to the shape of two dimensional figure in the daily to give the imagination for mental retardation student about the importance of learn the two dimensional figure. Then the implementation of

mathematics learning process in the pull out class with geometry topic, the assistant teacher uses direct instruction method uses some media. The media that used in geometry learning is geometric block with some colors so that can stimulate the student's mental retardation memory. According to Plass, Heidiy, and Hayward et al [8] said that color and shape can influence student to understand a topic especially warm color likes yellow and orange. Based on Kathlyn Steedly's research [11], there are 4 effective mathematics Instruction for student with special needs. These are systematic and explicit instruction, self-instruction, peer tutoring, and visual representation. Combination of Self Instruction and Visual representation match for mental retardation students when study basic geometry in pull out class. self instruction is match with mental retardation student's condition because learning is a very personal experience, it's important that teachers and students work together to generate self-statements. Whereas visual representation can be used in solving story problems [13], mastering [3], geometric figures[11], and learning basic math skill such as addition, subtraction, multiplication, and division [6]. One of technique can be used in visual representation is Concrete- Representational- Abstract (CRA) techniques. CRA has three-part instructional strategy in which the teacher first uses concrete materials to model the mathematical concept to be learned, then demonstrates the concept in representational terms (such as drawing figures), and finally in abstract or symbolic terms. During the implementation of mathematics learning process in the pull out class, the assistant teacher had execute the job. The assistant teacher is not only as assistant teacher, but also do the job as a mathematics teacher to explain the geometry topic to mental retardation students.

EVALUATION STEP

Evaluation step is an activity that can not be separated from mathematics learning process. Evaluation techniques used in geometry topics of mathematics learning process in pull out class are evaluation, written valuation, self valuation. But the task uses between mental retardation students is different each other. This is uses to do step evaluation that suitable with the condition of the student. According to the result of the observation and result of interview obtained the data that evaluation activity in pull out class of geometry topics in mathematics learning is doing consider the conditions of the mental retardation students. Standard task for mental retardation students is different from regular student task. Evaluation tests for regular students modified with modification the reduction of difficulty. So that mental retardation student can gets the geometry topic but the condition adapted with their condition. The test for the first subject and the second subject is same each other. It causes the ability of the first subject and the second subject is not different significantly.

From the explained, The mathematic teacher uses modified evaluation with modest requirement level of difficulty with modification of the reduction curriculum. According to Permendiknas No. 70 Tahun 2009 pasal 9 ayat 1 that "penilaian hasil belajar bagi siswa pendidikan inklusif mengacu pada jenis kurikulum tingkat satuan pendidikan yang bersangkutan". It mean the evaluation of student achievement depend on the school curriculum. Modification of evaluation is suitable with the characteristic of mental retardation students that has under intelligence potention. The mental retardation students in the class XI of social in the SMA AL FIRDAUS Sukoharjo has IQ between 50-70, with that condition modified evaluation with reduction the level of difficulty..

CONCLUSION

1. In the planning phase, the assistant teacher preparing the IEP suitable to the conditions and needs of mental retardation students. The IEP for mental retardation students can be different for one with another.
2. In the implementation phase, the assistant teacher teach basic geometry topic with special assistance (self instruction). One assistant teacher one mental retardation, it means one assistant teacher guideline only one mental retardation student to understand of the topic.
3. The evaluation test was made by assistant teacher and consulted with mathematics teacher and coordinator of inclusion section. The evaluation test suitable to the conditions and needs of mental retardation students and reduction of difficulty from regular's student.

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