

Introduction

Special Education is a dynamic field of study. Therefore, professionals who work in the field, especially teachers, should always seeking something new in order to develop educational services for students with special needs.

Collaboration, as part of teachers' professionalism should have a significant proportion in everyday practice. One of the practices is a lesson study. Lesson study is an innovation in instructional which the purpose is to develop process and outcomes of an instructional. The activity in lesson study includes plan, do and see.

In order to put collaboration into practice, Special Education Department Yogyakarta State University collaborated with CRICED Tsukuba University held a joint lesson study which involving special education teachers from Indonesia and Japan. The lesson study limited to mathematics instruction and adapted physical education.

The articles in this proceeding are supplementary papers contributed by participants of the seminar and workshops. Our expectation is that this proceeding can bring benefits in developing instructions for students with special needs and in turn it would increase students' competencies.

Yogyakarta, August, 2008

The Committee

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THE USE OF REALISTIC APPROACH IN MATHEMATIC TEACHING FOR EDUCABLE MENTALLY HANDICAPPED CHILD

Tin Suharmini, M.Si
(Yogyakarta State University)

Abstract

Educable mentally retarded child have characteristic, intellegence capacity low average (IQ : 50 – 75), can not abstract thinking, easy power to direct another's action, memory capacity is low and tired of fast. Reality approach with 5 principles that is contextual, research development, student active, interaction, and intertwining, can be adopted for mathematic teaching approach for educable mentally handicapped children.

Be based on this discription about teaching mathematic with realistic approach, then can be said about mathematic teaching for educable mentally handicapped children. The teacher special education : 1). extend mathematic context as if strategy point teaching. The teacher can made teaching purpose and competence and indicator will reached.

2). give stimulation, lead, and facilities in order that model made by student lead their to formality m mathematic.3). give or lead class, group, indivual student to create free production, have ide to problem solving, until created variation problem solving. 4). teacher special education made interaction between individual student in the group. 5). made intertwining between topic with other topic, and between concept.

A. INTRODUCTION

One of problem to mentall retarded children, how do activity mathematic teaching for educable mentally retarded children. Memory the educable mentally handicapped child is low. The raw input information capacity, saving capacity and reproduction capacity is low. Mathematic learning need calculation and logical capacity, until was not amazed if teacher mentally retarded child experience handicapped in mathematic teaching in their student. One mathematic teaching can used for problem solving mathematic teaching in educable mentally handicapped child in realistic approach.

B. EDUCABLE MENTALLY HANDICAPPED CHILD

The mentally retarded with the feeble-minded, moron term applied in the culture. There are 2 criterion for definition mentally retarded : 1. Intelligence (Intelligence test), 2. adaptability of children and adults to social living. As general standard the mentally retarded who are eligible for special instruction range from approximately one-half to three-fourths of their chronological age in the mental age. In intelligence quotient the educable mentally handicapped child estimate of 50 – 75. Public Instruction Departemen (Baker, H.J., 1959) a practical and comprehensive classification of mentally handicapped : 1) the totally dependent mentally handicapped child, 2) the trainable mentally handicapped, and 3) the educable mentally handicapped child. This third and highest type of mentally handicapped child has some possibilities of formal education; hence the title which has been selected. The most retarded in this classification are able to do at last second grade work while the more advanced can progress into the upper elementary grade levels. These goals are accomplished by specially trained teachers with classes small enough for much individual attention, and materials of instruction gauged to limited learning abilities. Most of these pupils have from two-thirds to three-fourths normal intelligence and hence they have some fair possibilities in prognosis. Their vocational outlook is fair in unskilled and semi skilled labor for which they are usually trained with more emphasis and clarity of goals than is true of the slow-learning regular grade pupils.

Baker J.H. (1959) given description about regular classes. In the Detroit public schools single classes housed in regular buildings with one teacher having

up to twenty-two per class are know as Special A Classes. Boys and girls up to about twelve years of age are enrolled. Beyond this age separate centers for boys and girls have been established. Here there are larger groups and more teachers and the students are provided with suitable vocational training in addition to the traditional subjects. These groups are know as Special B classes. There is a new type of class know as Junior Special B, in which boys and girls eleven and twelve years old continue in mixed classes which are housed in junior high school buildings. This arrangement provides these children some opportunity to mingle and share some classes with pupils of their own chronological age. The older Special B pupils continue in special centers and, wherever possible, in junior or senior high schools so as to gain many of the advantages offered to high school students.

Baker continue explain, some attention is being given to the educable mentally handicapped pupil in smaller communities where there are not enough of these cases to warrant a special clas. In Michigan the State Departement of Public Insruction has authorized a type C program in which a special teache, know as a counselor, may be appointed for one or more districts to work with the regular teacher in interpretation and mehode individual pupil in her class. This plan is similar in some respects to the program of the itmenerant teacher which is being used successfully with blind children.

C. REALISTIC APPROACH AND MATHEMATIC TEACHING

In education one or group can made a innovation product repaired teaching and learning in order to can reached output appropriate expect. This new product

maybe new teaching method, new teaching program or new material. Teaching product will reached sign with raising capacity educable mentally handicapped in raw input concepts mathematic and they can reproduction. One new production about mathematic teaching in time always discussion persons in realistic approach.

Mathematic teaching development with realistic approach one other effort to reached student capacity for show an understanding of the mathematic. Niss (in Sardjana, 2005) said : this efforts to reached student capacity of understanding of the mathematic with realistic approach correlated with intended curriculum and implemented curriculum, with realized curriculum. Intended curriculum mean there are defference between subject matter and aspiration curriculum. Implemented curriculum mean to teach subject matter. Realized curriculum mean defference between subject matter and student learning subject matter.

Sardjana (2005) mengemukakan 5 principle realistic teaching : 1). Problem in contextual dominant. There are two thing discuss that is, as if source and applied mathematic concept. 2). Attention act of giving priority to models development, situation, schematic and symbols. 3). Contribution from student about algoritma, rule, etc., until student can make teaching and learning activity become constructive and productive. 4). Interactive as if characteristic from mathematic teaching process. 5). "Intertwinning" between topic or between "strand".

5 principle teaching and learning realistic be the soul of mathematic teaching activity generally approach realistic teaching used developmental

research approach. Freudenthal (1991) understand that developmental research that is experience process from developmental and research, continous report, understanding. This experience transfer to become like experience my self.

Sarjana (2005) said, teaching principles in realistic approach in mathematic teaching, thre are 5 principles in applied realistic teaching :

1. How teacher extend mathematic context as if strategy point teaching
2. How teacher stimulation, lead or guide and facilities in order that procedure algoritma, symbols, model, schema, made by students lead their to formality mathematic.
3. How teacher give or lead class, group and individual student to create free production, have idea to problem solving or interpretation contextual problem, until created variation approachs or problem solving method.
4. How teacher make classes to work, until interaction between individual student and small group, and between group in general presentation.
5. How teacher intertwining between topic with other topic, between concept, and between symbols.

D. REALISTIC APPROACH AND MATHEMATIC TEACHING FOR EDUCABLE MENTALLY HANDICAPPED CHILD.

Educable mentally retarded child have characteristic, intellegence capacity low average (IQ : 50 – 75), can not abstract thinking, easy power to direct another's action, memory capacity is low and tired of fast. Reality approach with 5 principles that is contextual, research development, student active, interaction, and intertwining, can be adopted for mathematic teaching approach for educable

mentally handicapped children. Mathematics teaching with a realistic approach brings about appropriate context, objective teaching, and competence will be reached. The realistic approach brings about model development, and saw situation, until it becomes teaching variation. Mathematics teaching does not tire. Students are active because they are constructing and producing their own subject matter. Interaction between educable mentally handicapped children does not tire and educable children will be happy. Intertwining will make children understand the subject matter.

Based on this description about teaching mathematics with a realistic approach, then it can be said about mathematics teaching for educable mentally handicapped children :

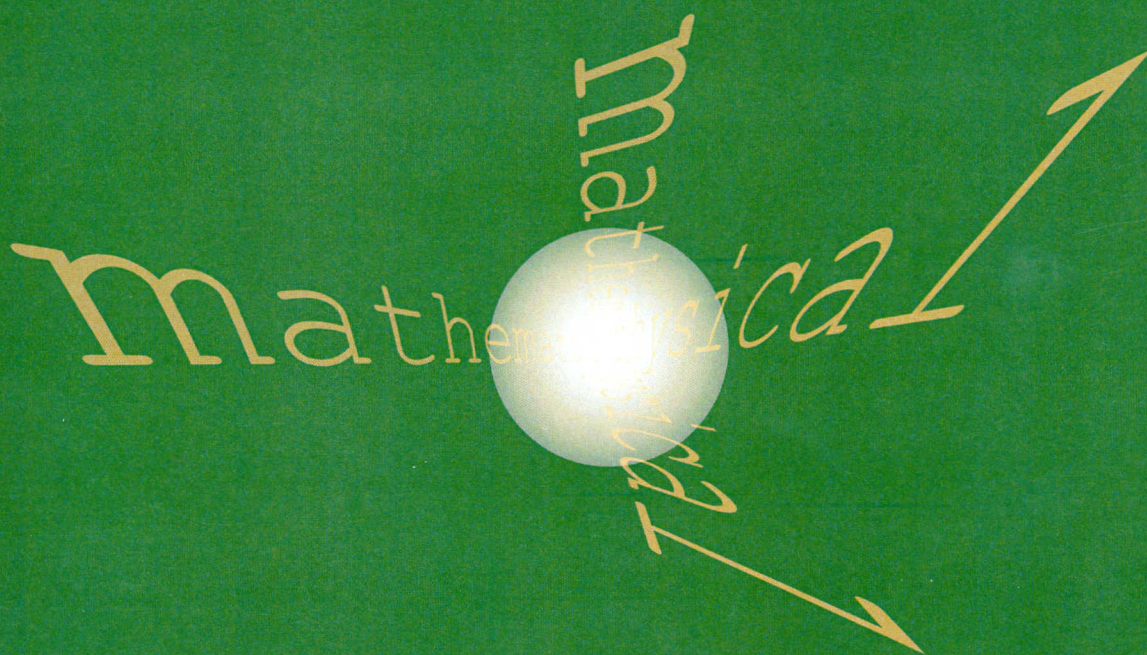
1. The teacher of special education extends the mathematics context as if strategy point teaching. The teacher can make teaching purpose and competence and indicators will be reached. Example : 1) the students can calculate digit 1 – 10.
2) the students can write digit 1 – 10, etc.
2. The teacher of special education gives stimulation, lead, and facilities in order that the model made by students leads them to formal mathematics.
3. The teacher of special education gives or leads class, group, individual student to create free production, have ideas to problem solving, until created variation problem solving.
4. Teacher of special education makes interaction between individual student in the group

5. Teacher special education made intertwining between topic with other topic, and between concept.

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Proceeding



International Workshop & Symposium

on
joint lesson study mathematics
and adapted physical education
for special education teachers

Colaboration between
Yogyakarta State University
CRICED Tsukuba University Japan
and Directorate for Management of Social Education





ISBN 979-15832-7-6



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