

## THE EFFECTIVENESS OF READING, MIND MAPPING, AND SHARING (RMS) IN TRIGONOMETRY

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### ABSTRACT

Penelitian ini bertujuan untuk mendeskripsikan efektivitas model pembelajaran RMS pada materi trigonometri. Metode yang digunakan adalah kuantitatif dengan desain one-shot case study. Subjek penelitian ini adalah siswa kelas X di SMAN 1 Silat Hulu. Instrumen penelitian terdiri dari tes dan non-tes. Instrumen non-tes meliputi lembar observasi dan angket, sedangkan instrumen tes berupa soal esai. Efektivitas model pembelajaran RMS dievaluasi berdasarkan tiga kategori: hasil belajar, respons siswa melalui angket, dan aktivitas belajar siswa yang diamati melalui lembar observasi. Hasil penelitian menunjukkan bahwa model pembelajaran RMS efektif digunakan dalam pembelajaran trigonometri, dengan ketuntasan hasil belajar siswa mencapai 100%, aktivitas siswa menunjukkan keaktifan lebih dari 100%, dan respons siswa terhadap model pembelajaran ini mencapai 100% positif. Diskusi penelitian menyoroti bahwa model pembelajaran RMS tidak hanya mampu meningkatkan hasil belajar tetapi juga meningkatkan keaktifan dan respons positif siswa. Implementasi model pembelajaran RMS direkomendasikan bagi para pendidik untuk diterapkan pada materi yang sesuai guna meningkatkan kualitas pembelajaran dan keterlibatan siswa.

*This study aims to describe the effectiveness of the RMS learning model on trigonometry material. The method used is quantitative with a one-shot case study design. The subjects of this research are the tenth-grade students at SMAN 1 Silat Hulu. The research instruments consist of tests and non-tests. The non-test instruments include observation sheets and questionnaires, while the test instrument is in the form of essay questions. The effectiveness of the RMS learning model is evaluated based on three categories: learning outcomes, student responses through questionnaires, and student learning activities observed through observation sheets. The results of the study indicate that the RMS learning model is effective in teaching trigonometry, with student learning mastery reaching 100%, student activity showing more than 100% engagement, and student responses to this learning model being 100% positive. The research discussion highlights that the RMS learning model not only improves learning outcomes but also enhances student engagement and positive responses. The implementation of the RMS learning model is recommended for educators to apply to appropriate materials to improve the quality of learning and student involvement.*

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**1. INTRODUCTION**

Mathematics is a compulsory subject at every level of education and plays an important role both in the world of education and in everyday life. At every level of education, it is important to teach mathematics to all students. This subject serves as a foundation for developing logical, analytical, systematic, and critical thinking skills. Moreover, mathematics also helps students develop the ability to communicate ideas through symbols or other media, which are essential skills in many aspects of life (Kepmendikbudristek, 2022). As stated by Panagdato, Barrameda, & Quintana (2024), "Mathematics equips students with basic skills necessary to solve problems in various life contexts."

Learning that attracts students' attention is learning whose components are in accordance with the needs of students while studying in class (Pribadi, 2011). One important component in learning is the learning model used. Therefore, the application of new innovations in learning models that comply with the curriculum provisions and rules is very necessary (Magumelar & Mustafa, 2021). The constructivism approach in learning gives students the freedom to build their own knowledge and understanding based on the learning model used, thus making learning more meaningful and relevant for students (Mustafa & Roesdiyanto, 2021). According to Tanjung et al. (2023), "The constructivism approach allows students to be more active and engaged in the learning process, which in turn enhances understanding and retention of material."

The learning model is a conceptual structure that illustrates systematic steps in organizing learning activities to achieve desired learning objectives (Octavia, 2020). Currently, the use of learning models often centers on teacher explanations, which can cause students to be passive. This condition does not fully support the achievement of students' optimal understanding. Therefore, it is very important to implement interesting and innovative learning models, such as the RMS learning model. This model has proven effective in increasing student engagement during learning and achieving positive learning outcomes (Muhlisin et al., 2016). "The RMS model provides a clear and systematic structure in the learning process, which helps students understand the material better" (Ningsih et al., 2022).

Previous research has extensively presented the results of applying the RMS learning model, which shows a positive influence of RMS on students' understanding of concepts. Muhlisin et al. (2016) found that RMS significantly improves higher-order comprehension skills and student academic achievement. Diani et al. (2018) and Kusuma et al. (2022) also reported that the RMS learning model successfully enhances student academic achievement. The implementation of student learning activities with the RMS model reached 76% with a good category (Nuragustiani, 2019). "The application of RMS has been

proven to increase student participation and engagement in learning, which has a positive impact on learning outcomes" (Aminah et al., 2023).

The advantages of RMS-based learning found in previous research include several aspects. First, the RMS learning syntax is easy to remember and implement, facilitating teachers and students in the learning process. Second, this approach is appealing because it facilitates thorough preparation in the learning process, which helps students be more prepared and enthusiastic about participating in lessons. Third, RMS contributes to organizing, recalling, comparing, and forming correlations between various subjects, thus enhancing students' interdisciplinary understanding. Fourth, this method supports the development of ideas through the creation of concept maps, both individually and collaboratively in groups, which helps students in organizing and integrating information. Fifth, the use of images, symbols, and colors in RMS provides additional appeal, making learning more engaging, enjoyable, and motivating for students to learn. Sixth, the material presented in concise and clear notes makes it easier for students to study and remember important information. Lastly, the learning process involving individual and group activities helps create meaning during the learning process and makes it easier for students to remember the material (Muhlisin et al., 2016). According to Jamal & Mustafa (2023), "The use of colors, symbols, and images in learning not only makes the learning process more interesting but also helps students remember and understand concepts more effectively."

The stages of RMS learning (Muhlisin, 2017, 2018) are:

**Table 1.** The Stages of RMS Learning

<b>The Stages of RMS</b>	<b>Descriptions</b>
First Stage: Reading	a. Students read about the topic or material being discussed. b. Students summarize the reading results.
Second Stage: Mind Mapping	a. The teacher forms groups. b. The teacher instructs the students to create group mind maps. c. Students discuss their individual understandings and create group mind maps.
Third Stage: Sharing	a. Each group presents the results of their group discussions. b. The teacher provides feedback or evaluation regarding the group discussion results presented by each group.

The effectiveness of learning can be measured through three main indicators: achievement of learning objectives, student activity in learning activities, and positive student responses. Achievement of learning objectives is considered successful if at least 85% of students achieve mastery in their learning outcomes (Trianto & Ibnu, 2014). Student activity is assessed by how actively they are involved in the learning process, with a minimum of 75% of students needing to show active and social involvement to be considered effective (Mulyasa, 2009). Additionally, positive student responses, which reflect behavioral changes and enthusiasm towards learning, are also an important indicator of successful learning (Susanto, 2013).

Pre-research results conducted in February 2023 at SMAN 1 Silat Hulu revealed that the current mathematics teaching methods are still conventional. The school implements the 2013 Curriculum with a scientific approach, but significant challenges exist, such as students struggling to answer stimulus questions and gather information due to a lack of reading habits before lessons (Rahim & Firdaus, 2023). This situation results in passive students, while the teacher's role becomes more dominant in the learning process. According to subject teachers, students' learning outcomes in trigonometry the previous year were low. Therefore, an innovative learning model is needed to stimulate student engagement and enhance their problem-solving abilities.

Trigonometry material often poses a challenge for high school students because it requires mastery of numerous formulas and the ability to apply them accurately (Gunadi, 2016). This challenge demands the implementation of an effective learning approach to help students better understand and apply trigonometric concepts. A learning model that can simplify this process and improve student comprehension would be highly beneficial (Hamzah et al., 2021).

This study aims to evaluate the effectiveness of the Reading, Mind Mapping, and Sharing (RMS) learning model in trigonometry material. The RMS model was chosen because of its ability to stimulate active student engagement, improve their problem-solving skills, and receive positive student responses (Muhlisin et al., 2016). By implementing the RMS model, it is expected that students will be more actively involved in the learning process and achieve better learning outcomes (Kusuma et al., 2022).

## 2. METHODS

This research uses a quantitative approach with a descriptive method and a one-shot case study research design. In this descriptive method, students are given the application of RMS learning, and at the end of the treatment, they are given a test and a questionnaire. The analysis method describes the collected data with the intention of analyzing it descriptively, by presenting the data as it is without intending to make general conclusions (generalization). (Sugiyono, 2013)

### 2.1. Research Subjects

The population is a group that becomes the focus of a researcher's attention, and from this group, the researcher can generalize the results of their study (Punaji, 2010). A census, on the other hand, includes all the characteristics of each individual within the population (Ruseffendi, 2005). In this study, the sample and population consist of 33 students from class X MIA at SMA Negeri 1 Silat Hulu.

### 2.2. Data Collection

In this study, two types of instruments were used: non-test instruments and test instruments. The non-test instruments involved the use of student response questionnaires and observation sheets to gather information about student responses and their activities, while the test instruments consisted of essay questions.

### 2.3. Data Analysis

Researchers analyzed student learning outcomes by assigning scores based on a predetermined scoring rubric. They then analyzed questionnaires constructed using a Likert scale with four levels and 18 statements, and they also analyzed observation sheets of student activities. This was followed by describing the analyzed results.

## 3. RESULTS AND DISCUSSION

### 3.1. Results

As explained in the introduction, effectiveness includes student learning outcomes, student learning activities, and student responses. Learning outcomes based on the test results given to 33 students of class X, based on the analysis of the descriptive test of students' trigonometry mathematics learning scores after the implementation of the RMS learning model are shown in Table 2, as follows:

**Table 2.** Descriptive Statistics of Student Learning Outcomes

Statistics	Score
Ideal Score	100
Average	79,73
Highest	90,00
Lowest	70,00
Score Range	20,00
Standard Deviation	6,13

From Table 2, it can be seen that students' learning outcomes tend to vary, as evidenced by a relatively large and dispersed standard deviation. Furthermore, to view the description of students' learning mastery, refer to Table 2 as follows:

**Table 3.** Description of RMS Learning Outcome Mastery

Score Interval	Category	Frequency	(%)
$x < 69$	Incomplete	0	0
$x > 70$	Complete	33	100
<b>Total</b>		<b>33</b>	<b>100</b>

Based on Table 3, it is known that all 33 (100%) of the 10th-grade students at SMA Negeri 1 Silat Hulu are declared "Complete" because these 33 students have achieved the passing grade (KKM) set at 70.

Student activities based on the observation results of student activities during the implementation of RMS in class X MIA on the student activity observation sheet.

**Table 4.** Observation Results of Student Activities

No	Aspect Observed	Score	(P)	Category
1.	Student attendance during learning	8	100	Very Good
2.	Students who participate in reading during the reading phase	7	88	Very Good
3.	Student activeness during learning	5	63	Good
4.	Cooperation among students in group discussion	7	88	Very Good
5.	Student orderliness during the learning process	7	88	Very Good
6.	Timely submission of group assignments	5	63	Good
7.	Students who provide feedback during other groups' presentations	5	63	Good
8.	Students who follow the teacher's directions	6	75	Good
9.	Students participate in drawing conclusions	5	63	Good
10.	Students attend the 1st and 2nd meetings well	7	88	Very Good

Based on Table 4, the observation results show that the students' activity during the application of the RMS learning model is rated as good and very good. It can be concluded that the students' learning participation reaches a 100% level of learning activity.

The response of students after the implementation of RMS in class X MIA, based on the results of a descriptive test analysis of the student questionnaires after the RMS learning model was applied, is shown in Table 5 as follows:

**Table 5.** Results of Descriptive Testing of Student Responses Based on Surveys

Criteria	Result	
	f	%
Very Positive (76 - 100)	10	30,3
Positive (51- 75)	22	66,7
Negative (26 - 50)	1	3,0
Very negative (0 - 25)	0	0,0
Total	33	100

Based on Table 5, the results from the questionnaire of 33 students after the implementation of the RMS learning model show that all 33 students gave positive responses, which is 100%. This indicates that the questionnaire results from the students after the implementation of the Reading, Mind Mapping, and Sharing (RMS) learning model are in the positive category.

### 3.2. Discussion

Based on the results of the descriptive test analysis previously explained, it can be concluded that the implementation of the RMS learning model has proven to be effective in teaching in Class X at SMAN 1 Silat Hulu. The students' learning outcomes after the implementation of the RMS learning model show very satisfying results. Out of the 33 students who participated in the learning, all of them achieved a classical completeness of 100%. This finding is in line with previous research by Muhlisin & Mujati (2019), which

stated that the RMS learning model is effective in improving students' learning outcomes. Their study showed a significant increase in students' average scores and the level of class completeness. "This improvement indicates that the RMS model has a significant positive impact on students' learning outcomes" (Muhlisin & Mujati, 2019). In the first meeting, the classical completeness level of the students reached 75%, and it increased to 95% in the second meeting after the implementation of the RMS model. "This shows that adapting innovative teaching methods can bring positive changes in students' academic achievements" (Muhlisin & Mujati, 2019). Furthermore, according to Widyaningsih & Yusuf (2019), "The RMS model has proven to significantly enhance students' conceptual understanding, as reflected in the increase in final test scores after participating in this learning model."

Observations of students' learning activities using observation sheets during the implementation of the RMS learning model showed very positive results, with 100% of students actively involved in the learning process. These findings are consistent with research by Marlina & Indriani (2020), which found a significant correlation between the application of the RMS learning model and students' learning engagement in the classroom. "The research results show that the implementation of RMS allows students to learn actively, increasing their participation and engagement in the learning process" (Marlina & Indriani, 2020). Furthermore, Marlina & Indriani (2020) emphasize that "students who are active in learning tend to have a better understanding and higher learning outcomes compared to passive students." In another study, Komarudin, Suherman, & Vidákovich (2024) also found that "students' learning activities increased significantly when using the RMS learning model, which encouraged them to be more engaged and participate in class discussions."

The students' response to the implementation of the RMS learning model was also very positive. Based on the distributed questionnaires, 100% of the 10th grade MIA students accepted and welcomed the RMS learning model. This finding is consistent with the research by Muttaqin et al. (2023), which shows that 77% of students responded positively to learning using the RMS model, with a good rating. "This data indicates that the RMS model is not only effective in improving learning outcomes and student activity but is also well-received by students, creating a pleasant and productive learning environment" (Muttaqin et al., 2023). They also noted that "the positive response from students to the applied teaching method indicates that this approach is not only efficient but also appreciated by the learners." Diani et al. (2018) found that "students felt more motivated and enthusiastic about attending lessons when the RMS learning model was applied, creating a more dynamic and interactive learning atmosphere."

#### **4. CONCLUSIONS**

Based on the analysis and data obtained, it can be concluded that the implementation of the RMS learning model in class X at SMAN 1 Silat Hulu has proven effective in improving student learning outcomes, learning activity, and positive responses to learning. This finding is consistent with previous research, which also demonstrates the effectiveness of the RMS learning model in an educational context. Therefore, the RMS learning model can

be recommended as one of the effective teaching strategies to enhance the quality of teaching and student learning outcomes at the secondary school level. The RMS learning model provides a holistic approach, focusing not only on learning outcomes but also on increasing student activity and engagement.

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