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STUDENTS' PERCEPTIONS OF THE PORTUGUESE LANGUAGE IN THE MATHEMATICS LEARNING PROCESS

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A B S T R A C T

Portuguese is a language that is considered difficult by students, even though the language has been used as the official language. Based on this, the study intends to describe students' perceptions of the Portuguese language, especially in the process of learning mathematics. To get the expected data, this study uses qualitative methods with structured interviews. This research was conducted on students in class IX of the Cristal Junior High School in Dili Timor Leste. The results of the study show that, in general, Portuguese is a language that is difficult to learn, but Portuguese in mathematics is not as difficult as thought, and Tetum is an alternative language used by students and teachers to overcome students' difficulties in learning mathematics presented in Portuguese.

INTRODUCTION

Language is a communication tool used by everyone in everyday life as well as in the world of education, according to Asrial et al. (2019), language is a means of communication among community members, he also added that language is a supporter of good communication and important reflection from one's cultural background. Peng et al. (2020) argue that language and mathematics have a strong relationship but there are also complexities.

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Because of that, strong thinking and intelligence are needed. Ren (2019) also adds that language can also be considered a tool for thinking.

The language used in education in Timor Leste as a teaching tool is Portuguese. The language is used at every school level, from elementary school to university. Currently Portuguese is used as an introduction to the educational process because of its status as an official language and has been established in the constitution. Timor Leste is one of the countries in Southeast Asia that uses Portuguese as its official language as stated in the constitution of the democratic republic of Timor Leste in article 13 paragraph 1, which reads "Tetum and Portuguese are the official languages of the Democratic Republic of East Timor"

School is an educational institution where everyone will carry out formal educational activities (Suryaman et al., 2020), besides that the education held also aims to create a generation that has good knowledge and abilities (Turrini et al., 2018). A school is a place where everyone can take their education and get broad knowledge (Darling-Hammond et al., 2020), therefore the delivery of lessons by teachers in schools needs to be adjusted to the basic knowledge possessed by students (Adib-Hajbaghery & Kamrava, 2019).

The teaching materials and teaching resources used must also be following the level of education held, because according to Kaur (2019) the method, teachers, and students, one other very important component in learning activities is teaching materials. As with the general educational process undertaken in every educational institution around the world, it will use teaching materials and languages that are appropriate to the environment and culture. Because according to Boca & Saraçli (2019) learning will be more fun and students can be actively involved, the activities carried out must be adapted to the culture and environment of students.

Timor Leste in the world of education uses Portuguese as the language of learning, in the learning process all lesson materials in the form of printed books on all subjects from elementary school to high school are all presented in Portuguese, and teaching and learning activities are also carried out in that language because the language is already stated in the Constitution on Education N.º 14/2008, article 8 as the language of the education system (Línguas do Sistema Educativo) which reads "The teaching languages of the Timorese education system are Tetum and Portuguese".

Relating to Portuguese which is designated as the official language and language of the education system, the CRISTAL foundation which is the umbrella for basic education

to higher education also through its circular issued in 2010 which requires all students and teachers to use Portuguese when in the school environment, including CRISTAL junior high school. But in reality, there are still students and teachers who still have difficulty, especially students in using the language, so the majority of students prefer to use the national language, namely Tetum. Based on this, a question arises as; to whether students can understand the Portuguese language presented in textbooks and the learning process. In this case, the author only discusses Portuguese in mathematics.

Mathematics become one of the most needed fields of knowledge in everyday life (Abqari et al., 2018). Mathematics is one of the fields of study that exist at all levels of education, from elementary school to university level. At each level of education, mathematics is a subject that is considered the most difficult by every student. According to Obafemi & Iruloh (2022) students perceive mathematics as a difficult, (Kunwar, 2020) boring, and uninteresting subject, and teachers believe that it is difficult to teach and uninteresting to learn (Doğan Temur et al., 2018). As for the factors make students feel mathematics difficult, (Acharya, 2017) the results of his research found several factors that make students feel mathematics is difficult, such as lack of student interest, lack of knowledge of mathematics, parental support, economic factors, motivation from the teacher and student's perception of the teaching material.

Perception is seen as an answer to the situation faced by a person after he faces and recognizes the situation. Perception includes all indications in the nervous system, which are the result of physical stimulation of the sensory organs. According to Thuruthel et al. (2019) perception is a cognitive process that helps us understand our experiences, how we receive, filter, and interpret behavior and conversations may not be the same as how other people will complete the process. In addition, according to Lovrić et al. (2020), student perceptions can be considered as a motivational strategy in the teaching and learning process so that students can be involved in every learning activity for the sake of increasing student learning outcomes in these activities. Therefore, this study aims to describe students' perceptions of Portuguese in the mathematics learning process.

METHOD

This research was conducted at Cristal Junior High School (Ensino Básico 3o Cíclo de Cristal), Dili – Timor Leste. This study discusses students' perceptions of Portuguese in the mathematics learning process. The implementation of this research activity is realized by applying a qualitative approach. Stahl & King (2020), defined qualitative

research as an approach to study and examine the intentions of each person or group of people who have to do with social or human phenomena. He also emphasized that the key idea behind qualitative research is to study the problems related to each person and solve problems in research, as well as to obtain information. The purpose of qualitative research is to examine certain social phenomena, events, characters, groups, communities, or societies (Haven & Grootel, 2019). The subject of qualitative studies is the perceptions and situations or conditions faced by participants, and how they can understand their lives (Amin et al., 2020).

The subjects used as resource persons in this study were taken from class IX students, and the method applied to select these subjects used a non-probability sampling technique and the subjects were selected purposively. According to Lamm & Lamm (2019), non-probability sampling is a technique used to take samples where each sample does not get the same opportunity to be used as a resource or samples are not taken from the entire existing population. Furthermore, purposive sampling is a sampling technique based on certain considerations.

The method used in collecting data is following what is suggested by Sugiyono (2017), that the method used can be in the form of observation, interviews, questionnaires, documentation, or a combination of the four. Based on this opinion, the researcher applied a structured type of interview technique. To get this data, the researcher came directly to the research location, because according to Johnson et al. (2020) during data collection activities, the involvement of a researcher in a series of activities that took place was very important. On the other hand, according to Thurairajah (2019) in qualitative research, the presence of a researcher in qualitative research is important. It is because in this activity the researcher is the most important research instrument or tool. She also added that, in qualitative research, the role of the researcher is to determine the focus of the research, select informants, collect data, evaluate the data, interpret the data and conclude the findings, because in this study the researcher functions as a human instrument.

The researcher tried to use several questions in this study to get data about students' perceptions, the questions are: (1) What do you think about the Portuguese language? (2) How can you understand the mathematical material presented in Portuguese? (3) Is the material presented in Portuguese easy to understand? (4) Have you ever had difficulty understanding the content of the material presented in Portuguese? (5) Does the Portuguese language used in the learning process make it easier for you to

learn? (6) Can you understand the teacher's explanation when explaining in Portuguese? (7) Do you use Portuguese in your learning process to communicate with your teachers and friends? (8) Do you always ask the teacher when you don't understand Portuguese? (9) Do the teacher and you use Portuguese as the main language in the learning process of mathematics?

RESULTS AND DISCUSSION

Results

There were five students as informants in this study. These students were taken from each class to represent their respective classes. These students are shown by each teacher based on the student's ability to express opinions. The five students with the initials C.A.F.A.C. (Inf.1) from class A, C.B.S. (Inf.2) from class B, I.S.R.M. (Inf.3) from class C, D.P.V. (Inf.4) from class D and D.F (Inf.5) from class E.

Initiating steps before the interview begins, the researcher approached the students to ask about their availability in using what language was easy for them to understand. From the results of this approach, some students prefer to use Tetum and some are willing to answer in Portuguese. However, to get a good answer, the researcher suggests that students use Tetum. The following are the results of the interview:

1. What do you think about the Portuguese language?

Portuguese in the constitution is declared as the official language, but in my opinion, it is not easy for East Timorese to learn and understand it well and quickly. Because the facilities that support us to understand it are still lacking and the majority of people only speak Tetum. As students, we only learn the language when we are at school (Inf 1).

Personally, I think this language is difficult, because we only apply this language when we are at school, at home we often speak Tetum (Inf 2).

As we know that our official languages are Portuguese and Tetum. but many still have difficulty in using this language, usually many speak more Tetum than Portuguese, this doesn't mean people don't like speaking Portuguese but because this language is indeed difficult (Inf 3).

Portuguese has become an official language for us, but in fact many people and us students are still facing problems about this language, we can understand a little what people are talking about, but it is difficult for us to speak because we don't have a good understanding of this language (Inf 4).

Portuguese is not an easy language; it is very difficult to understand. Besides that, the facilities that can help us to quickly understand this language are also still lacking (Inf 5).

2. How can you understand the mathematical material presented in Portuguese?

To understand math material in Portuguese, I asked the teacher to explain in Tetum. Because if the teacher fully explains in Portuguese, it is difficult for me to quickly understand it (Inf 1).

To understand the material in Portuguese, I asked the teacher to also explain in Tetum. But there are a lot of Portuguese words that I can understand because they always appear in mathematics (Inf 2).

To understand it sometimes I ask for help from teachers and friends who quite understand the language. But in Portuguese for mathematics, I can understand it, because these words are always encountered (Inf 3).

I think the math material in Portuguese is good, because the Portuguese words are no longer new to us because we often learn this. If there are words that are foreign to me and I don't know, I ask the teacher to explain in Tetum (Inf 4).

About this is not difficult, because if we don't understand the teacher also gives explanations in Tetum, and math words in Portuguese are not as difficult as words spoken by people in general (Inf 5).

3. Is the material presented in Portuguese easy to understand?

Yes, because almost all math words in Portuguese we always find and this is not difficult for me, what is difficult is the math material (Inf 1).

Mathematics is not easy, but it is not difficult to present it in Portuguese, because since elementary school we have studied mathematics in Portuguese (Inf 2).

Mathematical material is difficult because it is not easy to understand it quickly, but if the Portuguese words are not too young, I can understand it (Inf 3).

When viewed from the material, it is difficult for me because mathematics is not an easy subject, but about Portuguese it is difficult to communicate, but if only to understand the material I can (Inf 4).

The material presented in Portuguese is not considered easy but we can understand it, because the language of mathematics we have often studied and we have studied since elementary school (Inf 5).

4. Have you ever had difficulty understanding the content of the material presented in Portuguese?

Yes, sometimes have difficulty, this is also if there is a new word. But this is not too much of a problem because the teacher always helps us and gives explanations slowly so we can understand (Inf 1).

I always face difficulties, but I always get help from the teacher and when we don't understand the teacher also gives explanations in Tetum (Inf 2).

Sometimes I face it, but when there are words that are foreign to me and if the teacher fully explains in Portuguese. The reason is because I am not fluent in Portuguese (Inf 3).

Yes, I face difficulties, because firstly the material is difficult, secondly, sometimes we are faced with words that are still foreign to us, thirdly when the teacher fully explains in Portuguese. So, this is also difficult for us (Inf 4).

Difficulties are always there, but this is not a problem, because the teacher always helps us if we have difficulty understanding it (Inf 5).

5. Does the Portuguese language used in the learning process make it easier for you to learn?

Yes, Portuguese in mathematics is good and facilitating, but Portuguese in general, it is difficult to quickly understand (Inf 1).

Portuguese in mathematics is not difficult, but to speak and understand it like Portuguese people in general is difficult (Inf 2).

Talking about Portuguese in general is difficult, but when it comes to math in Portuguese it's still good and helpful (Inf 3).

Portuguese in mathematics is easy, but for communicating is difficult (Inf 4).
Portuguese especially in mathematics makes it easy. But Portuguese in general, that's what we have a lot more to learn (Inf 5).

6. Can you understand the teacher's explanation when explaining in Portuguese?

If the teacher gives an explanation slowly, I can adjust it a little and also use a lot of mathematical terms. But if the explanation is fast and also uses Portuguese which is foreign to me, this becomes difficult (Inf 1).

If the teacher gives an explanation only in Portuguese, I think, it is difficult for me, because in the explanation the teacher does not only use mathematical language (Inf 2).

If in the learning process the teacher uses Portuguese completely, this is a little difficult for me to understand, but if the explanation is also used in Tetum, I can understand (Inf 3).

If the teacher only explains in Portuguese, I don't understand, because to fully communicate in Portuguese it is still a problem for me (Inf 4).

If it is explained in mathematical language I can understand (Inf 5).

7. Do you use Portuguese in your learning process to communicate with your teachers and friends?

In the learning process, yes. Because it is our obligation to communicate. But as students, it is still difficult for us to only communicate in Portuguese. So that our fellow students also use Tetum (Inf 1).

In the learning process we have to use Portuguese to communicate, because this is an obligation and a rule so that we can get used to speaking Portuguese (Inf 2).

Yes, because this has become a school rule and it is also an obligation for us as students to speak Portuguese in the school environment, especially in the learning process. But if we are fellow students sometimes, we speak Tetum, because to communicate in Portuguese is still difficult (Inf 3).

In the learning process we are required to speak Portuguese, but sometimes we use Tetum. especially among us students, we often more use Tetum (Inf 4).

Yes, because in the school environment we are obliged and must speak Portuguese especially in the learning process. This is so that we can always practice the language (Inf 5).

8. Do you always ask the teacher when you don't understand Portuguese?

Yes, if there are words that are not understood we always ask, so that we can understand (Inf 1).

Yes always, because if there are words that are difficult to understand we have to ask so that it can be easy for us to learn (Inf 2).

Yes, I always ask if there are words that I don't understand, if I don't understand I ask the teacher to explain in Tetum too (Inf 3).

Yes, I always ask the teacher when there is Portuguese that I don't understand, especially when the teacher gives an explanation using only Portuguese (Inf 4).

Yes, I always ask because if we don't ask it will be difficult for us. Because the teacher gives more explanation using Portuguese (Inf 5).

9. Do the teacher and you use Portuguese as the main language in the learning process of mathematics?

Yes, in the learning process we are required to speak the language, because this is an obligation and a rule. The goal is to help us quickly understand Portuguese (Inf 1).

Yes, in the process of learning the main and important language we have to use is Portuguese. But this also does not rule out the possibility for us to use the Tetum language (Inf 2).

Yes, although this is difficult for us. whether we like it or not we have to use the language because it has become a school rule, so it requires everyone in the school environment to use it (Inf 3).

Yes, because it is our obligation to speak Portuguese in the school environment especially in the learning process and this is also a school rule (Inf 4).

Yes, in the learning process we use Portuguese as the main language. But if there are difficulties, we can use Tetum (Inf 5).

Discussions

The first question, students think that Portuguese is not easy but difficult to understand and learn. This language is considered difficult due to the lack of facilities that can support their understanding of the language, and school is the only place where they can apply it, while at home they often speak Tetum. According to Setiyadi (2020) how a second language can be learned quickly is also influenced by factors in the situation of its use, such as social and economic conditions and the culture of the place where the language will be used. The lack of use of this language is not due to their dislike of the language, but because of its difficulty. They also added that these difficulties were not only faced by them, but society in general also experienced the same thing. This problem does not mean that there is no interest in speaking Portuguese, but because this language is indeed difficult.

Language is a determinant of success for everyone to understand the situation and conditions around him. Because, language is a powerful instrument in the formation of concepts, the acquisition of abilities in certain perspectives, and the transfer or communication of these concepts (García, 2019). When viewed from this problem, Tetum is a language that can help students understand Portuguese, whereas in this condition Portuguese is the second language that students learn after their first language. According to Saville-Troike & Barto (2017), a second language is a language that is used as an official language and is used in important fields of a country, for example in the field of education. While the first language is a language that is acquired from a person's childhood to growing up.

In the second question, students argue that the language used in the mathematics learning process is not as difficult as its use in everyday life, because the mathematical sentences used are not too new for students, because there are already many mathematical sentences that they know, encounter, and use. learn, and understand, so that this is no longer a new thing for them. If in the learning process a sentence appears that feels new and foreign to students, then they always ask the teacher to be able to explain Tetum. According to Reid & Chin (2021) the language used for thinking is most likely the first language, so mathematics that is communicated in one language may need to be translated into another language to enable thinking and then retranslated to communicate with the teacher (Planas et al., 2018).

Tetum is the most commonly used language in Timor Leste so the reference for learning in teaching and learning activities is also Tetum which is used to strengthen students' knowledge of the material presented in Portuguese. This is reinforced by the results of research from Kroon & Kurvers (2020) which says that Tetum is a language that gets the most important place in terms of language and also has a function as a national and social identity.

For the third question, most students said that the mathematical language in Portuguese was not an obstacle for them to understand the mathematics material being studied, because the mathematical language used was often encountered during the mathematics learning process. To achieve maximum learning outcomes, especially in situations where students are faced with a language that is not their basic language. Therefore, the school, especially the teachers, can use language that is easily understood by students. According to Erath et al. (2021), the language used in schools, especially in learning mathematics can help students include everyday language, school language, and mathematical technical language.

Bråting & Kilhamn (2022) says that in mathematics, text, and symbols are always found in them. For texts, symbols, and mathematical language to continue to be understood and known, we must get used to them and try to find their meaning so that they can continue to be understood. From this opinion, maybe that's what students face so students say that the language of mathematics in Portuguese is not a new thing for them. Because, in mathematics there is a separate language and code that is used, thus enabling everyone to understand it (Alcântara & Aráujo, 2017).

In the fourth question, students said that the difficulties faced in learning mathematics were when they were faced with a foreign language, lack of understanding of the language used, students' fluency in using Portuguese and teacher explanations in using Portuguese completely. In addition to the language problems faced by students, another problem is the difficulty of mathematics itself. To overcome this problem, students need a slow explanation from the teacher and also need an explanation in Tetum. From the opinion of the students, it was concluded that to understand mathematics well they needed an auxiliary language to make it easier for them to learn. According to Saville-Troike & Barto (2017), auxiliary language is a language that is officially better known to students and widely used. That language is Tetum. According to Boon et al. (2021), the results of the research said that the Tetum language is the most possible language for people to understand the information around them and can also give clear messages.

In the fifth question, students said that the Portuguese language in mathematics was not difficult. But it is good and helpful and makes it easier for them to learn mathematics, but the problem for them is that Portuguese in general is difficult to understand quickly. From the students' answers, it can be said that a language that is not mathematical is more difficult to understand. So that the barrier for students is Portuguese which is commonly used. According to Yılmaz et al. (2021) language can be a barrier and can hinder students to learn and understand concepts in mathematics. In addition, language is also the most important part that influences students to achieve success in learning mathematics (Robertson & Graven, 2020).

For the sixth question, students answered that they could understand if the teacher's explanation was not too fast, the use of mathematical terms and language was adequate and used Tetum. However, if the teacher's explanation is fast and fully in Portuguese and there are many foreign words, this becomes difficult for students. Because students are not fully able to communicate in Portuguese and this is a problem for them. Therefore, it is expected that teachers can use the right way in teaching mathematics. According to Gürefe (2018) to achieve effective mathematics learning is only possible by using the language of the field of mathematics which ensures accurate transmission of mathematics. Because, if the teacher fails to use accurate concepts and terms when teaching the content of the lesson, then students may see it differently, or even connect the wrong meaning (Gürefe, 2018).

Wang (2021) says that students' difficulties are sometimes influenced by the use of language beyond the ability of students, therefore teachers must use various ways, one of which is using language that is easy to understand so that students can interact and can feel interested in learning. In addition, so that mathematics can be understood well, it needs to be delivered in a language that is easily understood by students. In connection with this opinion, the language intended to facilitate students in learning is Tetum which is the national language.

In the seventh question, students said that in learning mathematics students and teachers communicate using Portuguese, because they should use the language while in the school environment and the learning process. This is because students can get used to using and practicing the language. According to Hagan et al. (2020), knowledge of the Portuguese language has great importance and influence in the language of mathematics. In addition, according to Taylor-Leech (2019) teaching materials in Portuguese play a central role in the curriculum, because all disciplines depend on it, especially at the level

of spoken and written language. The importance of Portuguese in learning mathematics is because the two disciplines represent a fundamental tool for communication and thinking (Carreiro et al., 2019). So that in its application, students still have difficulty using Portuguese, so they have to use Tetum.

Based on the eighth question, in the learning process asking questions is important. According to Wang & Tahir (2020), students use questions to remove uncertainty and seek new ideas. As students explained, in the process of learning mathematics they always ask when there is Portuguese they don't understand, because according to them if they don't ask then they will have difficulty understanding things they don't know, therefore by asking they can understand about what is still a problem for them and also makes it easier for them to learn. According to Rashidov & Rasulov (2020) the delivery of questions in the learning process in addition to helping students learn, student questions can also guide teachers in their work. Several researchers have explored the potential for using student questions to influence the curriculum (Bovill & Woolmer, 2019). According to Pinho et al. (2019), the relationship between mathematics and Portuguese is very important in the school context, especially in basic education, because both subjects have the same aspect, namely communication competence which includes them transversally.

Portuguese is the basis of all teaching and learning, and mastery of Portuguese is the basis for understanding and interpreting mathematical statements (Pincheira & Alsina, 2021; Tomaz & David, 2018). According to the reality in Timor Leste Portuguese language is not only used in learning mathematics but this language is also used in other learning fields.

The results of students' answers to the ninth question, explain that both students, employees/staff, and teachers are required to use Portuguese as the main language when they are in the school environment because this is a predetermined rule. Because in this way they can quickly understand and use the language, but if there are difficulties in using it, they can use Tetum which is also the official language. Simamora et al. (2019) say that to understand and read a book with mathematical definitions or to solve some questions, one must know how to interpret them. Therefore, to know how to interpret and decipher mathematical codes we must understand Portuguese.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

From the results and discussions that have been described above, the authors conclude that Portuguese is a difficult language to learn and understand by students and society in general. The difficulty is not due to their disinterest in learning and using it, but due to the lack of references to increase their knowledge of the language. For students to apply this language the only right place is the school.

In learning mathematics, Portuguese is not an obstacle for students to learn, although in general, the language is difficult for them. Because, of the language of mathematics they learn, they have learned since elementary school. So that the Portuguese language for mathematics lessons is not a problem for them.

The difficulties that students generally face in the process of learning mathematics are when they are faced with sentences they have not encountered and when the teacher only uses Portuguese to explain. This means that students also need help from other languages to make it easier for them to learn. The language is Tetum.

Recommendations

To improve students' understanding of the Portuguese language. So, in this paper, the author suggests that the government make improvements by preparing facilities that can support students' knowledge of the Portuguese language. Because this language is already the official language of the Democratic Republic of Timor Leste.

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