
Systematic Literature Review: Mathematical Communication Skills and Self Confidence of Students in Think Talk Write Learning

Ridho Widiwaksono^{a,*}

^a. Universitas Negeri Semarang, Kampus Sekaran Gunungpati, Kota Semarang 50229, Indonesia

* Alamat Surel: ridhowidi029@students.unnes.ac.id

Abstract

Learning mathematics in the 21st century requires students to possess strong mathematical communication skills. To improve mathematical communication skills, self-confidence must always be grown, one of which is by applying Think Talk Write (TTW) learning in mathematics learning. The intention of this study was to describe the implementation of TTW learning on the development of students' mathematical communication skills and self-confidence. The method employed in this study is a systematic literature review (SLR). Data collection was executed by reviewing articles related to TTW learning on students' mathematical communication skills and self-confidence in the period 2018 – 2022. There were 15 national or international articles obtained from the Google Scholar database, UNNES Repository, DOAJ, and ResearchGate. The results of the study show that learning TTW can effectively help students achieve classical mastery, improve students' mathematical communication skills in written and oral communication skills, improve students' mathematical communication skills on math topics, and motivate students to have high self-confidence .

Keywords:

Mathematical Communication Skills, Self-confidence, Think Talk Write.

© 2025 Universitas Negeri Semarang

1. Introduction

Mathematics is a science that must be studied at all levels of education. Strong and clear structures and interrelationships between mathematical concepts can train one's way of thinking to develop better (Alfania, 2020). One's way of thinking can be trained through activeness in building new knowledge from experience and knowledge that has been previously obtained. In addition, mathematics also has an important role in advancing human thinking in the face of rapid technological developments (Pantow et al., 2020). In the 21st century, everyone must be able to communicate effectively, as well as think critically, systematically, and creatively. Such an attitude can be developed by studying mathematics. Therefore, learning mathematics needs to be adapted to face learning in the 21st century.

To facilitate learning in the 21st century, mathematics learning activities must refer to the 4 characteristics of 21st century learning, namely communication, collaboration, critical thinking and problem solving, creativity and innovation (Zubaidah, 2016). The term that is known in applying the 4 learning characteristics is called 4C. (1) Communication means that when learning takes place there is communication or feedback between the teacher and students. This can be done by giving students the chance to share their views and ideas through their own experiences. (2) Collaboration, namely the situation created by the teacher encourages students to work together in groups

with full responsibility. (3) Critical thinking and problem solving during the learning process can encourage students to think critically in solving problems in everyday life. (4) Creativity and innovation is the creation of conditions for students to be creative and innovative in learning so that students do not only depend on the teacher. The role of the teacher in this case is only as a facilitator who accommodates all the results of the implementation that has been carried out.

Mathematical communication skills are one of the mathematical competencies required by students. Mathematical communication skills is students' capacity to articulate mathematical concepts to others in writing and vocally (Triana & Rahmi, 2021). Good communication skills will also provide good learning outcomes. This is in accordance with the statement (Iriyani, 2018) which states that students who can effectively articulate their thoughts are more likely to understand the material being studied and be able to solve problems that are related to it. Good student communication skills not only have a good impact on the students themselves but also have a good impact on the teacher. This happened because of the students' communication skills, the teacher could observe which students had mastered the material and which had not really mastered the material being taught. This indicates that students have to possess mathematical communication skills as a way to learn mathematics.

Mathematical communication skills possessed by students in Indonesia vary greatly based on the level of ability that each person possesses. However, most of the students' mathematical communication skills in Indonesia are still in the low category. The mathematical communication ability of the fifth grade students of SD in Wergu Kulon is low due to the lack of students' ability to connect pictures into mathematical ideas, explain/describe mathematical ideas into pictures, hold mathematical discussions/writes, make mathematical questions that are appropriate to the problem, and make mathematical conclusions (Noviarny et al., 2018). The attainment of low communication skills was also found in one of the SMP in Kebonagung where most students struggled with writing, explaining, and presenting mathematical ideas in writing when given word problems (Iriyani, 2018). Then the mathematical communication skills of class X SMA Jakarta students also showed similar results which were still relatively low, as a result of not being able to understand the problem properly so that students did not understand the steps to solving the problem (Radiusman & Simanjuntak, 2020).

To improve students' mathematical communication skills, teachers must choose the right approaches, models, methods, and learning media. Like the application of the Think Talk Write (TTW) learning model to 4th grade students at SDN Loyodong 2, when juxtaposed to the Think Pair Share (TPS) model, TTW learning is more effective at improving students' mathematical communication skills (Murwatiningsih et al., 2019). Likewise, the application of the problem card-based TTW learning model in class VII students of SMPN 1 Randudongkal is effective for mathematical communication skills rather than expository learning (Amidah, 2018). Furthermore, TTW learning is also effective for students in class XI E-4 at SMAN 5 Malang because it can improve students' classical mastery (A. R. Pratiwi & Qohar, 2020). Seeing this, it is necessary to carry out further studies regarding mathematical communication skills in TTW learning.

Besides depending on the understanding of mathematical concepts, mathematical communication skills are also influenced by several psychological factors, one of which is student self-confidence. Good self-confidence will make students more optimal in actualizing their potential. This is in line with the application of fun card-assisted TTW

learning at SMA Negeri 12 Semarang where the more interesting the learning, the higher the student's self-confidence in learning so that student activity will increase and students become more enthusiastic in solving math problems (Rofikoh, 2018). Likewise students who receive the TTW learning model with the RME approach can also improve students' mathematical communication skills and self-confidence (K. Pratiwi, 2020).

The demands of learning characters in the 21st century have an influence on learning mathematics. Mathematics learning must be based on the achievement of students' high-level abilities while still considering the psychological aspects possessed by students. Based on this background, this study aims to describe the deployment of TTW learning which is detailed (1) to describe the objectives, types, and research designs used; (2) to describe the selected learning media; (3) to describe research trends in 2018-2022 related to the TTW learning model on students' mathematical communication skills and self-confidence.

2. Method

This study uses the Systematic Literature Review (SLR) method. This study aims to identify, analyze, and synthesize previous studies related to the topic to be studied. Zawacki-richter et al (2020) state that the steps for carrying out an SLR are as follows.

2.1. Develop a Research Question (RQ)

The research questions used in this study are based on the topics that have been raised previously. RQ in this study includes:

- 2.1.1. (RQ1) *What are objectives, types, and research design used in article about TTW learning on students' mathematical communication skills and self-confidence from 2018-2022?*
- 2.1.2. (RQ2) *What learning media have been selected in the article regarding TTW learning on students' mathematical communication skills and self-confidence from 2018-2022?*
- 2.1.3. (RQ3) *What are the trend of TTW learning research on students' mathematical communication skills and self-confidence in 2018-2022?*

2.2. Establish inclusion and exclusion criteria

The aforementioned are the inclusion and exclusion criteria used in this study.

Table 2. 1 Iclusion and Exclusion Criteria

Inclusion	Exclusion
National or worldwide publications relevant to TTW learning to improve students' mathematical communication skills and self-confidence.	National or worldwide publications that are not relevant to TTW learning to improve students' mathematical communication skills and self-confidence.
National or worldwide publications in accordance with the title and research topic.	National or worldwide publications that do not match the title and research topic.

Articles published in 2018-2022.	Articles published outside the specified time period.
The language of study is either Indonesian or English.	The language employed is not Indonesian or English.

2.3. *Develop a search strategy*

The search strategy in this research is to look for research that is relevant to the chosen topic in journals, seminars, or theses. The databases used in this research include Google Scholar, UNNES Repository, DOAJ, and ResearchGate. The research search was carried out with the keywords kemampuan komunikasi matematis, rasa percaya diri, mathematical communication skills, self-confidence, and Think Talk Write.

2.4. *Study selection process*

In the process of selecting studies, articles or journals, as well as theses that have been searched using databases, they are read one by one and the core of the research is sought and matched with the theme or topic being discussed.

2.5. *Conduct Quality Assessment (QA)*

Data obtained from previous studies were evaluated according to the following research criteria.

2.5.1. (QA1) *Was the article published in 2018-2022?*

2.5.2. (QA2) *Does the article state the research objectives or the type of research or research design used?*

2.5.3. (QA3) *Does the article write down the learning media used?*

2.6. *Synthesize the data found*

After conducting QA, the next step is to synthesize the data discovered. The data for this study was acquired in the form of primary data, which was collected through interviews, observations, surveys, or according to needs.

3. **Results and Discussions**

Mathematical communication skills is the ability of students to share ideas and clarify an understanding that aims to make these ideas become objects of reflection, perfect, clear, and accurate. According to (Ismayanti & Sofyan, 2021), indicators of mathematical communication skills are (1) transforming real objects, pictures, and diagrams into mathematical ideas; (2) verbally or in writing conveying ideas, situations, and mathematical relationships using real objects, pictures, graphs, and algebra; and (3) expressing everyday activities in mathematical language and symbols.

Mathematical communication skills will always go hand in hand with psychological factors, one of which is self-confidence. Confidence is a personal characteristic of a person in which there is confidence in one's own ability to develop and process oneself to realize a desired target (Rofikoh, 2018). Confidence is the most important factor in determining students' willingness to participate in class discussion activities. High self-confidence will make students communicate more in class so that this will make it easier to achieve indicators of mathematical communication skills.

Mathematical communication skills and students' self-confidence can be wrapped in learning models that are in line with these skills such as TTW. TTW learning is learning that encourages students to read, think, speak, and then write down a certain topic so that it can facilitate students in improving their mathematical communication skills and self-confidence.

Based on the study selection process, obtained 15 articles that are relevant to the keywords used. Next, the researcher examined articles that were relevant to TTW learning on students' mathematical communication skills and self-confidence. The research data contained in this article are documented as shown in table 2.

Table 3. 1 Research Results Related to The Implementation of TTW Learning to Improve Students' Mathematical Communication Skills and Self Confidence

Source	Author, Year	Journal / Proceedings	Research Result
UNNES Repository	(Iriyani, 2018)	UNNES Repository	The applied TTW learning was able to achieve classical completeness, namely 90.625%. In TTW learning, self-confidence influences students' mathematical communication skills. Where students who have high self-confidence will also have high mathematical communication skills.
UNNES Repository	(Rofikoh, 2018)	UNNES Repository	Students that obtain TTW learning have mathematical communication skills that satisfy the learning completeness criterion. The mathematics communication skills of students who received TTW learning were better than those of students who received PBL learning models. Students' self-confidence influences their mathematics communication skills as well.
UNNES Repository	(Amidah, 2018)	UNNES Repository	Students' mathematical communication skills acquire classical mastery while using the TTW learning model, and students' self-confidence is higher when using the TTW learning model than when using the expository model.

UNNES Repository	(K. Pratiwi, 2020)	UNNES Repository	Learning mathematics in the Think Talk Write learning strategy with the Realistic Mathematics Education approach has an advantageous effect on students' communication skills and self-confidence.
Google Scholar	(Triana & Rahmi, 2021)	Juring (Journal for Research in Mathematics Learning)	There is harmony between students' mathematical communication skills and students' self-confidence, students with high self-confidence have higher mathematical communication skills than students with medium and low self-confidence, and students with medium self-confidence have higher mathematical communication skills than students with self-confidence low.
Directory of Open Access Journals	(Pantow et al., 2020)	JOHME: Journal of Holistic Mathematics Education	The application of the Think-Talk-Write model can improve students' mathematical communication skills in written and oral communication skills.
Directory of Open Access Journals	(Murwatiningsih et al., 2019)	Satya Widya	TTW learning is more effective for improving students' mathematical communication skills than TPS because TTW provides more opportunities for students to convey their ideas with higher-order thinking skills and provides opportunities for students to convey results in writing and vocally.
Directory of Open Access Journals	(A. R. Pratiwi & Qohar, 2020)	Jurnal Pendidikan Matematika	TTW learning assisted by LKS is effective for improving the mathematical communication skills of class XI E-4 students of SMAN 5 Malang.

Directory of Open Access Journals	(Radiusman & Simanjuntak, 2020)	JOHME: Journal of Holistic Mathematics Education	TTW type cooperative learning applied in class X IPS 4 SMAN 50 Jakarta gave significant results which were marked by increased written communication skills. This is because students are able to exchange ideas in solving mathematical problems with the topic of geometry.
Google Scholar	(Susilawati et al., 2022)	Prosiding Diskusi Panel Nasional Pendidikan Matematika	Cooperative learning type Think Talk Write (TTW) is able to improve students' mathematical communication skills in written and oral communication skills.
UNNES Repository	(Baharudin, 2020)	UNNES Repository	The application of the Learning Cycle 5E learning model using Augmented Reality Assisted Worksheets produces an average mathematical communication skills that is better than PBL learning.
Google Scholar	(Pradani, 2020)	MATH LOCUS: Jurnal Riset dan Inovasi Pendidikan Matematika	The application of the LKS-assisted TTW learning model is effective in improving the mathematical communication skills of class VII students of SMPN 3 Purworejo.
Google Scholar	(Noviarny et al., 2018)	ANARGYA: Jurnal Ilmiah Pendidikan Matematika	TTW learning assisted by Monopoly Mathematics (Monomat) media is proven to be able to improve students' mathematical communication skills. Students are able to think, communicate, and write which leads to developing mathematical ideas or ideas so that students' mathematical communication skills can develop using the Think Talk Write model.
Google Scholar	(K. Pratiwi & Asikin, 2021)	PRISMA, Prosiding Seminar	The application of the Think Talk Write learning strategy with the Realistic Mathematics

		Nasional Matematika UNNES	Education approach is effective in improving students' mathematical communication skills and self-confidence.
ResearchGate	(Afrianti & Qohar, 2020)	JIPM (Jurnal Ilmiah Pendidikan Matematika)	Think Talk Write (TTW) learning method can improve students' mathematical communication skills on geometry materials through offering material augmentation in the form of written summaries as material augmentation at the conclusion of learning.

3.1. (RQ1) What are the objectives, types, and research designs used in articles about TTW learning on students' mathematical communication skills and self-confidence from 2018-2022?

Figure 3. 1 below shows that there are differences in research focus in the 15 articles that have been reviewed. There are three study areas discovered from articles on TTW learning on students' mathematical communication skills and self-confidence published in 2018-2022. The focus of research to find out the effectiveness of the application of TTW on students' mathematical communication skills shows a percentage of 60%. It can be concluded that research in 2018-2022 regarding TTW learning on students' mathematical communication skills and self-confidence tends to focus on the effectiveness of applying the TTW learning model to students' mathematical communication skills.

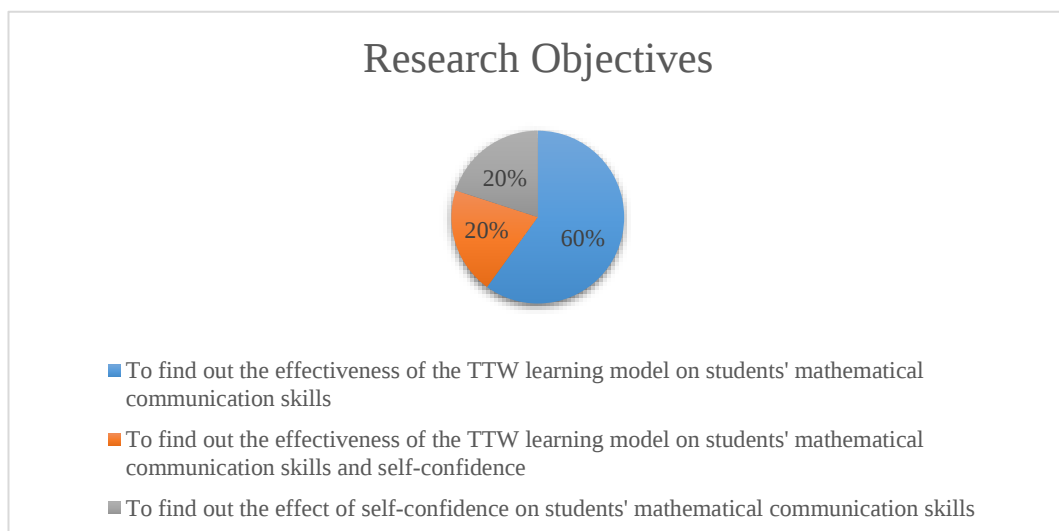


Figure 3. 1 Research Objectives.

The focus of research on the effectiveness of the TTW learning model on students' mathematical communication skills and self-confidence and the focus of research

on the effect of self-confidence on students' mathematical communication skills shows a percentage of 20%, including the focus of further research which tends to be used after the research focus on the effectiveness of applying the TTW learning model on students' mathematical communication skills. These research focus trends can be further developed for further research and adapted to the demands of the 21st century.

Figure 3. 2 below shows that there are 4 types of research from the 15 articles that have been reviewed. Classroom action research is the most widely used type of research in TTW learning research on students' mathematical communication skills and self-confidence with a percentage of 40%. In addition, research in 2018-2022 tends to also be carried out with quantitative research.

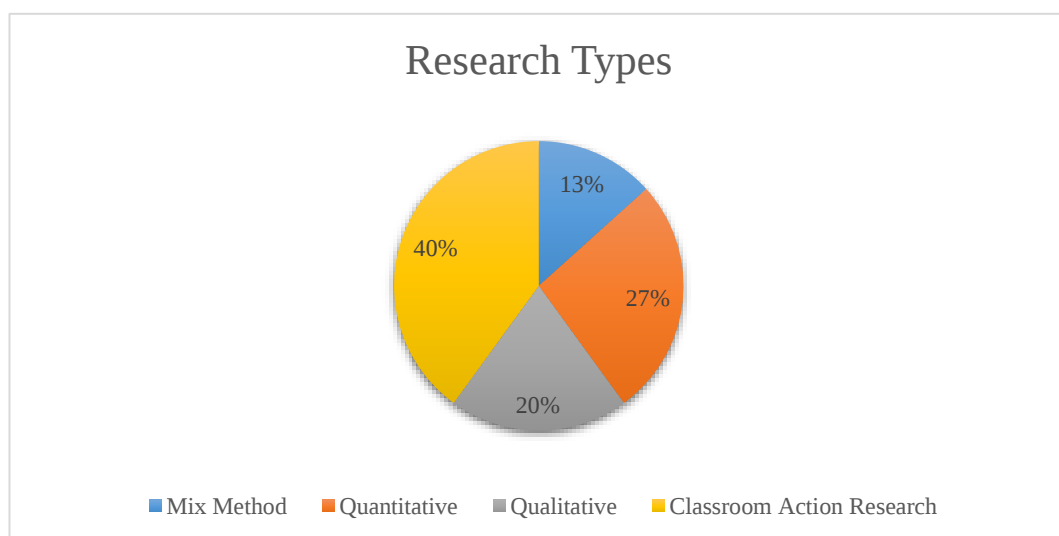


Figure 3. 2 Research Types.

Furthermore, **Figure 3. 3** below, it illustrates that the research design or model used in research on TTW learning has affected students' mathematical communication skills and self-confidence in 2018-2022. From the picture it can be seen that research on TTW learning on mathematical communication skills and students' self-confidence tends to use experimental designs. In addition, the Posttest-Only Control design was also widely used in this study.

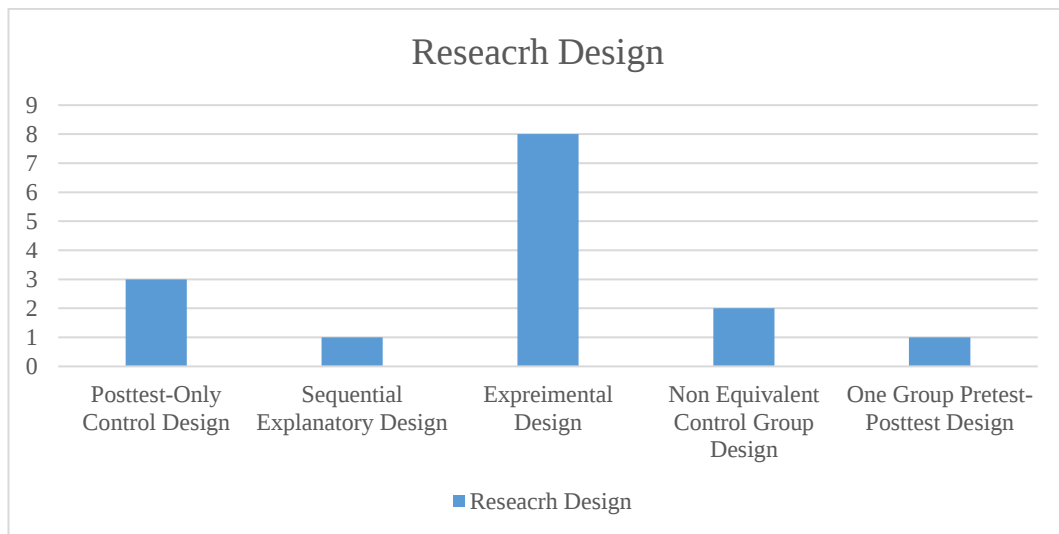


Figure 3. 3 Research Design.

- 3.2. (RQ2) *What learning media were selected in the article regarding TTW learning on students' mathematical communication skills and self-confidence from 2018-2022?*

Figure 4 below illustrates some of the learning media used in research on TTW learning on students' mathematical communication skills and self-confidence from 2018-2022. It can be seen in the picture that the Student Worksheet media dominates TTW learning with a percentage of 73.3%. Meanwhile, other media such as Augmented Reality-assisted Student Worksheet, fun cards, problem cards, and monomat each have the same percentage of 6.6%.

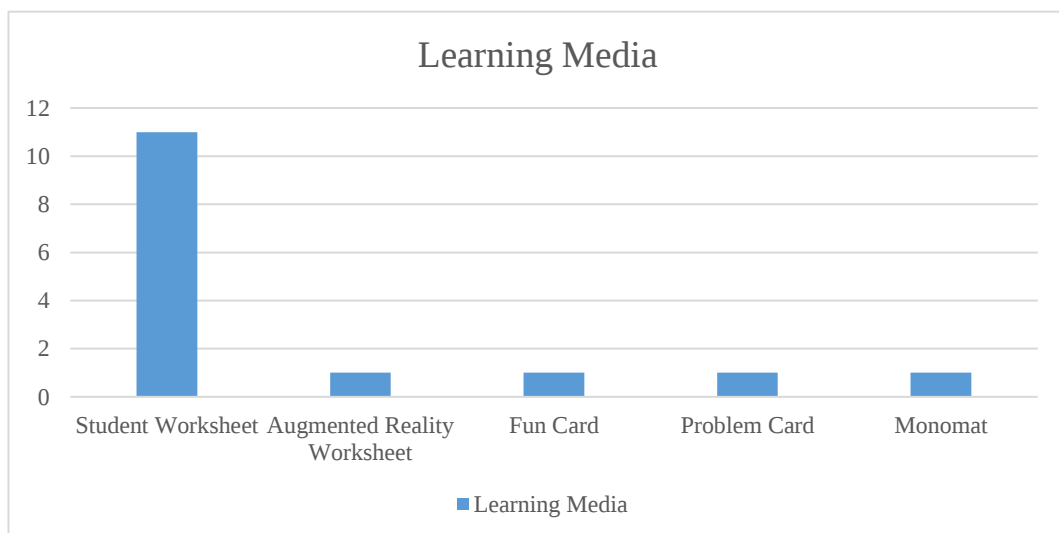


Figure 3. 4 Learning Media.

- 3.3. (RQ3) *What are the trends in TTW learning research on students' mathematical communication skills and self-confidence in 2018-2022?*

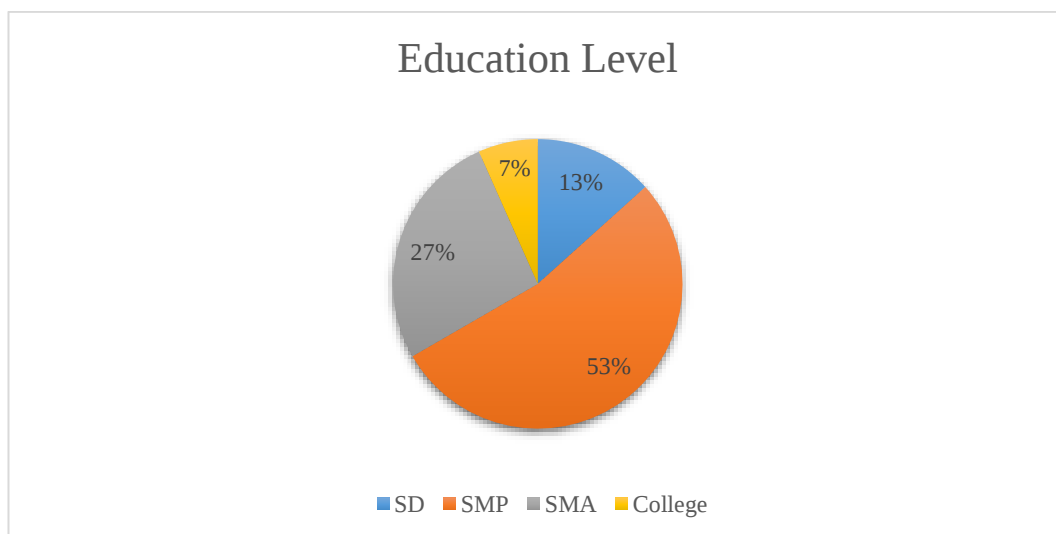


Figure 3. 5 Education Level

Figure 3. 5 shows the research trend of TTW learning on students' mathematical communication skills and self-confidence in 2018-2022. Research conducted at the SMP level showed a percentage of 53%. It can be concluded that research on TTW learning on mathematical communication skills and self-confidence tends to be conducted on SMP students.

Based on the 15 articles that have been reviewed, it shows that the TTW learning model has an advantageous connection with students' mathematical communication skills and self-confidence (K. Pratiwi & Asikin, 2021). TTW learning is proven to be able to achieve classical mastery (Amidah, 2018; Baharudin, 2020; K. Pratiwi, 2020), improving students' mathematical communication skills in written and oral communication skills (Murwatiningsih et al., 2019; Pantow et al., 2020; Susilawati et al. al., 2022), improve students' mathematical written communication skills on the topic of geometry (Afrianti & Qohar, 2020; Amidah, 2018; Radiusman & Simanjuntak, 2020), as well as improve students' mastery of algebraic function material (Pradani, 2020; A. R. Pratiwi & Qohar, 2020). In addition, in TTW Learning, self-confidence also influences students' mathematical communication skills. Where students who have high self-confidence will also have high mathematical communication skills (Iriyani, 2018; Rofikoh, 2018; Triana & Rahmi, 2021).

The application of TTW learning produces better students' mathematical communication skills than PBL learning (Baharudin, 2020; Rofikoh, 2018). Students' mathematical communication skills in the Think Talk Write learning strategy with the Realistic Mathematics Education approach are better than students' mathematical communication abilities in Discovery Learning learning (K. Pratiwi, 2020). TTW learning is more effective for improving students' mathematical communication skills than TPS because TTW provides more opportunities for students to convey their ideas with higher-order thinking skills and enables students to articulate their results in writing and vocally (Murwatiningsih et al., 2019). The application of TTW learning is also closely related to the use of media. TTW learning with the help of media can increase students' self-confidence and interest in learning so that they can increase students'

activeness and mathematical communication skills (Baharudin, 2020; Noviarney, 2018; Rofikoh, 2018).

4. Conclusions

Based on the results and discussion that has been described above, it can be concluded that. First, research in 2018-2022 on TTW learning on students' mathematical communication skills and self-confidence tends to focus on the effectiveness of applying the TTW learning model on students' mathematical communication skills, while the research focus is on the effectiveness of the TTW learning model on students' mathematical communication abilities and self-confidence and the focus of research to find out the effect of self-confidence on students' mathematical communication skills including the focus of further research which can be an alternate study area that can be explored. Then the next trend is the use of classroom action research types, as well as the tendency to choose experimental research designs. Second, research in 2018-2022 regarding TTW learning on mathematical communication skills and students' self-confidence tends to use Student Worksheet learning media. Third, research in 2018-2022 regarding TTW learning on students' mathematical communication skills and self-confidence tends to be conducted at SMP level students.

Another conclusion that can be obtained is that TTW learning is a learning model that always invites students to be active and diligent in communicating. This is very effective because it has an advantageous impact on students when applied. The application of TTW learning can help students achieve classical mastery, improve students' mathematical communication skills in written and oral communication skills, improve students' mathematical communication skills on math topics, and motivate students to have high self-confidence.

References

- Afrianti, R. E. N., & Qohar, A. (2020). Improving Student's Mathematical Communication Ability through Think Talk Write Learning Model on Geometry Materials. *JIPM (Jurnal Ilmiah Pendidikan Matematika)*, 8(2), 65-75. <https://doi.org/10.25273/jipm.v8i2.6184>
- Alfania, A. (2020). Penerapan Model Think Talk Write Berbasis Multimedia Terhadap Kemampuan Pemahaman Konsep Dan Komunikasi Matematis. *Jurnal Derivat: Jurnal Matematika Dan Pendidikan Matematika*, 6(2), 116-123. <https://doi.org/10.31316/j.derivat.v6i2.502>
- Amidah, S. (2018). Analisis Kemampuan Komunikasi Matematis dan Rasa Percaya Diri Siswa Pada Model RTTW Berbantuan Kartu Masalah Materi Geometri. (*Undergraduate Thesis*). Universitas Negeri Semarang. Semarang.
- Baharudin, D. Y. (2020). Kemampuan Komunikasi Matematik Siswa Melalui Model Learning Cycle 5E Menggunakan LKS Berbantuan Augmented Reality. (*Undergraduate Thesis*). Universitas Negeri Semarang. Semarang.
- Iriyani, D. (2018). Kemampuan Komunikasi Matematis Siswa Smp Melalui Model TTW

- Berbantuan Scaffolding Berdasarkan Rasa Percaya Diri Siswa. (*Undergraduate Thesis*). Universitas Negeri Semarang. Semarang.
- Ismayanti, S., & Sofyan, D. (2021). Kemampuan Komunikasi Matematis Siswa SMP Kelas VIII di Kampung Cigulawing. *Plusminus: Jurnal Pendidikan Matematika*, 1(1), 183–196. <https://doi.org/10.31980/plusminus.v1i1.1036>
- Murwatiningsih, E., Wahyudi, W., & Setiawan, Y. (2019). Efektivitas Model Think Talk Write Dan Think Pair Share Terhadap Peningkatan Kemampuan Komunikasi Matematis Siswa Kelas 4 Sd. *Satya Widya*, 35(1), 42–53. <https://doi.org/10.24246/j.sw.2019.v35.i1.p42-53>
- Noviarny, D. A., Murtono, M., & Ulya, H. (2018). Model Think Talk Write Berbantuan Media Monomat Meningkatkan Kemampuan Komunikasi Matematika Siswa Sekolah Dasar. *ANARGYA: Jurnal Ilmiah Pendidikan Matematika*, 1(1), 21–28. <https://doi.org/10.24176/anargya.v1i1.2254>
- Pantow, E. Y., Sitinjak, D. S., & Dirgantoro, K. P. S. (2020). Penerapan Metode Think-Talk-Write Untuk Meningkatkan Kemampuan Komunikasi Matematis Siswa Kelas X Pada Topik Logaritma Di Sekolah Menengah Atas Kupang [the Application of the Think-Talk-Write Method To Improve the Mathematics Communication Skills of Grade. *JOHME: Journal of Holistic Mathematics Education*, 4(1), 113-126. <https://doi.org/10.19166/johme.v4i1.982>
- Pradani, A. P. (2020). Penerapan Strategi Think-Talk-Write (TTW) sebagai Upaya untuk Meningkatkan Kemampuan Komunikasi Matematis Siswa. *MATH LOCUS: Jurnal Riset Dan Inovasi Pendidikan Matematika*, 1(1), 20–27. <https://doi.org/10.31002/mathlocus.v1i1.919>
- Pratiwi, A. R., & Qohar, A. (2020). Pembelajaran Kooperatif Think Talk Write (TTW) Untuk Meningkatkan Komunikasi Matematis. *Jurnal Pendidikan Matematika*, 11(1), 99-109. <https://doi.org/10.36709/jpm.v11i1.9902>
- Pratiwi, K. (2020). Kemampuan Komunikasi Matematis Siswa Ditinjau Dari Self-Confidence Pada Strategi Pembelajaran Think Talk Write Dengan Pendekatan Realistic Mathematics Education. (*Undergraduate Thesis*). Universitas Negeri Semarang. Semarang.
- Pratiwi, K., & Asikin, M. (2021). Strategi Pembelajaran Think Talk Write Dengan Pendekatan Realistic Mathematics Education dalam Meningkatkan Kemampuan Komunikasi Matematis Dan Self-Confidence Siswa. *Prisma, Prosiding Seminar Nasional Matematika*, 4, 247–255.
- Radiusman, R., & Simanjuntak, M. (2020). Pengaruh Model Pembelajaran Ttw Terhadap Kemampuan Komunikasi Tertulis Dan Disposisi Matematis Siswa [the Effect of the Ttw Type Cooperative Learning Model on Written Communication Skills and Mathematical Disposition]. *JOHME: Journal of Holistic Mathematics Education*, 3(2), 164-179. <https://doi.org/10.19166/johme.v3i2.2392>
- Rofikoh, F. (2018). Kemampuan Komunikasi Matematis Siswa pada Pembelajaran TTW Berbantuan Fun Card Ditinjau dari Kepercayaan Diri Siswa. (*Undergraduate Thesis*). Universitas Negeri Semarang. Semarang.

- Susilawati, S., Rusmana, I. M. R. M., & Amdani, D. (2022). Upaya Meningkatkan Kemampuan Komunikasi Matematis Siswa Dengan Menggunakan Model Pembelajaran Kooperatif Tipe Think Talk Write (TTW). *Diskusi Panel Nasional Pendidikan Matematika*, 8.
- Triana, C. R., & Rahmi, D. (2021). Kemampuan Komunikasi Matematis Pada Materi Lingkaran: Analisis Deskriptif Berdasarkan Self Confidence Siswa SMP IT Insan Utama 2. *JURING (Journal for Research in Mathematics Learning)*, 4(1), 19-28. <https://doi.org/10.24014/juring.v4i1.10491>
- Zawacki-richter, O., Kerres, M., Bedenlier, S., Bond, M., & Buntins, K. (2020). *Systematic Reviews in Educational Research Methodology, Perspectives and Application*. <https://doi.org/https://doi.org/10.1007/978-3-658-27602-7>.
- Zubaidah, S. (2016). Keterampilan Abad Ke-21: Keterampilan Yang Diajarkan Melalui Pembelajaran. *Seminar Nasional Pendidikan Program Studi Pendidikan Biologi STKIP Persada*, 21(10), 1-17.