INVESTIGATION ON THE ATTITUDE OF MATHEMATICS EDUCATION STUDENTS TOWARDS LEARNING MATHEMATICS IN GUILIN

Zhou Ying¹, Tommy Tanu Wijaya², Gao Ya³

¹Guangxi Normal University, Yucai Road 15, Guilin, China. 799936971@qq.com
²Guangxi Normal University, Yucai Road 15, Guilin, China. tommytanu@foxmail.com
³Guangxi Normal University, Yucai Road 15, Guilin, China. 752268212@qq.com

ABSTRACT

The aim of this study is to know attitude of mathematics education students towards mathematics learning in Guilin, China. The method used in this study is a qualitative method. The sample is taken using cluster random sampling from third and fifth semester students at Guangxi Normal University. Data were collected using questionnaire. The results of the research show that 27 male and 133 female students have a very good attitude towards mathematics. While, there are 4 male and 12 female students have a good attitude towards mathematics and 17 male and 5 female students have an average attitude towards mathematics. For the 5th semester students, there are 21 male and 151 female students with a very good attitude towards mathematics. On the other hand, there are 4 male and 18 female students that have a good attitude toward mathematics and 3 male and 7 female students have an average attitude towards mathematics.

ARTICLE INFORMATION

Keywords
Mathematics learning
Higher education
Students attitude

Article History
Submitted Apr 7, 2020
Revised Apr 24, 2020
Accepted Mei 23, 2020

Corresponding Author
Tommy Tanu Wijaya
Guangxi Normal University
Yucai Road 15, Guilin, China
Email: tommytanu@foxmail.com

How to Cite
Ying, Z., Wijaya, T.T., & Ya, G. (2020). Investigation on the Attitude of Mathematics Education Students Towards Learning Mathematics in Guilin. Kalamatika: Jurnal Pendidikan Matematika, 5(2), 93-102.

https://doi.org/10.22236/KALAMATIKA.vol5no2.2020pp93-102

This work is licensed under a Creative Commons Attribution - ShareAlike 4.0 International License.
INTRODUCTION

Mathematics is one of the compulsory subjects in every level of education (Andini, Mulyani, Wijaya, & Supriyati, 2018). Mathematics has a goal to equip students with logical, analytical, systematic, critical Thinking, and creative thinking skills and also the ability to work together with others (Hutajulu, Wijaya, & Hidayat, 2019; Wijaya, Ying, & Purnama, 2020; Zuyyina, Wijaya, & Senjawati, 2018). Mathematics is one of the ways to increase the human quality as the mastery of mathematical thinking will enable humans to formulate thoughts that are clear, precise and thorough (Dini, Wijaya, & Sugandi, 2018). To be able to reach these goals, students are required to master mathematics and the teaching-learning activity needs earnest attention (Gopal, Salim, & Ayub, 2018; Prabowo, Anggoro, Adiyanto, & Rahmawati, 2018; Yi, Ying, & Wijaya, 2019). But even with this, students have a low interest towards mathematics (Cunhua, Ying, Qunzhuang, & Wijaya, 2019). There are a few factors that caused this such as students finds mathematics hard to understand, a scary subject and the teaching method is boring and monotone (Wijaya, Dewi, Fauziah, & Afrilianto, 2018). As a result, students are unable to understand mathematics properly.

The students’ attitude can be separated into two types of respond which is the positive and the negative respond (Gesrianto, 2017). In other words, whether the students are able to accept or reject the lesson given. The students’ attitude is the attitude shown by the students when adopting to the method or approach that is given by the teachers so that they would be able to achieve a good learning outcome (Rusnayati, Masripah, & Suwarma, 2018). The students’ attitude is very closely related to the learning achievement (Tezer & Karasel, 2010). It is also related to the teachers’ teaching method or approach because students will try to be able to adapt to the teachers’ teaching style in class. If the method and teaching material is good, it can be guaranteed that the students’ learning achievement will also be good.

Teaching method and teaching material are the two factors that cannot be left out when learning mathematics as it will influence the students’ attitude towards mathematics (Maharani A., 2017; Syaifuddin, 2019). The teaching method can be optimized using great teaching material thus it can improve the students’ attitude with the hope that (Dewi, Wijaya, Budianti, & Rohaeti, 2018), it will improve the students’ learning achievement. We can see that there the relation between the teaching method and teaching method can affect the students’ attitude towards the subject thought as shown below in figure 1.
METHOD

The sample for this research has a total of 402 students that consist of 198 of 3rd semester students and 204 of 5th semester students in Guangxi Normal University. Guangxi Normal University is the biggest university of education in Guangxi province.

This research will use the qualitative method with a hope that the research on the students’ attitude towards learning mathematics can be more specific. The students were given questions on their basic information. Each set of Questionnaires will contain a cover letter that will explain the goal of this research and all the data collected will be concealed for research purposes only. The student can choose not to answer the Questionnaire if they do not want to answer them.

The Questionnaires are originally written in English which then are translated into Chinese language. The translation of the Questionnaires is done by a native Mandarin speaker with a degree in translation study. The translator is fluent in English and have an inclusive knowledge on education from the experience of being a lecturer in China. The translation is done carefully by one of the authors that is good in both English and Chinese. The Questionnaires are reviewed in 3 stages. The first stage was to give the Questionnaire draft to 5 native Chinese with a mathematic education background and good English skills. Some of
these reviewers are lecturers of mathematics education in Guangxi Normal University. Based on the review, the Questionnaire will then be reviewed. For the second step, 99 teachers answer the Questionnaires as a trial. After compiling the result, the researchers then got some inputs from the respondents to recheck the translations on some of the statements.

The third and final step from the review is to give the Questionnaire to another professional native Chinese that has experience in translating Questionnaires. When this final Chinese version matches the English version, it will be ready to be given out for research purposes.

### Table 1. Students’ Background Information.

|                |                |
|----------------|----------------|
| Age (mean)     | 19.5 years (SD=6.32) |
|                | 18.5 years male students (SD=0.95) |
|                | 20.3 years female student (SD=0.87) |
| Gender         | 11.2% male third semester |
|                | 88.8% female third semester |
|                | 13.7% male fifth semester |
|                | 86.3% female fifth semester |
| Grade level    | 50.51% third semester |
|                | 50.49% Fifth semester |
| Major subject  | 50% Mathematics |
| Relation with family | 89.4% Good |
|                | 10.6% Bad |
| Homestay       | 75.9% In a city |
|                | 24.1% In a village |

This research has a total of 402 students from Guangxi Normal University as the participant. Based on table 1, the average age of the male students is 18.5 years old with 106 students and the average of the female students is 20.3 years old with 296 students. In this research 11.2% are male and 88.8% are female.

From 402 students in total, there are 50.51% of them are from the 3rd semester and 50.49% are from the 5th semester. From the total of 198 students from the 3rd semester, 11.2% of them are male and 88.8% are females. From the total of 204 students from the 5th semester, 13.7% of them are male and 86.3% are females.

For the students’ relationship with their family, 89.4% of the students stated that they have a good relationship while 10.6% of them does not. We can also see that 75.9% of the students are from the urban areas while 24.1% of them are from the rural areas.

**RESULT AND DISCUSSION**

This research uses the quantitative data that comes from the Questionnaire result. The score data will then describe the result of the students’ attitude in different categories. From very good, good, average, bad, very bad. The data from the students includes the students’
understanding, mindset on mathematics and attitude towards learning mathematics. The Questionnaire result can be seen on table 2.

Table 2. Description of Students’ Attitudes According to The Questionnaire

| Class          | N  | Mean   | Standard deviation | Minimum | Maximum |
|----------------|----|--------|--------------------|---------|---------|
| 3rd semester   | 198| 108.90 | 13.33              | 73      | 160     |
| 5th semester   | 204| 111.24 | 11.07              | 85      | 154     |

There are 198 students from the 3rd semester with a standard deviation of 13.33. The highest attitude score is 160 and the lowest is 73 and with an average score of 108.90. With 204 students from the 5th semester, their highest score is 154 and the lowest is 85 with an average score of 111.24. The result of students’ attitude according to the Questionnaire are separated into 5 categories based on the average and standard deviation. The analysis result can be seen in table 3.

Table 3. Questionnaire Result Based On The Category

| Score Interval (X) | Category | 3rd semester | 5th semester |
|--------------------|----------|--------------|--------------|
|                    |          | Male         | Female       | Male         | Female       |
| 105 < X ≤ 140      | Very good| 27           | 133          | 21           | 151          |
| 95 < X ≤ 105       | High     | 4            | 12           | 4            | 18           |
| 58 < X ≤ 93        | Middle   | 17           | 5            | 3            | 7            |
| 35 < X ≤ 58        | Low      |              |              |              |              |
| 0≤ X ≤ 35          | Very low |              |              |              |              |

Based on table 3, we can see that for the 3rd semester students, there are 27 male and 133 female students that has a very good attitude towards mathematics. While there are 4 male and 12 female students have a good attitude towards mathematics and 17 male and 5 female students have an average attitude towards mathematics. For the 5th semester students, there are 21 male and 151 female students that has a very good attitude towards mathematics. While there are 4 male and 18 female students that have a good attitude toward mathematics and 3 male and 7 female students have an average attitude towards mathematics.

The questionnaire is based on these 3 factors which are learning mathematics, lecturers and learning media. The 3rd semester mathematics students, their average attitude towards learning mathematics is 106.6, toward lecturers is 117.98 and towards learning media is 120.22. While for the 5th semester students, their average attitude towards learning mathematics is 125.88, towards lecturers is 113.09 and towards learning media is 131.44. Base on the observation result of the 3rd semester student, their lowest score is towards the learning mathematics while for the 5th semester student, their lowest score is towards lecturers. Based on the student’s data, we can see that they maintain a positive attitude to improve their
language proficiency to be able to get better achievements.

After the researchers did an interview with the students, they explained how they were able to face problems and solve the mathematics questions. Students have a habit of asking questions, analyze the wrong answers and find solutions using mathematical software or any mathematics learning media. The students also explain that during class, all of them are active to discuss and use mathematics software to solve problems. The competitiveness between the students that are positive pushed the students to keep asking when they do not know or do not understand to their friends or the teacher. When the students have a good attitude towards learning mathematics, it will enable them to understand the concept faster and boost their self-confidence when solving a problem.

The students have a habit of learning the topic in advance by using the schools’ mathematics books, journals, articles online and the library to look for related sources. According to the interview result, students stated that the method and approach of the lecturer in class is very clear and lecturers also connect mathematics to everyday life that can be applied in real life. Students also stated that the interaction between the lecturer and the student is very active which makes a positive impact on the students’ attitude (Curtis, 2006). The students also said that they are happy that the approach that the lecturer use is a problem-based learning method. The weakness of this is that students look very tired when studying and deepening their basic knowledge. The students often repeat the lesson learned at night. The attitudes of the students are closely related with the motivation and support given by the teachers (Sanchal & Kuiti, 2013). Learning approach and teacher support are very important to improve the students’ attitude and learning outcome.

CONCLUSION

Based on the result of the research in the form of questionnaires, the students’ attitude towards learning mathematics for the 3rd semester students, there are 27 male and 133 female students that has a very good attitude towards mathematics. While there are 4 male and 12 female students have a good attitude towards mathematics and 17 male and 5 female students have an average attitude towards mathematics. For the 5th semester students, there are 21 male and 151 female students that has a very good attitude towards mathematics. While there are 4 male and 18 female students that have a good attitude toward mathematics and 3 male and 7 female students have an average attitude towards mathematics. The results of the research
Ying, Wijaya, & Ya reveal that there are no differences between 3rd semester students and 5th semester students in Guangxi Normal University towards learning mathematics. In Guangxi Normal University, teaching method and teaching material have a big impact on the students’ attitude that causes the learning outcome to improve. It also indicates that Guangxi Normal University have a good Teaching method and teaching material. Suggestions for the researchers are the lecturer can use different approach, strategy, creative methods and ICT based learning media to improve the students’ attitude towards learning mathematics and reach the standard.

ACKNOWLEDGMENTS

We would like to thank to Guangxi Normal University for the research fund which has been given to the researcher. This paper is based from Guangxi Zhuang Autonomous Region Postgraduate Education Innovation Project “Evaluation mathematic based on Mind Map” (XYCSR2020060) and Guangxi Graduate Education Innovation Plan Project "Research on training mode of improving high-level thinking ability" (Project No.: XJGY2020010).

REFERENCES

Andini, D., Mulyani, N., Wijaya, T., & Supriyati, D. (2018). Meningkatkan Kemampuan Komunikasi Matematis Dan Self Confidence Siswa Menggunakan Pendekatan PBL Berbantuan Geogebr. Jurnal Derivat: Jurnal Matematika Dan Pendidikan Matematika, 5(1), 82–93.

Cunhua, L., Ying, Z., Qunzhuang, O., & Wijaya, T. T. (2019). Mathematics Course Design Based On Six Questions Cognitive Theory Using Hawgent Dynamic Mathematic. Journal On Education, 02(01), 36–44.

Curtis, K. M. (2006). Improving student attitudes: A study of a mathematics curriculum innovation.

Dewi, S. N., Wijaya, T. T., Budianti, A., & Rohaeti, E. E. (2018). Pengaruh Model Teams Games Tournament Terhadap Kemampuan Pemahaman Matematik Siswa Kelas XI SMK di Kota Cimahi Pada Materi Fungsi Eksponen. WACANA AKADEMIKA: Majalah Ilmiah Kependidikan, 2(1), 99. https://doi.org/10.30738/wa.v2i1.2570

Dini, M., Wijaya, T. T., & Sugandi, A. I. (2018). Pengaruh Self Confidence Terhadap Kemampuan Pemahaman Matematik Siswa Smp. Jurnal Silogisme, 3(1), 1–7.

Gesrianto, J. (2017). Indonesia Siswa Kelas Xi Sma Bosowa International Analysis On
Attitudes And Motivation In Indonesian Language Learning Of Xi Grade Students In Bosowa International High Analisis Sikap Bahasa dan Motivasi. (4), 505–514.

Gopal, K., Salim, N. R., & Ayub, A. F. M. (2018). Influence of self-efficacy and attitudes towards statistics on undergraduates’ statistics engagement in a Malaysian public university. Journal of Physics: Conference Series, 1132(1). https://doi.org/10.1088/1742-6596/1132/1/012042

Hutajulu, M., Wijaya, T. T., & Hidayat, W. (2019). The Effect of Mathematical Disposition and Learning Motivation on Problem Solving: an Analysis. Infinity Journal, 8(2), 229. https://doi.org/10.22460/infinity.v8i2.p229-238

Maharani A., H. S. (2017). Analisis Sikap Siswa Terhadap Pembelajaran Bahasa Inggris Sebagai Bahasa Asing Di Smk Muhammadiyah 3 Palembang. Prosiding Seminar Nasional Pendidikan, 2(1), 1–10.

Prabowo, A., Anggoro, R. P., Adiyranto, R., & Rahmawati, U. (2018). Interactive Multimedia-based Teaching Material for Trigonometry. Journal of Physics: Conference Series, 1097(1). https://doi.org/10.1088/1742-6596/1097/1/012138

Rusnayati, H., Masripah, I., & Suwarma, I. R. (2018). Measuring for enhancing high school students’ cooperative attitude and responsibilities in learning closed electrical circuits through STEM approach. Journal of Physics: Conference Series, 1013(1). https://doi.org/10.1088/1742-6596/1013/1/012054

Sanchal, A., & Kuiti, T. (2013). Students ’ Attitudes Towards Learning Mathematics : Impact Of Teaching In A Sporting Context Key words. 89–99.

Syaiufuddin, M. (2019). The effect of students’ perception on classroom assessment to students’ attitudes. Journal of Physics: Conference Series, 1280(4). https://doi.org/10.1088/1742-6596/1280/4/042027

Tezer, M., & Karasel, N. (2010). Attitudes of primary school 2nd and 3rd grade students towards mathematics course. Procedia - Social and Behavioral Sciences, 2(2), 5808–5812. https://doi.org/10.1016/j.sbspro.2010.03.947

Wijaya, T. T., Dewi, N. S. S., Fauziah, I. R., & Afrilianto, M. (2018). Analisis Kemampuan Pemahaman Matematis Siswa Kelas IX Pada Materi Bangun Ruang. UNION: Jurnal Ilmiah Pendidikan Matematika, 6(1), 19–28. https://doi.org/10.30738/v6i1.2076

Wijaya, T. T., Ying, Z., & Purnama, A. (2020). The Empirical Research Of Hawgent Dynamic
Mathematics Technology Integrated Into Teaching. *Journal Cendekia: Jurnal Pendidikan Matematika, 04*(01), 144–150.

Yi, L., Ying, Z., & Wijaya, T. T. (2019). The Trend of Mathematics Teaching Method Has Change From Fragments To Systematics. *Journal Cendekia: Jurnal Pendidikan Matematika, 3*(2), 471–480. https://doi.org/https://doi.org/10.31004/cendekia.v3i2.137

Zuyyina, H., Wijaya, T. T., & Senjawati, E. (2018). Kemampuan Koneksi Matematis Siswa Smp Pada Materi Lingkaran. *Sosiohumaniora, 4*(2), 79–90.
