REALISTIC MATHEMATICS APPROACH IN IMPROVING THE ABILITY TO RECOGNIZE PLANE FIGURES FOR SECOND GRADE STUDENTS WITH HEARING IMPAIRMENT

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Abstract. *Student with hearing impairment has an impact on the low ability of Student with hearing impairment in abstracting the concept of space including the plane figures recognition The understanding of Student with hearing impairment about the concept of space is very important to develop, hence a learning approach to recognize the plane figures for Student with hearing impairment is needed. The purpose of this research was to determine the effectiveness of using realistic mathematics to recognize flat shapes. Researchers used an experimental method and used a design (One group Pretest-Postest). This design uses one group with implementation stages given in the pretest and postest. Based on the data and hypotheses obtained, there is an increase in students' abilities. . The results of the study can be a reference for teachers in teaching and learning activities to apply this realistic mathematics approach for themes and other learning materials. Moreover, for future researchers to examine this realistic mathematical approach to be applied to different research subjects.*

Keywords*:Realistic Mathematical Approach , Plane Figures Recognizing Ability**,*
Students with hearing impairment

1. PRELIMINARY

Learning mathematics based on 2013 curriculum, including recognizing simple flat shapes. Simple flat shape is an abstract concept for Student with hearing impairment, so that students experience obstacles in the material recognizing the shape of flat shapes. Student with hearing impairment who receive various information visually need a concrete learning approach.

Based on the results of observations at school specials (SLB) Negeri Cicendo which were carried out during learning activities, it can be argued that mathematics learning has used various learning media, but students still have difficulty understanding simple flat shapes. In teaching activities to deliver material, the teacher has implemented several teaching and learning components to students including the objectives where the learning objectives affect other components which are arranged based on core competencies and basic competencies based on the 2013 curriculum. Furthermore, in the subject matter that is always prepared by the teacher, the material in question is written material or unwritten material. Teaching materials that are deliberately designed such as books, worksheets and modules and teaching materials that are not designed but used for learning such as teaching aids such as number balances, nail boards and other general teaching aids are not based on the needs of the students themselves.

Teaching and learning activities are carried out directly in an interaction with learning materials as the medium, where educators are more active than students, interactions in learning are sometimes carried out in groups. The learning method applied by educators does not stick to one method so that it is not boring, but varied methods sometimes do not take advantage if its use is not appropriate and according to the situation and needs of students.

To overcome the difficulties of students in understanding flat shapes, a learning approach is needed to improve the learning achievement process by designing learning for deaf students to suit their level of ability and needs. One of the lessons must create related conditions from the real world context. Therefore, a learning approach that uses a real-world context is assumed to be relevant to the conditions of deaf students, where through this learning students are connected to the real world context.

2. METHOD

Researchers used experimental methods, the form of design used was (One group Pretest-Postest). The experimental design, according to Arikunto (2002, p. 85) is as follows:

O_1 X O_2

information:

O_1 = Pretest value
X = intervention
O_2 = Postest Value

The steps taken by the researcher :
1. Make observations to determine the research sample
2. Conduct the initial test (O_1) on the research sample
3. Intervening in the research sample, especially in recognizing simple flat shapes
4. Conduct a final test on the research sample
5. Comparing O_1 x O_2 in an effort to determine how much influence the intervention

3. RESEARCH RESULT

The pretest score data recognizes the form of simple flat shapes in Student with hearing impairment of class II primary special school (SDLB) before being treated can be seen in the following table:

Pre-test Score

No	Subject Name	Pretest Score
1	UH	4
2	TA	3
3	NS	3
4	W	4
5	RE	2
6	YE	3

After being given using a realistic mathematical approach to classroom learning, the next step is to carry out the final test which is obtained by class II primary special school (SDLB) Student with hearing impairment which can be seen below:

Post-test Score

No	Subject Name	Postest Score
1	UH	18
2	TA	30
3	NS	29
4	W	25
5	RE	20
6	YE	21

After obtaining the results of the data on the introduction of simple flat shapes class II primary special school (SDLB), it can be seen that the scores obtained by students have increased. The following is an increase in the score in the table below.

Improved pre-test and post-test scores

No	Subject Name	Score		Increased Total Score
		Pre-test	Post-test	
1	UH	4	18	14
2	TA	3	30	27
3	NS	3	29	26
4	W	4	25	21
5	RE	2	20	18
6	YE	3	21	19

Based on the table above, there is an increase in the results obtained after intervention using a realistic mathematical approach to the introduction of simple flat shapes class II primary special school (SDLB).

After the score is obtained then the next step is processing the data. The following are the stages of data processing as follows :

1. Assessment
   After the work results are collected, then the students are examined and an assessment is made of the students' answers according to the assessment criteria carried out.
2. Classifying data types
   The results obtained will be separated between the pre-test results and the post-test results
3. Calculation
   The data that has been collected is calculated using the Wilicon test. Here are the steps:
   a. Calculate the difference between pre-test and post-test scores
   b. Provide a ranking on the difference between the initial and final test scores
   c. Give a positive sign (+) and negative (-), then add up
   d. Based on the sum, take the smallest score J count. The results of calculations using the Wilicon test can be seen in the following table

Calculation with the Wilicoxon test

No	Subject Name	Pre-test (x)	Post-test (y)	Different (y-x)	Rank	Sign	
						(+)	(-)
1	**UH**	**4**	**18**	**14**	**1**	**1**	**0**
2	**TA**	**3**	**30**	**27**	**6**	**6**	**0**
3	**NS**	**3**	**29**	**26**	**5**	**5**	**0**
4	**W**	**4**	**25**	**21**	**4**	**4**	**0**
5	**RE**	**2**	**20**	**18**	**2,5**	**2,5**	**0**
6	**YE**	**3**	**21**	**18**	**2,5**	**2,5**	**0**
Amount						**21**	**0**

The hypothesis that was carried out in this study:

H1 : The realistic mathematical approach provides an increase in the ability to recognize plane figures in second grade Student with hearing impairment

H0 : The realistic mathematical approach has no effect on improving the ability to recognize plane figures in second grade Student with hearing impairment

To test the hypothesis in this study, H1 was carried out with the following decision-making criteria:

H1 is rejected if J is counted from ≤ J table
H1 is accepted if J count from> J table

Based on the calculation of the Wilicoxon test, it was obtained that the smallest number of rankings or J count = 0 and J table with the real level α = 0.05 with the number N = 6, then J table = 0, thus J count = 0 ≤ J table = 0, then H1 is rejected. This showed that "there was an increase in the application of realistic mathematical approach to the ability of recognizing simple plane figures in second grade deaf students at (SDLB) Negeri Cicendo Bandung.

4. DISCUSSION

Based on data obtained in the field. The table shows an increase in the scores of Student with hearing impairment. The condition of primary special school (SDLB) class II students for the ability to recognize flat shapes at the beginning of the study was very few. This occurs because the process of learning material in the classroom is delivered classically and has used various learning media, resulting in students still having difficulty understanding simple flat shapes. This situation proves that Student with hearing impairment receive information visually with concrete real-world context stages.

Learning must create related conditions from the real world context. Therefore, a learning approach that uses a real-world context is one of the assumptions that is relevant to the conditions of Student with hearing impairment through the use of a realistic mathematical approach where the learning starts in a real world context that is tailored to the learning needs of these Student with hearing impairment.

CONCLUSION

There was an increase in changes in the score after treatment was given. Initially students still find it difficult to understand the shape of a flat shape after being given treatment using a realistic mathematical approach, they are able to answer the questions given.

The increase in scores obtained by students based on the research results of this realistic mathematical approach is effective in the ability to recognize simple flat shapes in class II Student with hearing impairment of primary special school (SDLB) Negeri Cicendo Bandung City on the research subject under study. This is evident in the scores obtained.

REFERENCES

Arikunto, S. (2002). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT Rineka Cipta.

Wijaya, A.(2012). *Pendidikan Matematika Realistik Seatu Alternatif Pendekatan Pembelajaran Matematika*. Yogyakarta : Graha Ilmu