JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

Jurnal Eduscience (JES)

Volume 10, No. 2

Agustus, Tahun 2023

Submit : 01 Juni 2023

Accepted : 31 Juli 2023

THE INFLUENCE OF CONTEXTUAL TEACHING AND LEARNING (CTL) LEARNING MODEL ON STUDENTS' MATHEMATICAL PROBLEM SOLVING ABILITY

DEWI PURNAMA SARI[1], LILIS ARINI[2], AZIZAH YUSRA AMALIYAH HRP[3]

[1,3] Prodi Pendidikan Matematika, Sekolah Tinggi Keguruan dan Ilmu Pendidikan Amal Bakti

e-mail: Purnamasaridewi085@gmail.com, ayusraharahap@gmail.com

[2]Prodi Pendidikan Matematika, STKIP Asy-Syafi'iyah Internasional Medan

e-mail: lilisarini1993@gmail.com

Abstract

The issue in the exploration is the low capacity of class understudies to tackle numerical questions. XI SMAS PAB 5 Klumpang. This review plans to decide if there is an impact of the Logical Instructing And Learning (CTL) learning model on the numerical critical thinking skills of Class XI SMAS PAB 5 Klumpang. This sort of examination is trial research with a One Gathering Pretest-Posstest Plan. The populace in this review were all understudies of class XI SMAS PAB 5 Klumpang, while the example in this review was class XI-B, which comprised of 30 understudies. The information in this review were dissected utilizing a basic straight relapse test. The typical trial of numerical critical thinking abilities when acquiring is 56.86 and 67.53. To figure out how much impact the Relevant Educating And Learning (CTL) learning model has on numerical critical thinking skills a straightforward direct relapse test is utilized with the consequence of rcount which is 6.81 which is more noteworthy than the worth of rtable with a huge degree of 5% (0.05) and df 30 to be specific 1.70 (6.81 > 1.70) so H0 is dismissed and Ha is acknowledged, intending that at a critical degree of 62.41% there is a critical impact between the Context oriented Instructing And Learning (CTL) learning model and understudies' numerical critical abilities to think. Hence one might say that the Context oriented Educating And Learning (CTL) learning model impacts understudies' numerical critical thinking skills.

***Keywords**: Contextual Teaching and Learning (CTL) Model; Mathematical problem solving ability*

Abstrak

Masalah dalam penelitian adalah rendahnya kemampuan pemecahan masalah matematika siswa kelas. XI SMAS PAB 5 Klumpang. Penelitian ini bertujuan untuk mengetahui apakah terdapat pengaruh model pembelajaran *Contextual Teaching And Learning (CTL)* terhadap kemampuan pemecahan masalah matematika siswa Kelas XI SMAS PAB 5 Klumpang. Jenis penelitian ini adalah penelitian eksperimen dengan design penelitian *One Group Pretest-Posstest Design*. Populasi dalam penelitian ini adalah seluruh siswa kelas XI SMAS PAB 5 Klumpang, sedangkan sampel dalam penelitian ini yaitu kelas XI-B yang berjumlah 30 siswa. Data dalam penelitian ini dianalisis menggunakan uji regresi linier sederhana. Rata-rata tes kemampuan pemecahan masalah matematika sebelum dan sesudah pembelajaran adalah 56,86 dan 67,53. Untuk mengetahui seberapa besar pengaruh model pembelajaran *Contextual Teaching And Learning (CTL)* terhadap kemampuan pemecahan masalah matematika digunakan uji regresi linier sederhana dengan hasil r_{hitung} yaitu 6,81 yang lebih besar dari nilai r_{tabel} dengan taraf signifikan 5% (0,05) dan df 30 yaitu 1,70 (6,81 > 1,70) sehingga H_0 ditolak dan H_a diterima, artinya pada taraf signifikan 62,41% terdapat pengaruh yang signifikan antara model pembelajaran *Contextual Teaching And Learning*

JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

(CTL) dan kemampuan pemecahan masalah matematika siswa. Dengan demikian dapat dikatakan bahwa model pembelajaran *Contextual Teaching And Learning* (CTL) berpengaruh terhadap kemampuan pemecahan masalah matematika siswa.

Kata Kunci: Model Pembelajaran *Contextual Teaching and Learning (CTL)*; kemampuan pemecahan masalah matematika

INTRODUCTION

Math schooling is a science that plays a significant part in the improvement of training. This is because of numerous different sciences whose disclosures and improvements depend on arithmetic. Arithmetic can serve different sciences on account of the recipes, maxims and demonstrating models contained in math so it can help these sciences (Uno, 2014). Capacity in the motivation behind learning science is the capacity to take care of issues. Tackling this issue is a vital piece of the science educational plan on the grounds that in the growing experience, understudies are supposed to have the option to foster their encounters in learning. With this experience understudies utilize their insight to apply to tackling issues experienced during the growing experience.

This is as per Melani's viewpoint (Masniari, Tini Yunarti, 2014) the drawn out objective of learning arithmetic is to investigate understudies' capacities so they can foster themselves and have the option to take care of issues that emerge. Critical thinking is viewed as a vital part since critical thinking can further develop understudies' reasoning abilities and capacities which are accepted to be adaptable or utilized by these understudies while managing issues in regular day to day existence. As indicated by Polya (Sugiantara, 2014) there are four moves toward tackling an issue, specifically: (1) grasping the issue, (2) arranging the arrangement, (3) taking care of the issue as expected, (4) rethinking the outcomes got.

In view of the aftereffects of perceptions made by specialists on class XI understudies of SMAS PAB 5 Klumpang that understudies are less ready to take care of issues as critical thinking, particularly those connected with understudies' genuine lives. In light of the test consequences of Class XI understudies at SMAS PAB 5 Klumpang, it was found that understudies didn't record what was known and what was asked of the inquiries. This shows that understudies actually experience issues in deciding data and arranging the means expected to tackle issues. One of the reasons for the low capacity of understudies' numerical critical thinking is on the grounds that in the educational experience in class understudies just use educator focused learning . Ruseffendi (Anisa, 2015) contends that a movement did by addressing will be recollected by understudies just 20%, assuming it is passed on through sight it tends to be recalled by half of understudies, and on the off chance that an action is completed by doing it will be recalled by

JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

understudies by 75%. This is on the grounds that the educator begins advancing by examining definitions, reporting subjects to be talked about, and chipping away at questions given by the instructor. With the goal that in homeroom realizing there is only one-way connection and learning results are not exactly ideal and understudy action is as yet deficient. One might say that the educator actually applies the immediate instructing model.

The trouble experienced by understudies in tackling numerical issues is the absence of significance of the material got so understudies find it challenging to expand on the information acquired (Masniari, Tini Yunarti, 2014) . For this situation exercises should be planned that include understudies effectively in deciphering a topic so that learning can be handily acknowledged by understudies. In this manner educators should involve powerful educating to make understudies more dynamic in instructing exercises. Thus, it is important to carry out discovering that is fun and can draw to understudies' advantage in learning arithmetic by connecting numerical material to the climate and issues that are more relevant on the grounds that the understudy's current circumstance extraordinarily impacts the introduction of numerical material.

One of the learning models that relates the topic to understudies' genuine circumstances is the Context oriented Instructing and Learning (CTL) learning model. As per Jhonson (in Patilima, 2014) CTL learning is a learning framework that matches the mind that creates significance by associating scholarly substance with the setting of understudies' regular routines. In the mean time, as per Patilima (2014) , CTL learning is a work to make understudies dynamic in working on their own capacities without losing regarding benefits, since understudies are attempting to learn ideas as well as apply and connect them with this present reality. (Harahap, 2017)) says there are 3 things that should be grasped connected with Relevant Educating And Learning (CTL), in particular: CTL stresses the most common way of including understudies to view as the material, CTL urges understudies to have the option to find connections between the material being examined and genuine circumstances , CTL urges understudies to have the option to apply it throughout everyday life .

(Muslihah and Suryaningrat, 2021) Context oriented learning is a work to make understudies dynamic in siphoning their own capacities without losing concerning benefits, since understudies are attempting to learn ideas while applying and relating them to this present reality . Research result (Hasudungan, 2022) shows that CTL learning is the right methodology in picking up during the Coronavirus pandemic thinking about that CTL centers around three viewpoints. In the first place, CTL centers around the most common way of including understudies in seeing as topic. Second, CTL assists understudies with understanding the connection between the material being considered and the truth, in

JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

actuality. Third, CTL urges understudies to have the option to apply it in day to day existence, particularly during the Coronavirus pandemic. Relevant Educating and Learning (CTL) is alluded to as a context oriented learning approach that assists educators with relating the current material to understudies' genuine circumstances and urges understudies to cause associations between the information they to have and its application in their lives as citizenry. (Hadith, 2022) . The upsides of this learning model include: 1) the event of connection between understudies through joint conversations in taking care of issues experienced, 2) can increment understudy liability together in light of the fact that each gathering is given various errands to examine, 3) by working helpfully the chance of information development will be more prominent, 4) there is cooperation between understudies through conversations/understudies together in tackling issues confronted (Buulolo, Giawa and Panjaitan, 2022) . (Ratnasari and Nasrullah, 2022) presumed that there was a huge impact of utilizing the CTL model on understudies' freedom in learning science, with understudies utilizing the CTL model having higher learning results. freedom contrasted with understudies who don't utilize the CTL model. The people who were shown utilizing the CTL approach were more certain, offering their viewpoints contrasted with understudies who were shown by the customary technique.

In light of the portrayal above, it very well may be reasoned that the utilization of the Relevant Educating and Learning (CTL) learning model can be utilized as a learning model that is very valuable in further developing understudies' numerical critical thinking skills so the growing experience turns out to be more significant and better, so the creators are keen on directing examination with the title "The Impact of Context oriented Instructing and Learning (CTL) Learning Models on Understudies' Numerical Critical Ability to think in Class XI Understudies of SMAS PAB 5 Klumpang".

RESEARCH METHODS

kind of exploration is exploratory examination as Pre-Trial Plan (Non Plan). This examination was led at SMAS PAB 5 Klumpang, class XI for the 2022/2023 school year. The exploration was completed in the even semester of the 2022/2023 school year. The populace in this review were all understudies of class XI for the 2022/2023 school year which comprised of 3 classes with a sum of 90 understudies. The example utilized in the exploration was class XI B with a sum of 30 understudies. In this study the testing method utilized was purposive examining. The instrument utilized in this review was a test instrument comprising of a pretest - posttest and a non-test instrument as a poll . The test is utilized to gauge numerical statement addressing capacities. The poll utilized in this exploration is an understudy reaction survey which plans to figure out how much the understudies answer the Context oriented Educating and Learning (CTL)

JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

learning model in science learning. Information handling is finished by looking at the consequences of the investigation on the pretest with the aftereffects of the examination on the posttest. Furthermore, after the information is gotten from the examination results, the information is handled measurably. In this study the relapse examination utilized is straightforward direct relapse.

RESULTS AND DISCUSSION

4.1 Description of the Pre-test and Post-Test

Pretest is a test item given to students before being given the learning treatment. Based on the *pretest* results data given prior to learning contained in briefly summarized in table 4.1 below:

Table. 4.1. *Pretest* data

intervals	Experiment Class
0 ≤ score ≤ 54	14
55≤ score ≤ 64	7
65≤ score ≤ 79	9
80 ≤ score ≤ 89	0
90≤ score ≤ 100	0
Number of Samples	**30**
Maximum Value	**74**
Min Value	**40**
Average value	**56.86**

Table 4.1 illustrates that based on the results of *the pretest* tested on 30 students, it was found that the highest and lowest scores in the class were 74 and 40 respectively with an average score of 56.86. While the results of *the posttest* math problem solving abilities of Class XI SMAS PAB 5 Klumpang students collected after learning are as follows:

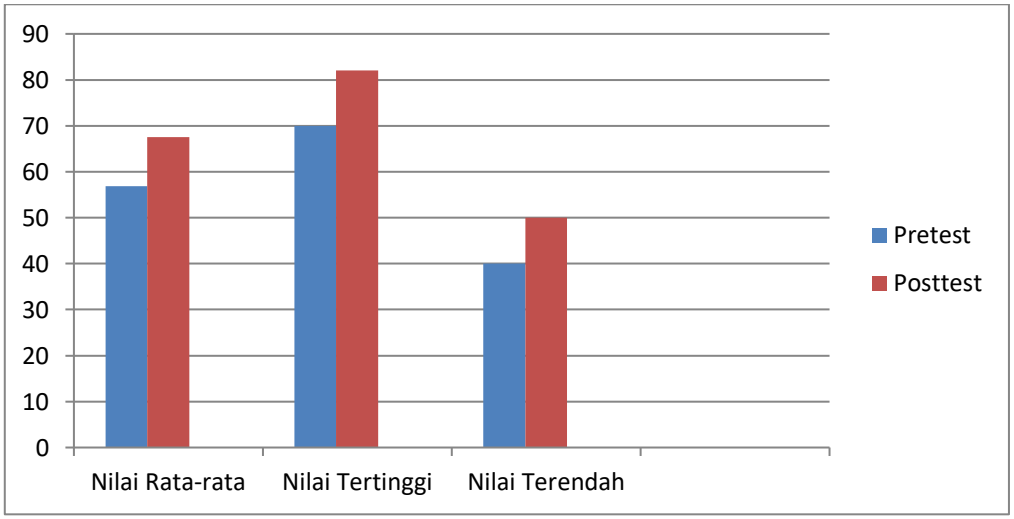
Table. 4.2. *Posttest* data

intervals	**Experiment Class**
0 ≤ score ≤ 54	6
55≤ score ≤ 64	10
65≤ score ≤ 79	6
80 ≤ score ≤ 89	8
90≤ score ≤ 100	0
Number of Samples	**30**
Maximum Value	**82**
Min Value	**50**
Average value	**67,53**

Table 4.2. illustrates that based on the results of *the posttest* tested on 30 students it was found that the highest and lowest grades in the class were 82 and 50 respectively with an average class score

JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

of 67.53. Visually, the results of tests of students' mathematical problem solving abilities before and after learning can be seen in the following graph:



Graph 4.1. Result of math problem solving ability

Diagram 4.1. shows that prior to being educated with the Relevant Instructing And Learning (CTL) learning model the normal worth of understudies was 56.86. In any case, in the wake of being educated with the Context oriented Educating And Learning (CTL) learning model the normal worth of understudies experienced huge improvement to 67.53 . This increment happened in light of the fact that the CTL learning model made it simpler for understudies to comprehend the topic conveyed by the educator during the growing experience, where understudies were given an apperception or portrayal of the illustration and understudies were offered the chance to pass their thoughts concurring on to their capacities so understudies turned out to be more valiant in offering viewpoints/thoughts before the class.Likewise, understudies can likewise cooperate in gatherings to track down arrangements or tackle issues in the LKS as per the moves toward taking care of the issue, which will permit understudies to associate with their companions and make understudies more dynamic, and understudies are additionally directed to connecting the topic with certifiable circumstances of understudies so understudies become more propelled.

The above is as per Utari's viewpoint in Mukhni Armiati which uncovers that the Logical Educating And Picking up learning model propels understudies to figure out how to comprehend the issues given and is effectively engaged with offering viewpoints, getting clarification on some things and clearing up methodologies for tackling numerical issues for their companions, as well as giving open doors to

JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

understudies to hear, talk about, and compose recipes or moves toward take care of mathematical questions.

4.2 Calculation of Questionnaire Data

From the understudy reaction poll information that was dispersed by the scientist in the trial class after the educational experience finished, the accompanying outcomes were gotten:

Poll information in the trial class showed that the people who addressed firmly concurred (SS) were 8 individuals, concurred (S) were 16 individuals, deviated (TS) were 4 individuals, and emphatically dissented (STS) were 2 individuals. In view of these information, 24 understudies (8 + 16) or 80% of understudies addressed concur (S) and unequivocally concurred (SS). From the information acquired, the level of poll answers with respect to understudy reactions to the Logical Educating And Learning (CTL) learning model for numerical critical thinking skills should be visible in the table underneath:

Table 4.3. Table of Percentage of Student Response Questionnaire Answers

Questionnaire Answers	Questionnaire Percentage (%)
Strongly agree	26.7%
Agree	53.3%
Don't agree	13.3%
Strongly Disagree	6.7%

In view of the poll answer rate table above, it very well may be seen that understudy reactions to the Relevant Educating and Learning (CTL) learning model are in great rules with a level of 80%.

4.3 Discussion of Research Results

This exploration was led at SMAS PAB 5 Klumpang. This study utilizes the Relevant Educating And Learning (CTL) learning model which goes through 7 phases, specifically: Constructivism , Request , Addressing , Learning People group , Demonstrating , Reflection and Genuine Appraisal (Credible Evaluation). Prior to leading the examination, the scientist gave a pretest first in the trial class. This was finished to decide the underlying skill of understudies prior to being given treatment.

pretest examination , the computation results got the typical worth ($\bar{X}$) for the exploratory class was 56.86 with the most elevated score being 74 and the least score being 40 . So from the pretest investigation of the exploratory class, it was gotten L 0 = 0.114 while L t = 0.1610. This shows that L 0 <

JURNAL EDUSCIENCE (JES)
p-ISSN : 2303 - 355X | e-ISSN : 2685 - 2217
PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

L t is gotten in the ordinariness test. In light of the aftereffects of the posttest that has been done, the normal worth of the exploratory class is 67.53 with the most noteworthy worth being 82 and the least worth being 50. So from the last information investigation (posttest) of the trial class, L0 = 0.147 while Lt = 0.1610. This shows that L 0 < L t is acquired in the ordinariness test. The speculation utilized is a straightforward direct relapse test got r table = 1.70, while in light of the estimations that have been completed acquired r count = 6.818. From the estimations it very well may be seen that r count > r table (6.818 > 1.70) then the proposed speculation is acknowledged.

From the perceptions got from a spectator, it would seem during the educational experience of math utilizing the Context oriented Instructing And Learning (CTL) learning model at the first gathering the educator did the illustration with a rate consequence of 61.3% which was in the less classification, went on in the second gathering. the educator does learning with a rate consequence of 70.6% which is in the Enough class, at long last at the third gathering the instructor completes learning with a rate consequence of 80% which is in the great classification .

Poll information showed that the individuals who addressed emphatically concurred (SS) were 8 individuals with a level of 26.7%, concurred (S) were 16 individuals with a level of 53.3%, deviated (TS) were 4 individuals with a level of 13, 3%, and unequivocally dissent (STS) upwards of 2 individuals with a level of 6.7%. In view of these information, 24 understudies (8 + 16) or 80% of understudies addressed concur (S) and firmly concurred (SS). So it very well may be reasoned that understudy reactions to the Relevant Educating and Learning (CTL) learning model are in great rules with a level of 80%.

CONCLUSION

In view of the aftereffects of information examination and exploration discoveries acquired in the field, the specialists got ends that should be visible from the computation consequences of the relapse speculation test where t table = 1.70 is acquired, while in light of the estimations that have been done, t count = 6.81. From the computations it very well may be seen that t count > t table (6.818 > 1.70) then the proposed speculation is acknowledged. Subsequently one might say that the Context oriented Educating And Learning (CTL) learning model affects the numerical critical abilities to think of class XI SMAS PAB 5 KLumpang in the 2022/2023 scholarly year.

REFERENCES

Anisa, W. N. (2015) 'Peningkatan kemampuan pemecahan masalah matematik melalui pembelajaran pendidikan matematika realistik untuk peserta didik SMP Negeri di Kabupaten Garut', *Jurnal Penelitian Pendidikan dan Pengajaran Matematika*, 1(1), pp. 73–82.

Buulolo, F., Giawa, A. and Panjaitan, J. (2022) 'Pengaruh Model Pembelajaran Contextual Teaching and Learning (Ctl) Terhadap Kemampuan Pemecahan Masalah Fisika Siswa Kelas Xi Smk Swasta Gajah Mada Mandiri Medan', *Jurnal Penelitian Fisikawan*, 5(2), pp. 11–19.

Hadis, H. (2022) 'PENGARUH MODEL PEMBELAJARAN CONTEXTUAL TEACHING AND LEARNING (CTL) TERHADAP HASIL BELAJAR SISWA MTs MUHAMMADIYAH KALOSI KAB.ENREKANG', *Jurnal Kependidikan Media*, 11(1), pp. 39–48. doi: 10.26618/jkm.v11i1.8001.

Harahap, H. . (2017) 'PENERAPAN CONTEXTUAL TEACHING AND LEARNING UNTUK MENINGKATKAN KEMAMPUAN KONEKSI MATEMATIKA SISWA o Title', *Jurnal MATEMATICS PAEDAGOGIC*, 1(2), pp. 152–161.

Harahap, RD. (2018). Kepemimpinan Kepala Sekolah dalam meningkatkan Motivasi Mengajar Guru di SMP N 2 Sigambal. Jurnal Eduscience. DOI: https://doi.org/10.36987/jes.v5i1.892

Hasudungan, A. N. (2022) 'Pembelajaran Contextual Teaching Learning (CTL) Pada Masa Pandemi COVID-19: Sebuah Tinjauan', *Jurnal DinamikA*, 3(2), pp. 112–126. doi: 10.18326/dinamika.v3i2.112-126.

Masniari, Tini Yunarti, R. A. (2014) 'Pengaruh Pendekatan Kontekstual Terhadap Kemampuan Pemecahan Masalah Matematis Siswa', *Jurnal Pendidikan Matematika Universitas Lampung*, 2(7), pp. 1–7.

Muslihah, N. N. and Suryaningrat, E. F. (2021) 'Model Pembelajaran Contextual Teaching and Learning terhadap Kemampuan Pemecahan Masalah Matematis', *Plusminus: Jurnal Pendidikan Matematika*, 1(3), pp. 553–564. doi: 10.31980/plusminus.v1i3.1445.

Ratnasari, S. and Nasrullah, A. (2022) 'Meningkatkan Kemampuan Berpikir Kreatif dan Kemandirian Belajar Siswa SMA dengan Model Pembelajaran Contextual Teaching and Learning (CTL) Pada Materi Peluang', *Jurnal Pembelajaran Matematika Inovatif*, 5(6), pp. 1675–1688. doi: 10.22460/jpmi.v5i6.1675-1688.

Riwayani, S., Harahap, RD. (2022). Does Blended Learning Improve Student's Learning dependence during the Covid-19 Pandemic? Evidence from a Labuhanbatu University, North Sumatera. : Jurnal Kependidikan. 8 (1), DOI: https://doi.org/10.33394/jk.v8i1.4509

Saputra, A., Harahap, RD. (2022). An Analysis of Student Learning Challenges in Elementary School Science Subject. Jurnal Kependidikan. 8 (1), DOI: https://doi.org/10.33394/jk.v8i1.4508

Sugiantara, E. (2014) 'Pengaruh Strategi Pemecahan Masalah Berbasis Teori Polya Terhadap Hasil Belajar Matematika Siswa Kelas V, PGSD', *Jurnal Mimbar PGSD Universitas Pendidikan Ganesha*, 2(1).

Uno, H. B. (2014) *Teori Motivasi dan Pengukurannya: Analisis di Bidang Pendidikan*. Jakarta: PT Bumi Aksara.