

Design of Mathematical e-Module Based Polite Language for Slow Learners in Primary Schools

Nuning Kurniasih^a, Savitri Wanabuliandari^b, Ristiyani^c, ^aLibrary and Information Science Program, Faculty of Communication Sciences, Universitas Padjadjaran, Bandung, Indonesia, ^bMathematics Education, Universitas Muria Kudus, Kudus, Indonesia, ^cIndonesian Language and Literature Education, Universitas Muria Kudus, Kudus, Indonesia, Email: ^anuning.kurniasih@unpad.ac.id

Teachers are confronted with different levels of student intelligence during the teaching and learning process in the classroom. In this case, some children can immediately understand the lesson. However, some of them also experience a slow understanding of teaching. The results of our survey in this study at a school in Kudus Indonesia reveals that 33 of 88 students (37.5%) have an average grade below the Minimum Completion Criteria (KKM). Then, the students are categorised as those who have difficulty in learning or slow learners. This study aims to design mathematical e-module based polite language for grade 5 of Primary School. Likewise, this e-module is designed using research and development methods. Furthermore, it is also designed to convey Mathematical Material, especially regarding the square, rectangular, and triangular forms by adapting cultural stories and polite language. Each section has several sub-sections in the form of Cultural Stories, Learning Comics, Let's Study, Summary of the Materials, Find the Truth, Independent Work, and Achievement Results. Therefore, this e-module is expected to accommodate learning strategies and methods when the teachers teach the slow learners.

Keywords: *Slow Learners, Mathematical E-Module Based Polite Language, Multiple Intelligence, Research And Development, Primary School*

Introduction

Every child is born with their uniqueness. They grow with different levels of intelligence. Some children can immediately understand the lesson, but some of them also experience difficulty in learning. Those who have a problem in education are usually slow in

understanding the lesson. The differences in the level of students' intelligence and speed in receiving a subject matter are the common things that are generally found in the teaching and learning process in the classroom. Therefore, teachers have a role in identifying the level of students' intelligence and development.

The identification of the students' intelligence can be employed in various ways. Thorndike in Weis & Süß (2005) states that knowledge can be seen from the ability of the students to express ideas, do activities, deal with a problem, and adapt to a situation (Weis & Süß, 2005). However, according to Fogarty (1999), intelligence can develop, and the score of an intelligence test can increase (Fogarty, 1999).

A research result in Thailand shows that the level of intelligence of children in primary school is not only the result of genetic factors but also environmental factors, school sizes, level of educations, and parents' economics. Therefore, individuals, families, schools, and all related parties need to jointly encourage students to reach their whole potential based on their intelligence level (Phusee-orn et al., 2019).

Other research results show that teaching strategies with multiple intelligences are more effective in fostering positive attitudes and students' level of awareness towards the environment (Baş, 2010). The multiple intelligences allow schools to accommodate the students based on their intelligence. According to Gardner (1999), there are eight types of knowledge, namely "linguistic intelligence, logical-mathematical intelligence, spatial intelligence, musical intelligence, kinesthetic-body intelligence, naturalistic intelligence, interpersonal intelligence, and intrapersonal intelligence" (Gardner, 1999;).

Many factors can influence the success of teachers in accommodating the level of students' intelligence that among them are by improving the quality of models, approaches, strategies, methods, and learning activities (Indriyani, Asri, & Ramadhan, 2018; Yaumi, Sirate, & Patak, 2018). Likewise, when teachers are dealing with slow learners, they need to prepare an active learning strategy (Hartini, Widyaningtyas, & Mashlulah, 2017).

Slow learners are the students who have difficulty in learning. They need more time and explanation to understand a subject (Amundson, 1969; Shaw, Grimes, & Bulman, 2005). Thus, what they need is a learning stimulus so that the material presented can be easily understood, and they can be concentrated in learning.

The results of our survey in this study at a school in Kudus Indonesia showed that 33 out of 88 students (37.5%) had an average grade below the Minimum Completion Criteria (KKM). They are categorised as students who have difficulty in learning or slow learners. In this case, one of the subjects that are considered difficult by the students in Mathematics. The math teachers state that they do not have a solution in dealing with the students who are categorised as slow learners. The teachers in these schools currently use teaching modules

that are nationally applicable obtained from some publishers. It is since they do not have their module yet. Therefore, it is recommended that the schools should do the modules that correspond with the conditions of the students. As a pilot project, an e-module design for Mathematical subjects at grade 5 is attempted to be created. The e-module designed is expected to accommodate learning strategies and methods for slow learners.

Methods

This study uses a research and development (RnD) approach. RnD is an intellectual activity to create new knowledge and products (Development, 2015; Mikulskienė, 2014; Yoshikawa, 2012). It has several characteristics, starting with formative evaluation as a basis for developing and identifying problems in development (van den Akker, 1999).

This study is initiated by analysing the situation/need. Two math teachers who teach at grade 5 of two primary schools are interviewed, and the questionnaires for all students (88 students) in a school in Kudus Indonesia are distributed. The purpose of the data collection is to find out the process of learning mathematics in the school. The analysis results of the interviews and surveys are that it is recommended to the schools to create their Mathematical modules that can be implemented in the class by accommodating slow learners.

There are many definitions of slow learners, but the context of slow learners in this study are students who have a score less than the scoring average of the class. Thus, slow learners here are those who have difficulties in learning, not disabilities.

The Mathematical modules and books used by Grade 5 teachers and the students' responses to the learning process in class are also analysed. Furthermore, a Mathematical e-module design based polite language is arranged that can accommodate slow learners.

Results and Discussion

Situation/Need Analysis

The data shows that 37.5% of the students have an average grade below the Minimum Completion Criteria (KKM). The students with an average class that is less than the standard can be categorised into slow learners. Commonly, mathematics is one of the subjects that is considered difficult by the students. Meanwhile, the math teachers state that they currently use the modules or books that become a national reference and have not adapted the materials to the situations faced in class. Moreover, most students express that they could not sometimes answer and do the assignment according to the teacher's demand.

The results of the interviews with teachers also revealed that they faced obstacles in language when teaching slow learners. They sometimes use threatening sentences when the students cannot answer their questions. For example, "Watch it! If you cannot answer the questions, I will punish you for standing in front of the class". On the other hand, the students consider that the books and modules used in learning are less interesting. They also think that the teachers rarely use teaching aids, so they have difficulty in understanding the materials presented. Moreover, they expect to get books or modules that are more interesting with many colourful images, such as comics. Therefore, it is recommended that the arrangement of the Mathematical e-module is based on Polite Language.

Mathematical e-Module Design Based Polite Language for Grade 5 of Primary School

There are at least four learning methods for slow learners, namely delivering systematic and explicit instructions, answering students' questions according to their respective problems, learning in groups, and using visual media steed (Ghazzoul, 2019; Steedly, Dragoo, Arafah, & Luke, 2008).

The principles in polite language include the principle of wisdom, generosity, respect, simplicity, agreement, and sympathy (Colpaert, 2010; Fillmore, 2010; Leech, 1983; Jasid, 2019). The design of a mathematical module based polite language systematically presents the mathematical learning materials by considering the politeness of the language in each sentence, both in the explanation and assignment sections for the students.

This module has three main parts that are the introduction, the content, and the closing. The introduction includes the cover page, the introduction, the module usage instruction, the table of content, the concept map, and the learning competency. The content section consists of several learning activities so that the students, unusually slow learners, can achieve the skills expected in each learning activity. The design of each learning activity is arranged using unique acronyms so that it is exciting and easy to remember by slow learner students.

The design of mathematical module based polite language has particular characteristics. The language used in the module uses the theory of politeness in language. This is intended to make the students more comfortable and interested in learning the module. For instance, books or modules generally use the command sentence "Do the following questions!", In this module, the invitation is used "Come on my smart students, we answer the following questions."

The Design of Module Cover

This e-module is designed to convey Mathematical Materials, especially regarding the square, rectangular, and triangular forms by adapting cultural stories and polite language.

Therefore, the module cover shows students who are learning in a relaxed manner, and it is also followed by a picture of students who are wearing regional clothing. This module is designed to be used in a primary school in Kudus Indonesia so that the module uses Indonesian. Figure 1 shows the module cover design.

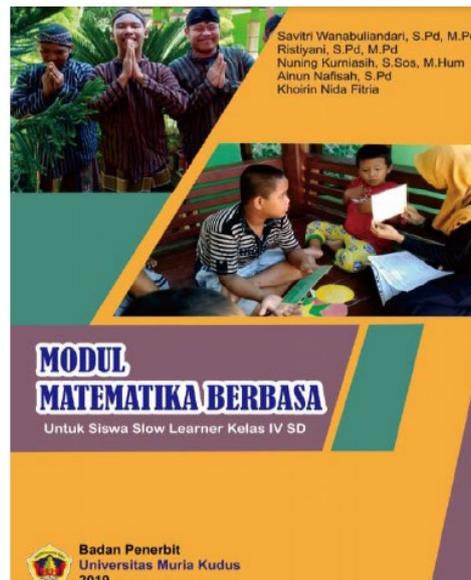


Figure 1. Cover Design for Mathematical e-Modules Based Polite Language for Grade 5 of Primary School Students

The Content Design of Mathematical e-Module Based Polite Language

Currently, elementary school students use the 2013 curriculum. One of the Basic Mathematics competencies for Class 5 is to create, explain, and discover simple space webs with cubes and blocks (SekolahDasar.Net, 2019). The contents of this module consist of three parts, that are the learning materials of the square, rectangular, and triangular forms. Each section has several sub-sections in the form of Cultural Stories, Learning Comics, Let's Study, Summary of the Materials, Find the Truth, Independent Work, and Achievement Results.

In the content sections, the students are introduced to squares, rectangles, and triangles. Moreover, in the Cultural Stories section, they are asked to learn the stories about a historical building and then to get to know the forms of the building. The use of examples with visuals can maintain students' visual cognition so they can develop analytical thinking and integrate Mathematics in life with more variety (Bentley & Stylianides, 2017; Clements, Sarama, & Joswick, 2018). For example, in the sub-section of Cultural Stories, they are introduced to the shape of the Yogyakarta Palace, as shown in Figure 2.



Figure 2. Material Design about Various Shapes through the Introduction to Cultural Building Shapes on the Mathematical e-Modul Based Polite Language

In Figure 2, it can be seen that the sentence used to make the students follow the lesson is, "My smart students, let's find out about Indonesian culture by reading the text below." The words "smart kids" can show appreciation to students so that they will be motivated and study hard. Pranowo (2009) provides suggestions for using words such as please, sorry, thank you, please, he and the ladies and gentlemen to show modesty (Pranowo, 2009).

In the sub-section of learning comics, the students are given certain interesting comics. This sub-section also becomes the strength of this module because it is rarely found in the standard mathematical books. Furthermore, the purpose of this sub-section is to let the students recognise the materials in polite language. Figure 3 shows an example of the content design of the e-modules using comics.

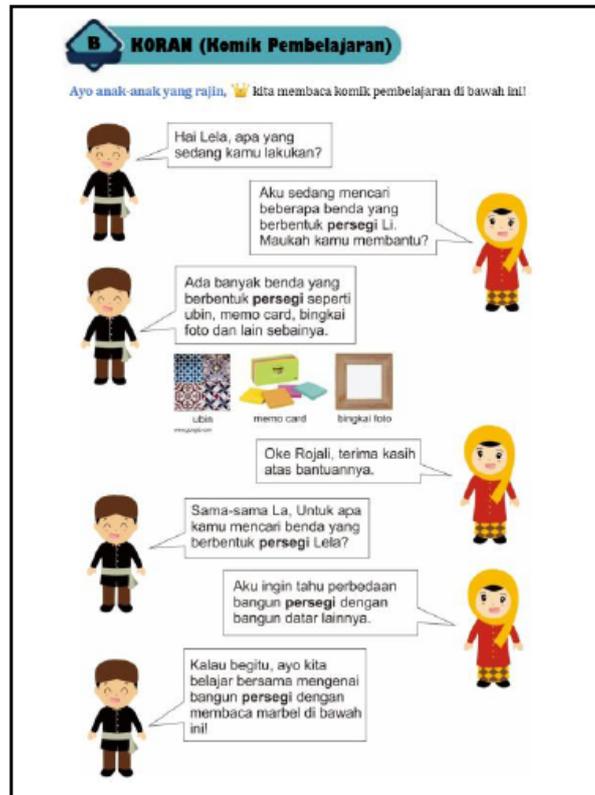


Figure 3. Material Design of Mathematical e-Module Using Pictorial Comics

Figure 3 shows two students who are talking about square shapes by showing some objects that have a rectangular shape such as tiles, memo cards, and photo frames. Comics help students to understand a concept so that it can be used in modern pedagogical strategies (Koutníková, 2018).

In the "Let's Study" section, the students can learn the material with a pleasant visual. The language used is straightforward to understand. Figure 4 shows an example of the delivery of the content in the "Let's Study" sub-section.

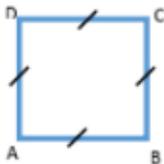
C **MARBEL (Materi Belajar)**

1. Pengertian Persegi

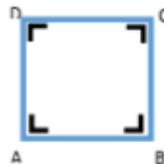
Persegi adalah segiempat yang keempat sisinya sama panjang dan keempat sudutnya sama besar, yaitu 90° .

2. Sifat-Sifat Persegi

a. Jumlah semua sisi persegi ada 4 dan sama panjang.



b. Jumlah sudut persegi ada 4 dan sama besar yaitu 90° (sudut siku-siku).



c. Diagonalnya sama panjang dan berpotongan ditengah.

Figure 4. Material Design of Mathematical e-Module Based Polite Language Using the Understandable Visual and Language

Figure 4 shows how a square shape using understandable images and sentences.

The sub-section summary of the materials is also provided in this module to make students more comfortable to understand the contents. For example, the review of the materials about the square is:

- A square is a flat shape that has four equal sides and four equal angles.
- The characteristics of a square are that it has four long sides, four equal angles (elbows), two intersecting diagonals, and can occupy the frame in eight ways.
- The examples of the square objects are memo cards, photo frames, tiles, and mirrors.
- The circumference formula of a square is $4 \times \text{sides}$.
- The area formula of a square is $\text{side} \times \text{side}$.

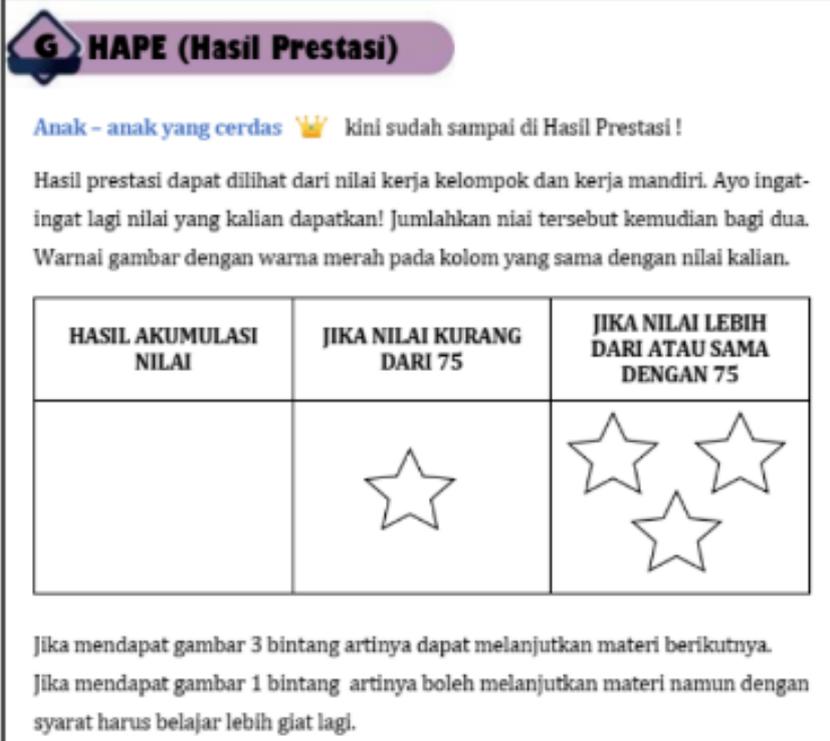
In learning mathematics, students need the opportunity to practice the theory they are learning, therefore in the next sub-section, students are given assignments in groups and independently. This activity can improve students' understanding of the material they have learned, strengthen their ability to solve a problem (AnthonyGlenda & Walshaw, 2009; Robinson, 1987).

In the sub-section of "Find the Truth," the students are given a group assignment. The language used must be fun and does not scare them. The teacher can also verbally repeat this assignment to ensure that the students understand the provided task. The example of the sentences given in this sub-section is, "After learning the materials, now it's time for you the smart students to look for the circumference and area." Then, the students are asked to prepare the needed tools and materials, and they do the work in groups.

Moreover, they are given the understanding that they must be able to work together to complete the task. Also, they are explained that cooperation can make assignments easier and faster. According to Chaegenizadeh&Nikraz (2016), group assignments are preferred over individual tasks (Chegenizadeh & Nikraz, 2016).

In the sub-section of "Independent Work," the students are emphasised to be able to do the assignments independently. The evaluation of the results of the students' independent assignments can give a picture to the teacher about the level of the student's understanding of a material per individual.

In the sub-section of "Achievement Results, the students are asked to colour a picture of a star on the score that they get, as shown in Figure 5.



G HAPE (Hasil Prestasi)

Anak - anak yang cerdas 👑 kini sudah sampai di Hasil Prestasi !

Hasil prestasi dapat dilihat dari nilai kerja kelompok dan kerja mandiri. Ayo ingat-ingat lagi nilai yang kalian dapatkan! Jumlahkan nilai tersebut kemudian bagi dua. Warnai gambar dengan warna merah pada kolom yang sama dengan nilai kalian.

| HASIL AKUMULASI NILAI | JIKA NILAI KURANG DARI 75 | JIKA NILAI LEBIH DARI ATAU SAMA DENGAN 75 |
|-----------------------|---|--|
| |  |  |

Jika mendapat gambar 3 bintang artinya dapat melanjutkan materi berikutnya.
Jika mendapat gambar 1 bintang artinya boleh melanjutkan materi namun dengan syarat harus belajar lebih giat lagi.

Figure 5. Presentation Design of Students' Achievement Results in Mathematical e-Module Based on Polite Language



In Figure 5, in this sub-section, the students are asked to remember the score of the group work results and the independent assignment and then attach it in the provided sheet. The results of learning assessment can affect student motivation (Broussard Coates, 2002). Furthermore, the e-module design will be verified to the content experts and the media experts to be further tested. Active mathematics learning will encourage students to develop their concern for mathematics and develop their competence through mathematics (Anthony Glenda & Walshaw, 2009).

Conclusion

The learning difficulties in slow learners are influenced by many factors, including learning media and how the materials are conveyed by the teachers that are less interesting and monotonous. Therefore, each teacher is expected to do the modules that correspond with the conditions of the students in their class. Mathematical E-Module based polite language is one solution in dealing with slow learners.

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