e-ISSN: 3046 – 5389
p-ISSN: 3046 – 5559
Volume. 1, No. 1, 2024

CONSTRUCTIVISM: Journal of Research in Education

STUDENTS' INDUCTIVE REASONING ABILITY IN SOLVING FRACTIONAL PROBLEMS THROUGH CONTEXTUAL APPROACH

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Article History

Received: 02-07-2023

Revision: 17-08-2023

Accepted: 20-10-2023

Published: 13-02-2024

Abstract. Students can think and reason about a math problem if they can understand the math problem. A way of looking at mathematical problems also influences the mindset about the solution to be done. Through a contextual approach, students can practice their thinking skills in solving problems. This study aims to determine the ability of mathematical inductive reasoning with a contextual approach in solving fractional problems. This type of research is descriptive qualitative. The number of subjects in this study was 1 obtained using the Purposive Sampling technique using certain criteria, namely student test results on fractional material. The instruments used are using tests and interviews. Tests are used for the process of determining subjects, and interviews are used to determine inductive reasoning abilities. The interview process used is an unstructured interview and is conducted on subjects, peers, and subject teachers. Data analysis techniques using qualitative analysis consist of data collection, data presentation, and conclusions. The results of data analysis show that subjects in the process of solving problems on fractional material have inductive reasoning abilities in the process of solving problems and meet all indicators of inductive reasoning used in this study, namely observing the pattern of questions given, looking for relationships contained in the questions to facilitate problem solving, and determining the estimation of problem solving and drawing conclusions, and can predict the pattern of solving the next problem.

Keywords: Inductive Reasoning, Problem, Fractions, Contextual Approaches

How to Cite: Kamsurya, M. A & Ngadino, D. (2024). Students' Inductive Reasoning Ability in Solving Fractional Problems Through Contextual Approach. *CONSTRUCTIVISM: Journal of Research in Education*, 1 (1), 29-39. http://doi.org/10.54373/cjre.v1i1.95

INTRODUCTION

Learning mathematics is an activity to understand the meaning and relationships and symbols that are then applied in real situations (Septriyana et al., 201). Mathematics involves observation, investigation, and its relation to physical and social phenomena. Mathematics is concerned with structured ideas whose relationships are arranged and arranged logically (Agustina, 2016). So, mathematics is a science that studies the nature, space, and numbers consisting of the results of human thought related to ideas and through the process supported by reasoning requires experiments in obtaining facts that are used as the basis for argumentation.

There are two visions of mathematics learning, namely directing mathematics learning for understanding the concepts needed to solve problems and other sciences and directing to a broader future, namely mathematics provides problem-solving abilities, systematic, critical,

careful, objective, and open (Ipa et al., 2023; Kamsurya & Masnia, 2021). This ability is indispensable in facing an ever-changing future. In the aspect of reasoning, mathematics and mathematical reasoning are two things that cannot be separated. Mathematical material is understood through reasoning, and reasoning is understood and trained through learning mathematics (Agustiana et al., 2019; Namdar et al., 2020). Students can think and reason a mathematical problem if they can understand the mathematical problem. A way of looking at mathematical problems also influences the mindset about the solution to be done. Using reasoning on patterns and properties, performing mathematical manipulations in making generalizations, compiling evidences, or explaining mathematical ideas and statements is very important to be able to improve students' reasoning abilities about a mathematical material (Yunus et al., 2019).

There are two types of reasoning in mathematics that are often used in the process of mathematical proof, namely inductive reasoning and deductive reasoning (Pahrudin et al., 2020; Putri, 2017). Inductive reasoning is the process of reasoning from certain premises or observations to reach a general conclusion or general rule (Siswono et al., 2020). Inductive instrumentation is a thought process to draw conclusions in the form of generally accepted principles or attitudes based on specific facts (Yohanes et al., 2023). Therefore, mathematics learning in the classroom must be able to focus on improving the inductive reasoning ability of students.

SMP LKMD Laha is one of the schools located in Ambon City. The results of observations show that mathematics learning at SMP LKMD Laha has not focused on developing and improving students' inductive reasoning abilities. This can be seen from the learning methods and forms of questions in the process of evaluating student learning outcomes which still focus on measuring students' cognitive abilities. Efforts to develop students' inductive reasoning abilities are closely related to student learning styles and learning methods used by teachers (Yohanes et al., 2023).

One way to overcome this, researchers will apply an effective approach, namely using a contextual approach. In essence, the contextual teaching and learning approach can help teachers to further empower students in learning, namely by relating material to the real world of students related to seven principles, namely constructivism, finding, questioning, learning communities, modeling, reflection, and assessment (Anwar et al., 2019).

With the collaboration of seven principles incorporated in the contextual approach, researchers hope that students will be stimulated to think creatively and independently so that it will improve reasoning skills about fractions which can ultimately increase mathematics

learning achievement. Rustiawan & Saniah (2022) research shows that the application of contextual approaches in learning can improve students' inductive reasoning abilities compared to cooperative learning. Wijayanti's research (2022) concluded that students' inductive reasoning ability is better than the application of conventional learning methods that have been used by teachers in the classroom.

The application of these contextual approaches together in one mathematical problem must pay attention to the accompanying working rules, so that it can have a positive influence on student learning outcomes achieved. The use of fractional concept learning materials is still a scourge, especially for grade VII students of SMP LKMD Laha. This is evidenced by the low acquisition of evaluation results given by teachers on several occasions that focus more on giving test questions. The ability of mathematical inductive reasoning provided by teachers still needs the use of good and effective learning methods or approaches during the learning process. The contextual teaching and learning approach must be applied as a solution so that in mathematical inductive reasoning students become more understanding and understand well. This study aims to determine the ability of mathematical inductive reasoning with a contextual approach in solving fraction problems in class VII SMP LKMD Laha.

METODE

The type of research used in this study is qualitative descriptive. The subjects in this study were grade VII students of SMP LKMD Laha. Determination of the subject using purposive sampling. The consideration or subject selection criteria used in this study are student test results carried out after the end of the learning process. The process of taking subjects is based on the highest score obtained by grade VII students after carrying out the test. From the test results, 1 student was taken from the total number of students, namely 20 people who obtained the highest score in the test process to become research subjects. The indicators of inductive reasoning ability used in this study are (1) students can observe pattern by pattern (from a pattern of pictures or numbers), (2) students can determine the relationship between the patterns of pictures or numbers, (3) students can estimate or estimate the rules that make up the patterns formed and make general conclusions based on observations on patterns, and (4) students can determine the next picture or number in the pattern (Zhang et al., 2013).

The instruments used in this study are researchers, tests, non-tests consisting of observation and interviews. The researcher's instrument is used because in the implementation of qualitative research the researcher is directly involved in the implementation of research. The test used is in the form of a description test that aims to determine students' inductive

reasoning ability in solving questions on fractional material. Observation is carried out by observing the learning process directly which is carried out using a contextual approach and students' inductive reasoning abilities. To make it easier for researchers to find out students' inductive reasoning abilities in solving problems on fractional material, the interviews used are unstructured interviews. The questions used in the interview guidelines are developed based on the student's test results as well as the answers the student submitted in the interview process. To obtain data validity, the interview process is also carried out on peers and subject teachers, so that the interview is expected to clearly know the inductive reasoning ability possessed by the subject. The data analysis technique used in this study is qualitative data analysis, following the concept developed by Miles and Huberman, namely data reduction, data display, and conclusion drawing.

RESULT

Results of Student Activity Observations

The learning process that takes place looks very good, because almost all students look active and very motivated in participating in learning activities. When compared to the previous learning process, in learning fractional material, students seem to be more active in developing the abilities they have. This is because teachers design student-oriented learning so that it can stimulate thinking in the process of solving problems through a contextual approach.

The ability of inductive reasoning of students in learning is seen in some students, especially in indicators of observing a pattern of pictures or numbers. This is clearly seen in the process of solving various problems that occur during the learning process, namely in solving practice questions, as well as answering short questions given by the teacher. Another indicator seen in students is drawing a conclusion. This is because the learning process that takes place is very attractive to students, students are able to express various opinions they have, students themselves also conclude from various problems that arise in learning activities.

Results of Interviews with Subjects

Based on the results of the interview, it is known that the subject in solving the questions given during the interview process was done well by the subject. The way to solve problems carried out by the subject is by observing and trying to understand the problem to be solved. The process of observing is then continued by looking for patterns of relationships contained in the problem, as a first step to facilitate the solution of the problem. Next, the subject solves the problem and draws a conclusion from the solved problem. The stages of problem solving

are shown that the subject in solving the problem is a process of inductive reasoning ability used by the subject in the problem solving process. To better understand the ability of inductive reasoning on each indicator used in this study in solving fractional problems, namely as follows:

- *Indicator 1: students can determine the observed pattern of an image/number*

  This indicator is owned by the subject in the research process, because the subject is able to observe every keyword contained in the interview question. These results are evidenced by the following interviews:

  R : According to ade, what kind of question number 1?
  S : Question number 1 is what Mr. Samsul questioned pung one month's salary is IDR 840.000, from that salary $\frac{1}{3}$ parts for household needs, $\frac{1}{5}$ to pay taxes, $\frac{1}{4}$ for education expenses, and the rest is saved. The question was how much part of the money was saved with how many rupiah part of each need.

  The excerpt of the interview results above shows that the subject was able to observe the questions given during the interview process. These results are known based on the student's submission in the interview excerpt above, the subject is able to explain the results of observations on the pattern of questions given during the interview process.

- *Indicator 2: students to be able to determine the relationship between patterns of figures or numbers*

  This indicator is owned by the subject in the study, because in the interview process it was seen that the subject was able to determine the relationship of the key words contained in the question. Students are able to compile it and solve it so as to obtain a good conclusion.

  R : If it's such a problem, how do you think you can solve it?
  S : To solve the problem, first determine what is known and asked, so that it is easy to solve it. Next, to determine the part of the money saved we add up, which is the part that is already known, such as the part of household needs, taxes, and education. If an answer has been obtained, then 1 is reduced by the sum of the results that have been calculated before. The result of the reduction obtained the saved part.

  In the interview excerpt above, it can be seen that the subject was able to determine the relationship contained in the question during the interview process and was able to solve the question well. The steps used in determining the relationship to the problem look good enough so that the hasl can make it easier for the subject to solve the problem.

- *Indicator 3: estimating or estimating the rules that form patterns in the form of figures or numbers and containing conclusions from observations*

This indicator is achieved by students in the process of solving questions at the time of the interview. Because in solving the problem, the subject is able to estimate the answer to the question to be solved. The subject is able to draw a conclusion from the problem that has been solved. These results are reinforced by excerpts from the following interview

R : Can you please explain, where did you get such an answer?
S : So, how to solve the problem, as previously said that calculate the number first from the parts that have been known. So $\frac{1}{3} + \frac{1}{5} + \frac{1}{4}$ gets $\frac{47}{60}$. After that, only 1 is subtracted by $\frac{47}{60}$, obtained $\frac{13}{60}$.
R : Where did you get the $\frac{47}{60}$ score?
S : That is from the result of the sum between $\frac{1}{3} + \frac{1}{5} + \frac{1}{4}$, therefore the denominator is not the same, so equate the denominator. Use the denominator 60, as it can be divided by 3, 5, and 4. Then it can be a result of $\frac{13}{60}$.

- *Indicator 4: determine the next picture or number*

This indicator is owned by the subject because it can determine the next number pattern, as well as look for its connection. In the interview process, the subject determines the pattern of numbers, or the next answer based on the answers that have been worked out. These results are in accordance with the following interview excerpts.

R : What about the answer to point B?
S : If we have obtained the answer to question point a, then we can solve question point b. To solve the question point b, multiply it by IDR 840.000, so just give it a moment, $\frac{1}{3}$ x IDR 840.000, $\frac{1}{5}$ x IDR 840.000, $\frac{1}{4}$ x IDR 840.000, and $\frac{13}{60}$ x IDR 840.000. Then get the final result for the part.
R : Can you help solve it?
S : can Mom

Results of Interviews with Peers

The analysis process with peers is carried out on students who are closer to the subject in class. This is so that the interviews conducted can be effective to find out the daily life of the subject in the learning process when in class. The interview process with peers is carried out with the aim of supporting data for the interview process carried out on the subject, so as to find out the inductive reasoning ability possessed by the subject in studying fractional material.

Based on the results of the interview, it is known that the learning process that takes place, especially in learning fractional material, according to subject colleagues, is one of the students who is classified as active in asking and answering questions given by the teacher in class.

From the results of interviews conducted with colleagues, it can be seen that subjects in learning or solving questions first observe the pattern of questions given before solving the questions. Students are able to connect between these number patterns so that they can help them solve problems. As expressed by colleagues that:

R : Then with his explanation, do you immediately understand.
PS : Don't understand too much yet. Next, I ask if suppose the denominator is not the same yet, how do I mention the denominator? and it is said that find a number divisible by all the denominators of the problem. Suppose in the problem, the denominators are 2 and 3, then the easy way is multiplied. Means the denominator is 6. Next, you can add or subtract the numerator.

The results of the interview above, it can be seen that the pattern of solving questions carried out by the subject is looking for relationships between questions as the first step in solving fractional problems. After that, draw a conclusion from how to solve the problem so that it helps in determining the next pattern of solving the problem. If observed from the way the problem is solved by the subject, the steps to solve the problem are a pattern of solving problems with inductive reasoning ability. This can be seen from the subject's thinking pattern in solving the problem, namely by observing the pattern of the given question, determining the relationship between things that are known, looking for or estimating the answers to be written down and drawing conclusions. In other words, according to colleagues, the subject is one of the students who has inductive reasoning abilities.

Results of Interviews with Subject Teachers

The interview process is carried out on subject teachers with the aim of knowing the teacher's opinion on the subject in the learning process. Interviews with teachers are carried out with the consideration of the teacher as one of the students in designing the learning process, of course, they can find out the extent of the ability and how to solve problems carried out by the subject in learning activities. Data from interviews with mathematics subject teachers later, used as supporting data to further ascertain the extent of inductive reasoning abilities possessed by subjects in the learning process, especially in learning fractional material in class.

R : Where did he know the steps to solve such a problem.
T : I often practice the steps of solving such problems, so it is likely that he considers such steps, making it easier to solve problems, so he follows the pattern of solving problems that I often use.
R : Did my mother ever ask her to explain it to her other friends when she finished the problem in front?
T : Yes, I use it often. Because I consider that learning from peers will help other students in understanding the materials learned.

R : How did he explain it to his other friends?
T : The way he explained it was quite good, even if on a question consisting of several points, he explained it to his other friends how to solve the sal streak. In fact, I once remembered what he told his friends that how to solve a problem consisting of several points like this, we first look for answers to earlier points. Because that value will be very useful and used in solving the next problem.

Based on the results of the interview above, conducted with mathematics teachers at SMP Negeri Laha, it can be seen that the subject in the learning process is able to reflect the attitude of each indicator of inductive reasoning ability. This is from the delivery of the teacher of mathematics subjects, that the subject in the learning process and in the process of solving practice problems given by the teacher is to first observe and pay attention to the problem to be solved, then write and use the key words contained in to determine the relationship and estimate how to solve the problem to be done.

In addition to solving problems, in the learning process the subject seems to have inductive reasoning abilities. This is in line with the interview excerpts delivered by the teacher of mathematics subjects, in explaining the problem solving given by the subject teacher using the steps of solving the problem by observing the pattern of relationships on the problem, looking for the relationship of each problem, and solving the problem and then drawing a conclusion from the process of solving the problem that has been done. In general, it can be said that, the subject in his learning met the 4 indicators of inductive reasoning ability used in this study.

DISCUSSION

The ability of inductive reasoning is a thinking activity that has certain characteristics in finding the truth (Insani et al., 2019). The process of finding a truth in this case solving the questions given during the interview process begins by observing the questions given, then looking for patterns of relationships contained in the questions, estimating and estimating the rules or patterns contained in the process of solving the problem, looking for conclusions and being able to determine the picture in solving the next problem. With inductive reasoning ability, a student is able to adapt to various developments that occur along with the rapid development of science and technology (Permana & Adiansha, 2019), as well as competitiveness that requires students' skills in thinking (Doğan Coşkun, 2021).

Based on the results of research conducted on grade VII students of SMP LKMD Laha, it was obtained that the students who were the subjects in this study reflected attitudes from inductive reasoning abilities. The results are based on the results of interviews conducted on subjects, peers, and subject teachers. The results of interviews conducted on the subjects of this

study, it can be seen that the subjects meet the 4 indicators of inductive reasoning used in this study. The subject in solving the question during the interview process is known that before solving the question first observe the pattern of the question given, and determine the relationship contained in the question by determining the key words contained in the question. Next, the subject makes conclusions from the process of solving the problem that has been done, and can determine the next question solution based on the answers he has done on the previous question. In addition, apart from the results of interviews conducted on subjects to determine inductive reasoning abilities, it can also be known based on the results of interviews also carried out on peers and subject teachers. The results of the interviews conducted were obtained that the subjects in their learning had inductive reasoning abilities in the process of solving questions.

The above inductive reasoning abilities can be developed because of the learning designed by the teacher. Through the contextual teaching and learning approach, students gain direct learning experience (Aini et al., 2023) in solving problems (Puput et al., 2021). In addition, learning with contextual teaching and learning trains thinking skills to analyze problems (Pangemanan, 2020) based on various stages of problem solving (Shimizu, 2022)

CONCLUSION

Based on the results of research conducted on grade VII students of SMP LKMD Laha, it can be concluded that subjects in the process of solving fractional material have inductive reasoning abilities in the process of solving problems. This can be seen in the steps of solving the problem carried out by the subject, it is known that the subject in solving the problem first observes the pattern of the given question, then looks for the relationships contained in the question to facilitate the solution of the problem, as well as determining the estimation of solving the question and drawing conclusions, and can estimate the pattern of solving the next question.

RECOMMENDATIONS

Based on the results of the research above, there are several things that can be recommended, namely to schools to provide training to teachers to be able to develop students' inductive reasoning abilities. Subject teachers, especially mathematics subject educators so that in their learning they can develop the inductive reasoning ability of students.

REFERENCE

agustiana, N., Supriadi, N., & Komarudin, K. (2019). Meningkatkan Kemampuan Penalaran Matematis Dengan Penerapan Pendekatan Bridging Analogy Ditinjau Dari Self-Efficacy. *Inovasi Pembangunan: Jurnal Kelitbangan*, *7*(1), 61. Https://Doi.Org/10.35450/Jip.V7i1.117

Agustina, L. (2016). Upaya Meningkatkan Kemampuan Pemahaman Konsep Dan Pemecahan Masalah Matematika Siswa Smp Negeri 4 Sipirok Kelas Vii Melalui Pendekatan Matematika Realistik (Pmr). *Eksakta: Jurnal Penelitian Dan Pembelajaran Mipa*, *1*(1), 1–7.

Aini, I. N., Zulkardi, Putri, R. I. I., & Yaniawati, P. (2023). Developing Pisa-Like Math Problems in The Content of Space and Shape Through The Context Of Historical Buildings. *Journal On Mathematics Education*, *13*(4), 723–738. Https://Doi.Org/10.22342/Jme.V13i4.Pp723-738

Anwar, S., Pujiastuti, H., & Mutaqin, A. (2019). Pengaruh Contextual Teaching and Learning Dan Self Regulated Learning Terhadap Kemampuan Koneksi Matematis. *Prima: Jurnal Pendidikan Matematika*, *3*(2), 116. Https://Doi.Org/10.31000/Prima.V3i2.1169

Doğan Coşkun, S. (2021). Pre-Service Elementary Teachers' Reasoning Types of Generalization and Justification on A Figural Pattern Task. *Participatory Educational Research*, *8*(3), 422–440. Https://Doi.Org/10.17275/Per.21.74.8.3

Insani, M. D., Pratiwi, N., & Muhardjito, M. (2019). Higher-Order Thinking Skills Based on Marzano Taxonomy in Basic Biology I Course. *Jpbi (Jurnal Pendidikan Biologi Indonesia)*, *5*(3), 521–528. Https://Doi.Org/10.22219/Jpbi.V5i3.10171

Ipa, S. R., Lessy, D., Kamsurya, R., & Lastri. (2023). *Pendekatan Kontekstual Konsep Bangun Ruang Menggunakan Video Compact Disc Ketuntasan Minimal. Dewasa Ini, Proses Pembelajaran Yang Terjadi Di Smp Negeri 2 Namlea Berhubungan Dengan Teknologi. Sehingga Proses Pembelajarannyapun Masih Menggunakan Melihat*. *4*(1), 52–64.

Kamsurya, R., & Masnia, M. (2021). Desain Pembelajaran Dengan Pendekatan Matematika Realistik Menggunakan Konteks Permainan Tradisional Dengklaq Untuk Meningkatkan Keterampilan Numerasi Siswa Sekolah Dasar. *Jurnal Ilmiah Mandala Education*, *7*(4), 67–73. Https://Doi.Org/10.58258/Jime.V7i4.2368

Namdar, B., Aydin, B., & Raven, S. (2020). Preservice Science Teachers' Informal Reasoning About Hydroelectric Power Issue: The Effect of Attitudes Towards Socio-Scientific Issues and Media Literacy. *International Journal of Research in Education and Science*, *6*(4), 551–567. Https://Doi.Org/10.46328/Ijres.V6i4.1204

Pahrudin, A., Ahid, N., Huda, S., Ardianti, N., Putra, F. G., Anggoro, B. S., & Joemsittiprasert, W. (2020). The Effects of The Ecirr Learning Model on Mathematical Reasoning Ability in The Curriculum Perspective 2013: Integration on Student Learning Motivation. *European Journal of Educational Research*, *9*(2), 675–685. Https://Doi.Org/10.12973/Eu-Jer.9.2.675

Pangemanan, A. (2020). Application Of Contextual Teaching and Learning Approach on Statistics Material Against Student Results. *International Education Studies*, *13*(4), 1. Https://Doi.Org/10.5539/Ies.V13n4p1

Puput, F., Ahmadi, F., & Rochmad, R. (2021). The Implementation of Mathematics Comic Through Contextual Teaching and Learning to Improve Critical Thinking Ability and Character. *European Journal of Educational Research*, *10*(1), 497–508. Https://Doi.Org/10.12973/Eu-Jer.10.1.497

Putri, L. I. (2017). Etnomatematika, Kesenian Tradisional Rebana, Pembelajaran Matematika. *Jurnal Ilmiah Pendidikan Dasar*, *6*(1), 21–31.

Rendy Permana & Adi Apriadi Adiansha. (2019). Membentuk Keterampilan Berpikir Kritis Matematis Siswa Melalui Model Brain Based Learning Ditinjau Dari Penalaran Induktif. *Jurnal Pendidikan Mipa*, *9*(1), 31–37. Https://Doi.Org/10.37630/Jpm.V9i1.177

Rustiawan, I., & Saniah, L. (2022). *Pengaruh Pendekatan Kontekstual Dengan Pembelajaran Kooperatif Tipe Think Talk Write Terhadap Peningkatan Kemampuan Penalaran Induktif*. *7*.

Septriyana, Y., Fauzan, A., & Ahmad, R. (2019). *The Influence of Realistic Mathematics Education (Rme) Approach on Students' Mathematical Problem-Solving Ability*. 275–282. Https://Doi.Org/10.2991/Icoie-18.2019.38

Shimizu, Y. (2022). Relation Between Mathematical Proof Problem Solving, Math Anxiety, Self-Efficacy, Learning Engagement, And Backward Reasoning. *Journal Of Education and Learning*, *11*(6), 62. Https://Doi.Org/10.5539/Jel.V11n6p62

Siswono, T. Y. E., Hartono, S., & Kohar, A. W. (2020). Deductive Or Inductive? Prospective Teachers' Preference of Proof Method on An Intermediate Proof Task. *Journal On Mathematics Education*, *11*(3), 417–438. Https://Doi.Org/10.22342/Jme.11.3.11846.417-438

Wijayanti, R. (2022). Pembelajaran Matematika Dengan Menggunakan Pendekatan Kontekstual Untuk Meningkatkan Kemampuan Penalaran Induktif Pada Siswa Kelas Viii Smp Negeri 11 Kota Cirebon. *Intelektium*, *3*(2), 382–388. Https://Doi.Org/10.37010/Int.V3i2.1081

Yohanes, B., Darmawan, P., & Nugroho, P. B. (2023). Penalaran Induktif Siswa Sekolah Dasar Dalam Menyelesaikan Masalah Keterbagian Bilangan Bulat. *Sigma*, *8*(2), 84. Https://Doi.Org/10.53712/Sigma.V8i2.1735

Yunus, N. A., Hulukati, E., & Djakaria, I. (2019). Pengaruh Pendekatan Kontekstual Terhadap Kemampuan Penalaran Matematis Ditinjau Dari Gaya Kognitif Peserta Didik. *Jambura Journal of Mathematics*, *2*(1), 30–38. Https://Doi.Org/10.34312/Jjom.V2i1.2591

Zhang, Y., Terai, A., & Nakagawa, M. (2013). *The Comparison of Inductive Reasoning Under Risk Conditions Between Chinese and Japanese Based on Computational Models: Toward the Application To Cae For Foreign Language*.