

# Improving vocational competencies for students with light mental retardation in light service motorcycle

**Sriyono, Sumarto, Wahid Munawar, Budi Susetyo**

Indonesia University of Education

**Abstract.** The background of this research that only 18% of 1.6 million students with special needs have received educational services. The learning conditions tend to be conventional, the limitations of learning media and teacher competence. The purpose of this study was to describe the process of light service motorcycle and the change of behavior dimension for students with mental retardation. Mental retardation means subaverage intellectual ability equivalent to or less than an IQ of 70 that is accompanied by significant deficits in abilities (as in communication or self-care) necessary for independent daily functioning, is usually present from birth or infancy, and is manifested especially by delayed or abnormal development, by learning difficulties, and by problems in social. Participants of this study were students with light mental retardation in special schools. This research method is a single subject research method. The research design used reversal design of type A-B-A, where baseline phase (A1) measurement was done three times, then intervention phase (B) was done four times. Then done baseline phase (A2) done three times. The results of research on the implementation of demonstration methods learning, showed an increase in behavioral dimensions, especially for aspects of latency in skill of light service motorcycle.

**Keywords:** Mental Retardation, Behavior Dimension, Single Subject Research

## 1. Introduction

Indonesia Central Bureau of Statistics (BPS) in 2017 released the number of children with special needs (ABK) in Indonesia reaching 1.6 million children. From the 1.6 million childrens with special needs in Indonesia, only 18% have received inclusive education services. Around 115 thousand children with special needs attend school in SLB, while ABK who attend regular schools implementing inclusive schools around 299 thousands. Access to education services for ABK is carried out through special education services carried out at Special Schools (SLB) and inclusive school program services. ([www.kemdikbud.go.id](http://www.kemdikbud.go.id)).

Special education is education for students who have a level of difficulty in following the learning process because abnormalities in physical, emotional, intellectual, social, and intellectual abilities have special potential and talent. The standard of the special education process applies to students such as: blind, deaf, mild mentally retarded, mild quadriplegic, harmonious and autism at every school level. In the perspective of multicultural education, students or children with special needs (another term: difabel stands for different abilities of people) are students who have exceptionality, which is characterized by its specificity, such as: blind, deaf, mentally retarded, disabled, disabled, autistic.

Students with special needs in Indonesia usually attend to special schools (SLB) or inclusive schools, namely public schools that accept children with special needs. Education for children with special needs (ABK) in regular schools and special schools (SLB), the essence is to help children develop their potential.

The skills subjects at the Special Needs High School (SMALB) consist of two aspects, namely: crafts and technology. Craft aspects include sub aspects of appreciation and creation while in the technological aspects include skills in making products and services. Types of technology / vocational skills including fashion, cooking, automotive, and computers. The material for basic automotive vocational skills includes vehicle washing, vehicle painting, light tuning and engine overhaul. The learning pattern at SMALB is deliberately designed to produce graduates who have vocational competencies that are relevant to the minimum needs of employment. In addition, vocational teachers / prospective teachers in SMALB need professional competence as SMALB teacher

In fact, the current condition of vocational learning for special education is nothing more than teaching students with knowledge and skills that tend to be conventional or verbalistic. This was allegedly that learning was carried out by SMALB teachers who did not yet have professional skills as vocational teachers at SMALB. Research at the SMALB Pembina Jawa Barat (2011), describes that vocational skills learning is carried out by lecturing methods then followed by practical activities at workshops. In carrying out practical activities, use sheets of student worksheets (workbooks) by teachers who do not have vocational skills. The learning activities of technology vocational practice skills that are oriented as a means to work on teacher orders or to follow the guidelines of practice manuals are very contrary to the objectives of actual technology vocational skills education. Vocational skills in technology other than applied science are also effective, observational, economical. (Wahid M. dan Firdan N.F, 2011: 23).

The results of observations at the SMALB in West Java showed that skills education at the SMALB had not been able to run optimally, because there was no skill teacher who was truly competent, with his field of expertise. In order to carry in the skills lesson, SMALB brings in instructors from outside, such as motorcycle mechanics, make-up, tailors, barber, and so on. The instructor brought in does not have the competencies as required to become a teacher (personality, social, pedagogic, and professional competencies). The vocational teaching and learning process does not run optimally. The instructors who were brought in were often unable to attend, because the time of the learning process coincided with the instructors working at their respective workplaces. The learning implementation takes place verbally because it is only accompanied by the existing teacher, even though it does not have the competencies that are in accordance with the expected field of expertise.

This study involved disabled students, especially mentally retarded students. Mentally retarded students are impaired as a motor controller in their activities, mentally retarded students have complex difficulties in determining modalities, except capable mentally retarded students (debilitated) who are able to be educated at a minimum in the academic, social and work fields. Basic automotive skills that involve motor censorship are capital for vocational technology skills education to be able to play a role in the coaching process to build individuals who can be independent and can play a role in social societies.

Automotive skills are one of the most popular skills for students. The limited number of teachers and equipment impacted in SMALB students not mastering automotive skills. The choice of the model, approach, and learning method used is also less precise so that the learning that occurs is less than optimal. Technology vocational skills learning must have models, approaches, and learning methods that are suitable for students with special needs, so that students can obtain academic competencies in technology that can be used to work independently in the world of work and in developing

independent business fields. The selection of models, approaches, and learning methods is one of the things that can affect student learning outcomes. Learning methods must be in accordance with the learning objectives to be achieved. Students with mental retardation are very constrained in terms of communication, therefore mentally retarded students will be better able to understand the material conveyed by paying attention with direct guidance on the material to be learned. The demonstration method is an alternative learning method that can be used effectively for mentally retarded students. The demonstration method is expected to be able to cover the shortage of mentally retarded students in capturing the learning information delivered by the teacher. In the demonstration method the visual aspects in practice are well understood by students so that the competencies possessed by mentally retarded students can increase.

Referring to the background, the problem formulation can be proposed in this study, namely: how is the description of increasing the competence of SMALB students in the aspect of latency in vocational learning for Light service motorbikes?

The research on the implementation of learning methods at SMALB aims to see an increase in the competency achievement of SMALB students on the latency aspects of vocational learning on Light service motorcycle services.

## **2. Literature**

### *2.1 Mental Retardation (Tunagrahita)*

Mental retardation is another word for tunagrahita. Grahita in Javanese means thinking or understanding, so mental retardation is an inability to think. "The definition of mental disability or mental retardation initially refers to the low cognitive aspects" (Effendi, M 2008: 70), this will also affect other psychological functions so that definitions of mental retardation develop. Another opinion states that "mental retardation is a term used to refer to children who have intellectual abilities below the average." (Sutjihati Somantri, 2007: 103). The term has the same meaning which explains the condition of children whose intelligence is far below the average and is characterized by limited intelligence and incompetence in social interaction. Based on some of the above meanings, it can be concluded that mental retardation is a disability and is indicated by limited intellectual function and adaptive behavior during the development period.

Children who are mentally retarded because of their intelligence limitations make it difficult to take part in regular school learning. Therefore mentally retarded children need special education services that are adapted to the abilities. Some characteristics of mentally retarded children can be learned, namely: 1. Limitations of Intelligence, 2. Social Limitations, 3. Limitations of other mental functions. (Sutjihati Somantri, 2007: 105). The limited intelligence in mentally retarded children is inability such as learning information and skills adjusting to problems or life situations. Social limitations in mentally retarded children which are difficult to take care of themselves in a community of mentally retarded children tend to be friends with younger children, dependence on older people is very large, unable to bear social responsibility wisely. Children with mental retardation need a longer time to complete the reaction to the situation they have just known.

### *2.2 Mental Retardation Classification (Tunagrahita)*

Classification based on WISC IQ score (Efendi, 2008: 74) consisting of: a. mild (Mild/Debil/ Moron); b. moderate (Moderate); c. weight/idiot (IQ 0-25). Mental Retardation is a substantial limitation in functioning. This limitation is characterized by the limited ability of intelligence functions that lie below the average (IQ 70 or less) and are characterized by limited adaptive behavioral abilities at least in two or more areas. Adaptive behavior in communication skills, caring for theyself, adjusting in home life, social skills, utilization of public facilities, self-direction, area of health and safety, academic functions, filling in leisure time, and work.

Classification of mental retardation according to Sutjihati Somantri. (2007: 106) as follows: 1) Mild mental retardation, is also called moron or debility. This group has IQs between 68-52 according to binary, while according to the Weschler Scale (WISC) has an IQ of 69-55. They can still learn to read, write, and simple counting; 2) Moderate mental retardation, children with mental retardation are also called imbeciles. This group has IQ 51-36 on the binary scale and 54-40 according to the Weschler Scale (WISC). Children with mental retardation are able to achieve MA development for approximately 7 years; 3) Heavy mental retardation, groups of severely retarded children are often called idiots. This group can be distinguished between severe and very severe mentally retarded children. Severe retardation has an IQ between 32-20 according to the binary scale and between 39-25 according to the Weschler Scale (WISC). Profound intellectuals have IQs below 19 according to the binary scale and IQs below 24 according to the Weschler Scale (WISC).

Based on the AAMD classification in Kaplan (1997: 58), this retardation can be classified as follows: 1) A mild group of mental retardants, those who have an IQ range between 55 and 69; 2) Moderate mental retardation, namely those who have an IQ range of 40 to 51; 3) Deafness is classified as severe, that is, those who have a range of ID 25 to 39.

### *2.3 Factors causing mentally retarded children*

The factors that cause mental retardation consist of heredity or environmental factors proposed by Moh. Amin (1979:23): 1) Descendants; 2) Metabolic and nutritional disorders; 3) Infection and poisoning, such as rubella, syphilis, and environmental factors (socio-cultural).

### *2.4 Impact of Mental Retardation (tunagrahita)*

The impact of mental retardation according to Kaplan (1997), the results of his research show that there is a positive relationship between adaptive behavior and intelligence.

### *2.5 Latency*

Juang Sunanto (2005: 17) argues that: "latency shows the time needed by a person to perform certain behaviors (behavior) after getting a stimulus". For example, how many minutes did you stop doing tantrum after your teacher asked you to stop by saying "don't be angry, let's play". Recording latency data the length of time to carry out an activity after receiving a stimulus. How long does it take for the subject to start a behavior after getting a stimulus. In other words this procedure is measuring the length of time between giving a stimulus and when starting a behavior. For example, a researcher or teacher asks students to say "Ali, sit down" (antecedent stimulus) and Ali does the order, but it takes 5 minutes before sitting down. This situation indicates that the latency that can be recorded is 5 minutes.

### *2.6 Demonstration Learning Methods*

This study uses demonstration methods as an alternative learning method for disabled students. According to Syah (in Adang Heriawan, 2012:85) 'The demonstration method is a method of teaching by demonstrating the goods, events, rules, and sequences of conducting an activity, either directly or through the use of teaching media relevant to the subject or material is being served.' According to Daryanto (2010:107) 'Demonstration method is a way of presenting lesson material by demonstrating or showing students a situation process, or a particular object that is being studied, either real or imitation that is often accompanied by oral explanations.' Udin S. Winata Putra, et al (2004:424) "The demonstration method is a way of presenting lessons by directly demonstrating objects or ways of doing things to demonstrate a particular process". Based on the above definition it can be concluded that the demonstration method is a way of presenting lessons by demonstrating directly the process or to do something accompanied by verbal learning. The demonstration method has steps in its implementation, the steps that must be understood and used by the teacher, that consist of planning, testing, and implementation by the teacher then followed by the students and ended with an evaluation. (Hasibuan and Mujiono, 2006).

In the implementation of teacher demonstration methods are required to make students active, inviting students to ask what is not understood. Parts that are considered important from something that is shown or explained must be slow and give sufficient time to the participants to observe it, if it is still unclear it is repeated many times so that students really know every detail of something demonstrated. The teacher then asks students to assess until where students have understood or participated in the demonstration that has been completed. The teacher is expected to be able to master the situation and conditions of learning, so students can observe attentively to something the object being demonstrated.

### 2.7 Light Service of Motorcycle Service

Light service Motorcycle (tune up) is a regular maintenance activity on a motorcycle, where these activities include: 1) Check motorcycle parts to make sure the parts are still functioning properly; 2) Clean the dirty part so that the dirt does not damage the system; 3) Set the changing parts to match the specifications; 4) Repair/replace damaged/worn components.

It is expected that the periodic tune up will be done well, it will be obtained: 1) Older component/vehicle age; 2) Fuel consumption is more economical; 3) Optimal engine Power; 4) Pollution levels/vehicle exhaust emissions are lower.

### 3. Discussion

Changes in the latency of students in tune up engine learning on aspects of motorcycle engine lubricant replacement using the demonstration method show the average increase in student response that can be seen from the reduced latency time from the baseline (A1) phase to the baseline phase (A2) as follows:

Table 3.1 Student Latency Baseline (A1)

No	Activities	Latency		
		1	2	3
1	Work preparation	118	112	116
2	Preparation of tools and materials	92	95	94
3	Remove the motorcycle oil discharge bolt	100	88	80
4	Hold used lubricants / oils	25	20	17
5	Unscrew the top oil	76	50	48
6	Close the motorcycle oil drain bolt	268	229	123
7	Fill engine oil/lubricants	163	117	95
8	Close the oil cap	163	94	90

Table 3.2 Student Latency Baseline (A2)

No	Activities	Latency		
		1	2	3
1	Work preparation	98	93	96
2	Preparation of tools and materials	82	86	83
3	Remove the motorcycle oil discharge bolt	38	36	35
4	Hold used lubricants / oils	10	9	8
5	Unscrew the top oil	16	15	15
6	Close the motorcycle oil drain bolt	64	62	60
7	Fill engine oil/lubricants	60	60	60
8	Close the oil cap	50	55	52

Analysis of the learning latency of mild mentally retarded students has generated latency data on light motorcycle service in terms of replacing motorcycle engine lubricants. At each phase there is a decrease in the speed of students' time to respond. Changes in latency in the baseline phase (A1) and baseline phase (A2) in students lead to a decrease. Student responses increased due to the intervention in the form of demonstration methods. In the baseline phase (A1) students really do not understand how to use the tools, students do not know the procedure for replacing motorcycle engine lubricants correctly. After being given treatment in the intervention phase (B) students begin learning assisted by researchers using the demonstration learning method. As a result, in the baseline phase (A2) they are used to replacing motorcycle engine lubricants. So that there is a decrease in latency in the form of student responses that are faster than students' responses when replacing motorcycle engine lubricants in the baseline phase (A1)

Learning about the process of replacing motorcycle engine lubricants in mild mentally retarded students using the demonstration method at SMALB goes according to plan. Researchers did not encounter significant obstacles, the demonstration method can be applied to mild mentally retarded students. The advantages of the demonstration method according to Syaiful (2010: 210) are:

- This method can make teaching clearer and more concrete. So that it can avoid verbalism.
- Students are expected to be easier to understand what is learned
- The teaching process will be more interesting
- Students are stimulated to actively observe, adjust between theory and reality, and try to do it themselves.
- Through this method can be presented subject matter that is not possible.

Mentally retarded students learning to replace motorcycle engine lubricants using the demonstration method showed a decrease in latency. This is indicated by the faster students respond to orders to replace motorcycle engine lubricants. Juang Sunanto (2005: 60) revealed: in order to obtain good research validity, when conducting experiments with A-B-A designs, researchers need to pay attention to the following points.

- Define the target behavior as behavior that can be accurately measured.
- Measure and collect data at baseline (A1) conditions continuously at least 3 or 5 or until the trend and data level become stable.
- Provide intervention after the trend of baseline data is stable.
- Measure and collect data in the intervention phase (B) with a certain period of time until the data becomes stable.
- After the tendency and level of data in the intervention phase (B) stable repeat the baseline phase (A2).

Mentally disabled students need several sessions to achieve stability in latency time. In the baseline phase (A1) 3 times, in the baseline phase (A1) students are completely in natural condition. Intervention phase (B) was carried out 4 times after the baseline phase (A1) was carried out, in this phase the intervention which was the method of demonstration was carried out by the researcher. Baseline phase (A2) is carried out after the intervention phase (B), this phase is carried out 3 times, this phase is carried out so that there is a student benchmark before being treated (A1) and after being given treatment (A2). Student learning latency in this study notes the calculation of the time lag between teacher orders and student responses, when latency occurs, students think how to use tools and what to do.

#### **4. Conclusion**

SMALB students in learning light service motorcycle use the demonstration method. After being given an intervention it shows that students can do light service motorcycle work without having to be accompanied by a teacher.

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