The Impact of Contextual Approaches to Teaching and Learning (CTL) on Students' Learning Motivation in Mathematics Lessons

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Abstrak

Pendidikan merupakan sebuah proses bimbingan yang diberikan kepada orang dewasa yang disalurkan kepada anak yang sedang berkembang untuk mencapai perkembangan yang optimal sehingga anak mencapai kedewasaannya. Melalui pembelajaran-pembelajaran yang diberikan terutama matematika, akan tetapi pada kenyataannya matematika sendiri seringkali menjadi momok yang menakutkan bagi para siswa, sehingga diperlukannya pendekatan yang sesuai untuk meningkatkan motivasi belajar siswa. Tujuan penelitian ini untuk mengetahui pengaruh pendekatan *contextual teaching and learning* (CTL) terhadap motivasi belajar siswa pada mata Pelajaran matematika. Metode yang digunakan dalam penelitian ini ialah menggunakan pendekatan kuantitatif. Hasil penelitian menunjukan jika hasil pengujian hipotesis yang didapat dari hasil uji *Independent Sample T- Test* diperoleh nilai probabilitasnya (Sig. (2-tailed) sebesar 0,000<0,05 sehingga diterima, yang artinya ada pengaruh pendekatan *Contextual Teaching And Learning* (CTL) terhadap motivasi belajar siswa. Sehingga bisa disimpulkan jika pembelajaran matematika dengan menggunakan pendekatan *Contextual Teaching and Learning* (CTL) dapat mempengaruhi motivasi belajar siswa.

Kata Kunci: Contextual Teaching and Learning, Matematika, Motivasi Belajar

Abstract

Education is a process of guidance given to adults which is distributed to developing children to achieve optimal development so that children reach maturity. Through the lessons provided, especially mathematics, in reality mathematics itself is often a frightening prospect for students, so an appropriate approach is needed to increase students' learning motivation. The aim of this research is to determine the effect of the contextual teaching and learning (CTL) approach on student learning motivation in mathematics subjects. The method used in this research is a quantitative approach. The results of the research show that if the results of hypothesis testing obtained from the results of the Independent Sample T-Test obtained a probability value (Sig. (2-tailed) of 0.000<0.05 so it is

accepted, which means there is an influence of the Contextual Teaching And Learning (CTL) approach on So it can be concluded that learning mathematics using the Contextual Teaching and Learning (CTL) approach can influence student learning motivation.

Introduction

Education is a process of guidance given to adults that is channelled to developing children to optimal development so that children reach adulthood. In other words, education is an effort in which children are asked in various potential to the highest level of safety and happiness individually and collectively. Education is the knowledge of learning in a variety of environments that must be passed through a lifetime and has a positive influence on the development of the individual (Yuliana et al., 2021). The purpose of education is to make a person qualified and characterized so that he has a far-reaching vision to the aspirations expected and is able to adapt quickly and accurately in various environments. Because education itself motivates us to be better in every aspect of life (Widyaiswara et al., 2019).

In the National Education System Act No. 20 of 2003, it is stated that "the purpose of education is a conscious and planned effort to create an atmosphere of learning and learning processes so that the student actively develops his or her potential to have spiritual powers of religion, self-control, personality, noble moral intelligence, as well as the skills necessary for him or her, the community of the nation and the country".(UU No. 20, 2003). Thus, education has a very important purpose for the survival of a competent generation of nations. In this case, the student will not be able to develop knowledge, skills and critical thinking without learning motivation. The role of motivation in learning can be used as a benchmark in learning success, clarifying the learning objectives of the student to be achieved and determining the perseverance of learning. Student motivation consists of several indicators, including curiosity, attention, effort, activity duration, activity frequency, persistence, perseverance, aspiration, qualification and attitude direction (Makmun, 2019).

Learning motivation is the psychological urge to take an action to the goal of learning (Uno, 2018). Learning motivation is an internal and external incentive to learners who implement learning to change behavior. With motivation, students can develop knowledge activities, scientific attitudes and scientific skills as well as learning initiatives, so that they can direct and nurture perseverance in conducting learning activities.

Basically, education at SD/MI not only provides the provision of interacting with peers only, but also provides the concepts of writing and counting taught in each subject, one of which is Mathematics. Mathematical lessons are missionary for character education. In mathematics there is a value of consistency in logical thinking as well as in mathematical learning can be instilled an attitude of honesty (Zubaidi, 2018). In the 2018 survey, for Indonesian literacy ranked sixth from the bottom, for mathematics, ranked seventh below, and for the scientific category, Indonesia ranked ninth from the lower, seeing that then Nadiem Makariem highlighted AKM as one of the Solutions that can improve the quality of education in Indonesia (Afifah, 2021; Fitri, 2021; Setiawan et al., 2023).

Mathematics is one of the subjects in the school that is considered sufficiently to play an important role in shaping students to become qualified. Mathematics itself is not only able to train computing skills but also capable of training critical thinking. A lot of mathematical lessons provide training in developing students' scientific ways of thinking, and demanding scientific attitudes

such as curiosity, openness and other attitudes (Yuswita, 2018).

Although mathematics plays an important role in shaping qualified students and becoming one of the compulsory lessons in all levels of education, it is often a frightening scandal for students, especially for students of SDS Muhammadiyah 31 Medan. Many students still have the impression that learning math is very difficult to understand, confusing and boring. Therefore, the atmosphere in the classroom deteriorates every time subjects are taught, which indirectly leads to their reluctance to study (Nababan & Tanjung, 2020; Sylviani et al., 2002).

The student's problems above are still due to the monotonous teacher learning model. Many teachers still use a model of lecture that is all just writing and listening, no pre-participation from student to student, only teachers who focus on teaching in class. There are still students who are hesitant and unwilling to ask about what they have not understood in the learning process, and in the end the process of learning becomes unwelcome students. The most important role of the teacher is to increase the student's desire or motivation to learn. Understand students so that they can provide interesting, valuable, intrinsically motivating, challenging, and useful learning experiences for them (Marta et al., 2020). Besides, based on the observations and interviews carried out, the learning motivation of students of 3rd grade SDS Muhammadiyah 31 Medan is still low. It's seen in the learning process, they're seen to be inactive in learning.

Based on the existing questions about the conventional learning approach, there is a need for improvements that can improve the attention, motivation, understanding, learning outcomes, and student learning achievements. One approach that empowers active students is the Contextual Teaching and Learning (CTL) learning approach. Mathematical learning systems are expected to be able to use a contextual approach as a focus in learning activities, where students engage in active learning that is able to find meaning,

because contextual learning connects the content of the lesson with the environment. The CTL approach is a learning approach that emphasizes student connectivity in vital activities that helps them associate academic learning with the real-life context they face (Putrianasari & Wasitohadi, 2017).

Therefore, based on some of the problems described above, the researchers are interested in testing the impact of Contextual Teaching and Learning (CTL) Approaches on Learning Motivation on the Matematics Lesson in Class III SDS Muhammadiyah 31 Field. The reason for choosing the Contextual Teaching and Learning (CTL) approach in this study is because this approach has a learning concept that can help educators to connect the material they are teaching with the real world situation of the student or something that they have seen in real life and encourage the student to be able to associate the knowledge they have with the application in everyday life. Thus, the students will be helped in learning the mathematical material and can grow the motivation of the students in learning so that the students are more enthusiastic in learning mathematics.

Method

In the case of quasi-experimental research, it has a control class, but cannot fully control the external variables that affect the execution of the experiment (Sugiyono, 2017). using the design of Nonequivalent Control Group Design. The plan involves two classes, the experimental class and the control class. In the experimental class, the learning process is treated using the Contextual Teaching and Learning (CTL) learning model, whereas in the control class, it is only using the conventional model. Before being treated, both classes were given a pretest. And then perform a skill test by giving a posttest aimed at identifying the two groups. For more clarity, the design of this study can be described as follows:

Table 1. Research Design Nonequivalent Control Group Design

Grup	Pre-test	Treatment	Post-test
Eksperimen	o_1	**X**	p_1
Control	o_2	**-**	p_2

Description:

O_1 = Pre-test values for class exsperimen

O_2 = Pre-test values for class control

X = Treatment with approach *Contextual Teaching And Learning* (TCL)

p_1 = Post-tes values for class eksperimen

p_2 = Post-tes values for class control

The population in this study is a total of 3rd grade students SDS Muhammadiyah 31 Fields which totaled 39 students. Class III-B as experiment and class III-A as control. Sampling is done using the simple Purposive Samplings technique. The data collection method in this study uses the lifting method to obtain data related to learning motivation. The data is obtained from the delivery of a lifting sheet distributed to students in a way that students give a check on choices that fit their circumstances. The data analysis method uses a prerequisite test of normality, homogenitas and continued testing *Independent Sample T Test*.

Results and Discussion

The data obtained at the beginning of the research were the results of the pre-test scores which were used as motivation for students' mathematics learning before implementing Contextual Teaching And Learning (CTL) learning in the experimental class and lecture model in the control class. This pre-test data was used to determine the similarity of students' initial learning motivation abilities between the experimental class and the control class. The data obtained at the end of the research were the scores from the post-test which were used as student learning motivation scores after implementing the Contextual Teaching and Learning (CTL) approach in the experimental class and the lecture model in the control class.

Tabel 2. Data Description

Class	Many respondents	Average
Pre-test eksperimen	19	63,47
Post-test eksperimen	19	87,16

Based on the table above, the average pre-test score on the learning motivation questionnaire in the experimental class is 63.47. Where those below the average were 11 students (57.89%) and those above the average were 8 students (42.11%). Meanwhile, the average post-test score on the learning motivation questionnaire in the experimental class was 87.16. Where below the average there are 8 students (42.11%) and above the average there are 11 students (57.89%).

Tabel 3. Data Description

Class	Many respondents	Average
Pre-test Kontrol	20	63,25
Post-test control	20	79,35

Based on the table above, the average pre-test score for the learning motivation questionnaire in the control class is 63.25. Where below the average there are 10 students (50%) and above the average there are 10 students (50%). Meanwhile, the post-test score on the learning motivation questionnaire in the control class averaged 79.35. Where below the average there are 8 students (40%) and above the average there are 12 students (60%).

Next, a hypothesis test was carried out to determine whether there was a difference in the average student learning motivation between those using the Contextual Teaching and Learning (CTL) approach and the conventional one. Before carrying out a hypothesis test, prerequisite tests are carried out first, namely the normality test and homogeneity test. First, the test is carried out on the pre-test score for learning motivation, the aim is to determine the student's initial abilities.

3.1 Normality Test

The normality test uses the Shapiro Wilk formula in calculations using the SPSS 25

program. To find out whether it is normal or not, if sig > 0.05 then the data is declared normal and if sig < 0.05 then the data can be said to be abnormal. The calculation results obtained are as follows:

Tabel 4. Pre-test Normality Test Results

Class	Shapiro wilk (Sig. 2 Tailed)
Eksperimen	0,086
Control	0,508

Based on the table above, it can be seen that the pre-test score for learning motivation consisting of the experimental class and the control class has a sig value > 0.05, namely the experimental class 0.086 and the control class 0.508, so it can be concluded that this group of data is normally distributed.

3.2 Homogeneity Test

After knowing the level of normality of the data, a homogeneity test is then carried out. The homogeneity of variance test was carried out to determine whether the data from the two research samples had homogeneous or heterogeneous variance. To find out whether it is homogeneous or not, if sig > 0.05 then the data is declared homogeneous and if sig < 0.05 then the data can be said to be inhomogeneous or heterogeneous. The calculation results obtained are as follows:

Tabel 5. Pre-test Homogeneity Test Results

dfl	dt2	Sig (2 tailed)
1	37	0,701

Based on the table above, it can be seen that the pre-test score for learning motivation has a sig value > 0.05, namely 0.701, so it can be concluded that the data group is homogeneous.

3.3 Hypothesis Testing

In order to determine whether or not there is an influence of the Contextual Teaching And Learning (CTL) approach on student learning motivation between the experimental class that uses CTL and the control class that uses lectures, this is done using a statistical test in the form of a t test, namely the Independent Sample T-Test. The t test aims to see whether there is a difference between the pre-test

learning motivation and the post-test learning motivation of experimental class and control class students.

Tabel 6. Independent Sample T Test Pre-Test Results

	Sig (2 tailed)
Motivation to learn Pre-Test	0,947

Based on the table above, for the student learning motivation variable, the probability value is 0.947, so the probability is 0.947 > 0.05, so it is accepted, which means there is no influence of the Contextual Teaching And Learning (CTL) approach on student learning motivation.

Second, a hypothesis test was carried out which met the prerequisite tests, namely the normality test and homogeneity test on the pots-test scores for learning motivation.

1. Normality Test

The normality test uses the Shapiro Wilk formula in calculations using the SPSS 25 program. To find out whether it is normal or not, if sig > 0.05 then the data is declared normal and if sig < 0.05 then the data can be said to be abnormal. The calculation results obtained are as follows:

Tabel 7. Hasil Uji Normalitas Post-test

Class	Shapiro Wilk (Sig (2 tailed)
Eksperimen	0,089
Kontrol	0,092

Based on the table above, it can be seen that the post-test score for learning motivation consisting of the experimental class and the control class has a sig value > 0.05, namely the experimental class 0.089 and the control class 0.092, so it can be concluded that this group of data is normally distributed..

2. Homogenitas Test

After knowing the level of normality of the data, a homogeneity test is then carried out. The homogeneity of variance test was carried out to determine whether the data from the two research samples had homogeneous or heterogeneous variance. To find out whether it is homogeneous or not, if sig > 0.05 then the data is declared homogeneous and if sig < 0.05

then the data can be said to be inhomogeneous or heterogeneous. The calculation results obtained are as follows:

Table 8. Post-Test Homogeneity Test Results

df1	df2	Sig (2 tailed)
1	37	0,449

Based on the table above, it can be seen that the pre-test score for learning motivation has a sig value > 0.05, namely 0.449, so it can be concluded that the data group is homogeneous.

3.   Hipotesis Test

In order to determine whether or not there is an influence of the Contextual Teaching And Learning (CTL) approach on student learning motivation between the experimental class that uses CTL and the control class that uses lectures, this is done using a statistical test in the form of a t test, namely the Independent Sample T-Test. The t test aims to see whether there is a difference between the pre-test learning motivation and the post-test learning motivation of experimental class and control class students.

Table 9. Independent Sample T-Test Post-Test Results

	Sig (2 tailed)
Motivasi Belajar Post-Test	0,000

Based on the table above, the SPSS output results on the student learning motivation variable show a probability of 0.000, so the probability is 0.000 < 0.05, so it is accepted, which means there is an influence of the Contextual Teaching and Learning (CTL) approach on student learning motivation.

Based on descriptive analysis of the pre-test score on the learning motivation questionnaire in the experimental class, the average was 63.47. Where those below the average were 11 students (57.89%) and those above the average were 8 students (42.11%). Meanwhile, the average post-test score on the learning motivation questionnaire in the experimental class was 87.16. Where below the average there are 8 students (42.11%) and above the average

there are 11 students (57.89%). After that, the average pre-test score for the learning motivation questionnaire in the control class was 63.25. Where below the average there are 10 students (50%) and above the average there are 10 students (50%). Meanwhile, the post-test score on the learning motivation questionnaire in the control class averaged 79.35. Where below the average there are 8 students (40%) and above the average there are 12 students (60%).

Based on the results of hypothesis testing obtained from the results of the Independent Sample T-Test, the pre-test value of the student learning motivation questionnaire obtained a probability value (Sig. (2-tailed) of 0.947 > 0.05. Meanwhile, the post-test value of the student learning motivation questionnaire was obtained The probability value (Sig. (2-tailed) is 0.000 < 0.05 so it is accepted, which means there is an influence of the Contextual Teaching And Learning (CTL) approach on student learning motivation. So it can be concluded that there is an influence of CTL on student learning motivation. So it can be concluded There are differences between the two classes and it is proven that the posttest score for learning motivation in the experimental class increased more than in the control class.

Conclusion

From the results of the descriptions above regarding "The Influence of the Contextual Teaching and Learning (CTL) Approach on Learning Motivation in Mathematics Subjects in Class III SDS Muhammadiyah 31 Medan", the researcher can conclude that the learning motivation of students who use the Contextual Teaching and Learning approach (CTL) is higher than students who use conventional learning/lectures. So it can be interpreted that learning mathematics using the Contextual Teaching and Learning (CTL) approach can influence student learning motivation.

Bibliography

Afifah, S. (2021). Peningkatan Kualitas Pendidikan di Indonesia untuk Mengejar Ketertinggalan dari Negara Lain. *CERMIN: Jurnal Penelitian*, *5*(1), 113–123.

Fitri, S. F. N. (2021). Problematika Kualitas Pendidikan di Indonesia. *Jurnal Pendidikan Tambusai*, *5*(1).

Makmun, A. S. (2019). *Psikologi Pendidikan (Perangkat Sistem Pengajaran Modul)*. PT. Remaja Rosdakarya.

Marta, H., Fitria, Y., Hadiyanto, H., & Zikri, A. (2020). enerapan Pendekatan Contextual Teaching and Learning Pada Pembelajaran Ipa Untuk Meningkatkan Hasil Belajar Dan Motivasi Belajar Siswa Sekolah Dasar. *Jurnal Basicedu*, *4*(1), 149–157. https://doi.org/10.31004/basicedu.v4i1.3 34

Nababan, S. A., & Tanjung, H. S. (2020). engembangan perangkat pembelajaran berbasis pendekatan matematika realistik untuk meningkatkan kemampuan disposisi matematis siswa SMA Negeri 4 Wira Bangsa Kabupaten Aceh Barat. *Genta Mulia: Jurnal Ilmiah Pendidikan*, *11*(2), 233–243.

Putrianasari, D., & Wasitohadi. (2017). Pengaruh Penerapan Pendekatan *Contextual Teaching And Learning* (CTL) Terhadap Hasil Belajar Matematika Ditinjau Dari Motivasi Belajar Siswa Kelas 5 SD Negeri Cukil 01 Kecamatan Tengaran Kabupaten Semarang. *E-Journal UKSW*, 57–77.

Setiawan, W., Hatip, A., Tri Eka, S. S., Gozali, A., & Anggraini, A. (2023). *STUDI PUSTAKA TENTANG PENGGUNAAN MODEL PEMBELAJARAN SEBAGAI BAGIAN DARI PENGUATAN PROFIL PELAJAR PANCASILA*. *14*(2), 179–183. https://doi.org/10.31764

Sugiyono. (2017). *Metode penelitian pendidikan:(pendekatan kuantitatif, kualitatif dan R & D)*. Alfabeta.

Sylviani, S., Permana, F. C., & Utomo, R. G. (2002). PHET Simulation sebagai Alat Bantu Siswa Sekolah Dasar dalam Proses Belajar Mengajar Mata Pelajar Matematika. *JKIP: Jurnal Kajian Ilmu Pendidikan*, *3*(2), 122–129.

Uno, H. (2018). *Teori Motivasi & pengukurannya:Analisis di Bidang Pendidikan*. Bumi Aksara.

UU No. 20. (2003). *Tentang Sistem Pendidikan Nasional*.

Widyaiswara, G. P., Parmiti, D. P., & Suarjana, I. M. (2019). engaruh Model Pembelajaran Contextual Teaching and Learning terhadap Hasil Belajar IPA. *International Journal of Elementary Education*, *3*(4). . https://doi.org/10.23887/ijee.v3i4.21311

Yuliana, A., Hartati, S. J., & Hanifa, S. Y. (2021). Pengaruh Model Discovery Dan Conventional Learning Terhadap Motivasi Siswa Dan Hasil Belajar. *Jurnal Kewarganegaraan*, *5*(2), 397–404. https://doi.org/10.31316/jk.v5i2.1592

Yuswita. (2018). Pengaruh Model Pembelajaran Contextual Teaching And Learning (CTL) Terhadap Hasil Belajar Siswa Pada Mata Pelajaran Matematika Kelas V di MIS Nurul Hadina Patumbak. *E-Journal UINSU*.

Zubaidi. (2018). *Desain Pendidikan Karakter*. Kencana Prenada Media Group.