

## Development of BMAIN (Basic Motion Assisted Instruction) Learning Model for Recognition of Two-Dimensional Figure for Children with Mild Mental Retardation

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### Abstract

The purpose of this study is to develop a mathematical learning model that is combined with physical education learning for children with mild mental retardation in Extraordinary School. This game is called the PLAY (Basic Motion Assisted Instruction) game. This study uses the R & D (Research and Development) method that is carried out for mild mentally retarded students, Public Extraordinary School Tamansari, Tasikmalaya City, with the intention of developing a learning model for the introduction of the two-dimensional figure through physical activity. The results of the preliminary study or field findings are then described and analyzed so that these results are descriptive in the form of learning model models and learning steps concerning the purpose of the preliminary study and the results of expert trials and observations. The results of the preliminary study or field findings are then described and analyzed so that these results are descriptive in the form of learning model models and learning steps concerning the purpose of the preliminary study and the results of expert trials and observations.

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## INTRODUCTION

We need to realize that students who are educated are not only the same students in general but also many education providers whose students have physical, intellectual, emotional and social abnormalities, whose challenges are harder to deal with these students. Therefore, it needs more attention so that the goals of education can also be directed to special needs students who have abnormalities, especially students who attend the Extraordinary School.

This is supported by Government Regulation No. 72 of 1991 concerning Special Education Chapter II Article 2 which reads:

Extraordinary education aims to help students who have physical and/or mental disorders to be able to develop attitudes, knowledge, and skills as individuals and community members in conducting reciprocal relations with the surrounding social, cultural and natural environment and can develop skills in the world of work or attend further education.

In line with the opinion of Abdulaziz, Rahayu, T., and Rahayu, S. (2014) Education is a planned effort to create a learning atmosphere and learning process so that students are actively able to develop their potential so that they have religious, spiritual strength, self-control, personality, intelligence, noble character, and skills needed for themselves and society.

Students with special needs who attend the Extraordinary School are very active, but the discussion in this study is a type of mild mental retardation disorder. The problem is considered important to study because it requires special treatment so that mentally retarded students can achieve the expected educational goals. Education for mentally retarded children aims to develop the potential that is still owned optimally so that they can live independently and be able to adjust to the environment in which they are located (Hakim, Soegiyanto, and Soekardi, 2013).

In line with the opinion of Kurniawan, Rahman, and Soegiyanto (2015) The implementation of physical education learning in children with special needs must be adjusted and

the implementation of physical education learning which must be given and managed through physical development effectively and efficiently towards the formation of whole human beings.

To achieve educational goals that are expected to be able to do various kinds of learning things including physical education learning, because through physical activity besides providing motion learning can also convey the value of educational values including discipline, honesty, cooperation, mutual help, etc., which are expected to be applied in real life. In line with this, in the opinion of Setiawan, Soekardi, and Rumini (2015) Physical Education, Sports, and Health (PJOK) have become part of the overall education process with the intention of changing the behavior of students. In addition to changing the behavior of students, physical activity always strives to achieve educational goals, namely increasing motor skills and functional values that include cognitive, affective, and psychomotor aspects. Furthermore, according to Rafikoh, Tandiyo, and Hidayah (2014), Physical and Health Education is motion, where two things must be understood, namely making a motion as a tool in education and making a motion as a means of fostering and developing the potential of students. While the main purpose of learning Physical Education, Sports, and Health (Penjasorkes) in Elementary Schools is to help students improve their motion skills. Other main goals are also so that they feel happy and encouraged to participate in various forms of activity (Kusmiyati, Soegiyanto, and Setya, 2014)

With these conditions, students with special needs for mild mental retardation experience weakness in receiving material while studying in the classroom, therefore the author intends to develop a learning model so that it can help students with special needs of mild mental retardation, although weak in absorption of material but can be helped by learning models that given.

The learning model that will be given is considered as a strategy to anticipate the weaknesses possessed by students with special needs of mild mental retardation because with a

specific strategy it is hoped that it can lead to more focus and enthusiasm in learning. “Students have heterogeneous interest ideally the teacher must use the right method” (Martono, Rahayu, and Fakhruddin, 2014)

The learning model that will be given is a simple game for the introduction of flat shapes such as circles, rectangles, squares, triangles, squares, rhombus, trapezoid and kites. Simple games in the form of physical activities such as walking, running and jumping around a giant two-dimensional figure carved using wood plywood painted to make it more attractive.

Games for children are a form of activity that is fun and carried out solely to please children, not because they want to get something that results from that activity, active play is important for children to develop muscles and train all parts of their body (Naheria, Soegiyanto, and Lestari, 2015).

It is expected that learning while playing can provide understanding, easy and long to remember. “Reading contributes to the mastery of material 10%, listens to 20%, and sees it directly contributes 30%” (Dale, 1969).

But then try to see it in an active learning model, where when we 'say' or 'teach people' or 'discuss', then it can provide 70% understanding of the material being mastered, and if we 'actively do/apply knowledge' then things it contributes 90% to our understanding of subject matter.

This learning model embraces thematic learning that links themes from several subjects. However, this is positive because thematic learning emphasizes more on the involvement of students in the learning process actively in the learning process. Therefore students can get direct experience and be trained to be able to find out their various knowledge learned (Nurzaqi, Sulaiman, and Rahayu, 2014). Besides that, it was reinforced by Pangrazi's statement (Mahardi, 2012) states that Physical and Health Education is a stage of general education programs that contribute to the overall growth and development of children, especially through movement experience. This is a learning program that gives attention to all learning domains, namely: (1) psychomotor, (2) cognitive and (3) affective.

This means that physical education, sports, and health can be tools to implement other learning so that they can work together to achieve national education goals.

The resulting learning model is a multi-purpose learning tool product so that it can be used for physical learning as well as the introduction of the two-dimensional figure in mathematics subjects. Through a multipurpose tool, the teacher can provide an overview of material techniques from difficult to easy techniques using learning tools (Albab, Rahayu, and Sugiharto, 2016).

Based on the description above, the authors are interested in studying more about “Development of BMAIN (Basic Motion Assisted Instruction) Learning Model for Recognition of Two-Dimensional Figure for Children with Mild Mental Retardation.”

## METHODS

This study uses the Research and Development (R & D) method. The selection of the research method is due to the researcher wanting to develop a learning model. This is by the opinion of Borg and Gall (Sugiyono, 2011) which states that research and development is a research method used to develop or validate products used in education and learning. To get a product that is ready for use, the product must be tested beforehand to small or limited groups, and field trials (Panweni, 2012). Furthermore, the model is said to be effective if the organization implementing the learning modification model can be implemented in each trial and all the elements involved, such as students and teachers can implement the model (Susanto, 2012). Therefore to obtain data in order to revise the product in order to obtain products that are ready for use and useful, an evaluation and trial of the product is carried out with the stages referring to the article Sukiyandari, and Soegiyanto (2014) as follows: (1) Phase I evaluation is the material validation stage by material experts. The data obtained is then analyzed and revised as product development, (2) Phase II evaluation again carried out material validation by material

experts and revised the product developed. (3) Phase III evaluation is the stage of small group testing, analysis, and revision, (4) Stage IV evaluation is a large group trial, analysis, and revision.

The final result of the product is a BMAIN (Basic Motion Assisted Instruction) learning model in the form of a flat-formed mattress and how to play it.

The research was conducted at Public SMPLB Tamansari and SMPLB Patriot Education Foundation. The characteristics of respondents that were used as the attention of researchers were mild mentally retarded students.

The population is the overall object of research (Adri, Soegiyanto, and Soekardi, 2015) the population in this study were mild mentally retarded students at Public SMPLBN Tamansari Tasikmalaya City and SMPLB Patriot Education Foundation Tasikmalaya City, as many as 25 people. For respondents used in the limited test as many as 10 students of Public SMPLB Tamansari using the total sampling technique, to test more broadly the sample used in SMPLB Patriot Education Foundation as many as 15 people using the total sampling technique

## RESULTS AND DISCUSSION

Field surveys have been carried out, so the third stage is to draft a game model that combines basic motion activities with the introduction of the two-dimensional figure. The draft model is tailored to the needs, the field needs of the survey results, then a learning model is created that combines physical activity with the introduction of the two-dimensional figure.

The steps of this learning model are named BMAIN (Basic Motion Assisted Instruction). With the model steps like the following:

- a. Students are given twice the opportunity to do a two-dimensional figure introduction. The first opportunity is done together; the second opportunity is done individually.
- b. Students pass each two-dimensional figure by walking around each flat as many as two turns.

c. Every move from a two-dimensional figure to another two-dimensional figure, students are required to follow the instructions given.

1. Moving from circle to square is done by walking in a straight line.
2. Transfer from square to rectangle, students must walk zig-zag past each cone.
3. Transfers from rectangles to rhombus, students must run zig-zag.
4. Transfer from rhombus to a parallelogram, students must run back and forth according to the position of the cone.
5. Transfers from a parallelogram to trapezium, students must jump two feet zig-zag according to the prepared mattress.
6. Transfer from trapezium to the triangle, students must jump through the agility steps.
7. After students make two rounds, the students are tested using the researcher mentioning one of the two-dimensional figure names; the students immediately choose the two-dimensional figure that has been provided according to the command given.
8. The material of the BMAIN model is made of black sponge with a thickness of 12 millimeters.
9. Implementation distance from each the two-dimensional figure is 2 meters.

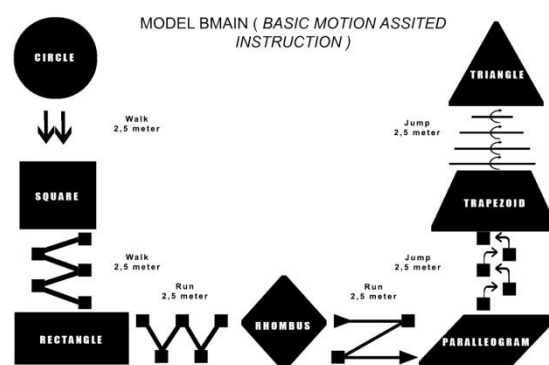


Figure 1. BMAIN Game (Initial Product)

The researcher presented three experts in evaluating the feasibility of the BMAIN learning model for mild mentally retarded children. The three experts are composed of learning experts: Dr. H. Cucu Hidayat, M.Pd, two-dimensional

figure expert: Dr. H. Ebih, M.Pd, and experts on mental retardation: Rahmat Syafi'I, M.Pd. From the results of input from experts and field trials, the product was obtained in the form of a BMAIN learning model for mentally retarded children in the introduction two-dimensional figure.

The steps or syntax of the BMAIN learning model are as follows:

- a. Students are given twice the opportunity to introduce two-dimensional figures. The first opportunity is done together; the second opportunity is done individually.
- b. Students in passing each two-dimensional figure by walking around each flat as many as two turns.
- c. Each transfer from two-dimensional figures to another two-dimensional figure, students are required to follow the instructions given.
  1. Moving from circle to square is done by walking in a straight line while singing.
  2. Moving from square to rectangle students must walk zig-zag past each cone while singing.
  3. Transfer from rectangle to rhombus students must run zig-zag while singing.
  4. Transfer from rhombus to parallelogram of students must run back and forth according to the position of the cone while singing.
  5. Transfers from a parallelogram to trapezium students must jump two feet zig-zag according to the mat that has been prepared while singing.
  6. Transfer from the trapezium to the triangle, students must jump through the agility steps while singing.
  7. After students make two rounds, students are tested by the way the researcher mentions one of the names a two-dimensional figure; students immediately choose the two-dimensional shape figure that has been provided according to the order given.
- d. The material of the BMAIN model is made of colorful sponges with a thickness of 24 millimeters.

- e. Distance from each two-dimensional figure is 4 meters.

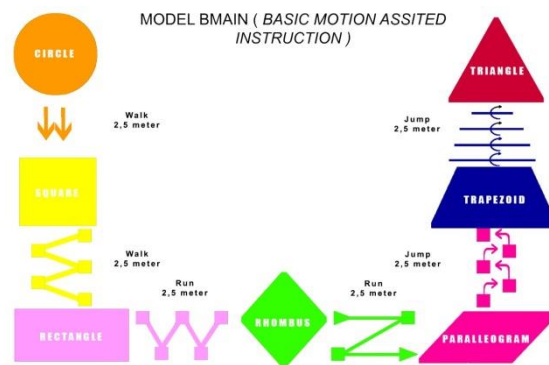


Figure 2. Revised Results Products

## CONCLUSION

The results of research obtained in preliminary studies and limited and extensive trials are as follows: (1) BMAIN (Basic Motion Assisted Instruction) learning model for the introduction of two-dimensional figures for mild mentally retarded children (SMPLB Tamansari in Tasikmalaya City) is still lacking and needs improvement. (2) BMAIN Basic Motion Assisted Instruction learning model) for the introduction of two-dimensional figures for mild mentally retarded children (SMPLB Patriot Education Foundation, Tasikmalaya City) there are still shortcomings and need for improvements. (3) Student feedback obtained from the results of limited and extensive trials is quite a positive influence, except that it needs to be reviewed about the product model in order to test the product and socialize the results.

The results of this study are only at the stage of preliminary studies and limited trials and extensive trials.

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