

Effectiveness of Wizer.me and MindMup assisted Remap-TPS in improving communication skills

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Abstract: Communication skills are important to support students in conveying information orally or in writing. This research aims to analyze the effectiveness of the Remap-TPS learning model assisted Wizer.me website and MindMup to improve students' communication skills at SMAN 8 Malang. Quasi-experimental research uses pretest-posttest control groups design was chosen as research design in this study. The research sample was sixty-one 11th grade students taken by simple random sampling. Data were obtained through essay test, questionnaires and observation. Data analysis uses analysis of covariance (ANCOVA) to confirm the data against the proposed hypothesis. The results showed that there was a significant effect of the remap-tps learning model assisted wizer.me and MindMup on communication skills with an increase of 54.83%. The results of the analysis can be concluded that the learning model applied is effective in improving students' communication skills. Thus, the Remap-TPS learning model assisted wizer.me website and MindMup application is recommended to develop students' 21st century skills.

Keywords: communication skills; MindMup; Remap-TPS; Wizer.me

Introduction

The 21st-century learning process is designed to improve students' skills. P21 (Partnership for 21st-century Learning) developed a 21st century learning framework that plans students to have knowledge, skills in technology, media and information, learning and innovation skills and life and career skills (Peña-Ayala, 2021; Sulistyaningsih & Rahmawati, 2019). This framework also explains the skills, knowledge, and expertise that must be mastered so that students can be successful in their life and work. The conclusion shows that 21st century education supports students to be experts in every field of skills, one of which is communication skills.

Communication skills are very important for every human being (Boyraz, 2022; Elio, 2016; Koç & Dundar, 2018; Kovac & Sirkovic, 2017; Sugito et al., 2017). Communication skills include the ability to express thoughts clearly and persuasively, both verbally and in writing, articulate opinions, communicate coherent instructions, and motivate others through speech (Mishra & Mehta, 2017). Effective communication skills can help avoid misunderstandings and miscommunication. These skills can be developed through the training process, having dedication, and always working hard (Mahajan, 2015). Communication aims to send messages both verbally and in writing to express our point of view about experiences and perceptions (Okoli, 2017; Putri et al., 2021). Good and effective communication arises through words and body language (Boyraz, 2022; Halimah & Sukmayadi, 2019). The Covid-19 pandemic has had a significant impact on human life. Increased self-confidence skills on social media also emerged a lot during the Covid-19 pandemic. However, in fact, students' communication skills at school have actually decreased. This is due to several factors that influence it.

On the other hand, based on previous research conducted by Dipaya et al. (2016) it was revealed that communication skills in several high schools in Makassar were not conveyed to students. This was

because learning in schools only used a memorization model. Research conducted by [Oktaviani and Nugroho \(2015\)](#) at SMA Negeri 1 Sokaraja showed that students' communication skills were still relatively low, this was indicated by the students' shy and less confident personalities when presenting in front of the class. According to [Halimah and Sukmayadi \(2019\)](#) learning that focuses on students can influence the improvement of students' communication skills.

Communication as a skill in the classroom, in the simplest way understood as students learning how to express their thoughts and ideas through discussion. Different types of communication such as verbal, written or nonverbal ([Boyraz, 2022](#)). Empowering communication skills can be done through discussion by applying learning models, such as think, pair, and share ([Cohen et al., 2019](#); [Saputri & Corebima, 2020](#)). Recent studies have highlighted the potential of technology-assisted learning environments in improving students' communication skills, such as the use of digital devices provides opportunities and encourages collaborative student interactions ([Albadry, 2017](#)).

There have been several studies examining the benefits of Remap-TPS on student competency ([A'raafi et al., 2024](#); [Kurniaty et al., 2024](#); [Zubaidah et al., 2018](#)). There have also been many studies examining how to improve students' communication skills ([Bonney, 2015](#); [Kyaw et al., 2019](#)). However, research focusing on the effectiveness of specific applications such as wizer.me and MindMup is still lacking. Studies on the concept map learning model have attracted attention because the structured approach encourages student participation and active learning ([Chang et al., 2022](#)). This model is often used to improve conceptual understanding and critical thinking, but not many researchers have integrated it into digital platforms. Therefore, the study aims to investigate the effectiveness of the remap-tps learning model assisted wizer.me website and MindMup application in improving students' communication skills. This study contributes to the growing literature by proving empirical evidence for the role of interactive digital platforms based on websites and applications in collaborative learning activities.

Method

The research is a quasi-experiment, with a pretest-posttest control group design. The population is 11th grade students consisting of 6 classes. The simple determination was based on the results of the ANOVA test using a simple random sampling technique. The sample obtained was 28 students from class 11-3 as the experiment class, and 33 students from class 11-4 as the control class. The remap-tps learning model assisted wizer.me websites and MindMup application became the independent variable, while the dependent variable is communication skills.

The instruments used included: 1) Observation sheets, used to observe the implementation of the learning plan in the learning process, 2) Test, used to obtain data on communication skills results. The communication skills assessment instrument was adapted from [Greenstein \(2012\)](#) with measurement indicators including: oral communication, receptive communication, purpose of communication, communication strategies, communicating clearly to achieve a goal, and presentation skills. This research instrument was in the form of a questionnaire that had been given alternative answers to make it easier for respondents to answer. Each question item is give its own score, namely: Very Good answer score = 4, Good = 3, Enough = 2, Less = 1.

The quantitative data obtained were the analysis using ANCOVA test to determine the hypothesis of differences between the experiment and control classes. Hypothesis testing is carried out after the prerequisite test for normality and homogeneity with a significance probability 5%.

Results and Discussion

The pretest and posttest of the effectiveness of the Remap-TPS learning model assisted wizer.me websites and MindMup application on communication skill are seen in [Tabel 1](#). Furthermore, [Table 2](#) and [Table 3](#) show that the significant values in the prerequisite tests are each > 0.05, so the date is normally distributed and homogeneous.

Table 1. The mean score of pretest and posttest data

No	Variable	Pretest	Posttest
1	TPS	52.14	80.12
2	Remap-TPS wizer.me & MindMup	57.14	87.68

Table 2. Summary of normality test

Class	Sig Value		Information
	Pretest	Posttest	
TPS	0.200	0.091 *	Normal
Wizer.me & MindMup TPS Remap	0.071	0.162 *	Normal

The results of the ANCOVA test showed that there was a difference in communication skills ($F = 11.098$ with $p\text{-value} = 0.002$) between students in the experiment and control classes. The summary of the ANCOVA results is presented in Table 4. Furthermore, the analysis was continued with the LSD test to determine the difference in the corrected mean for each learning model. The results of the test can be seen in Table 5.

Table 3. Summary of homogeneity Test

Data	f	df1	df2	Sig. Value	Information
Pretest	0,060	1	59	0,808	Homogeneous
Posttest	2,207	1	59	0,143	Homogeneous

Table 4. The results of the ANCOVA Test for communication skills data

Source	Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1344.397 ^a	2	672.199	9.215	0.000
Intercept	4933.231	1	4933.231	67.632	0.000
X_KK	253.365	1	253.365	3.473	0.067
Model	809.530	1	809.530	11.098	0.002
Error	4230.664	58	72.942		
Total	261353.750	61			
Corrected Total	5575.062	60			

Table 5. The corrected mean of communication skills data

Class	Pretest		Posttest		Difference	Improvement	Corrected Mean	LSD Notation
	Mean	SD	Mean	SD				
TPS	52.14	9.55	80.12	7.58	27.98	50.31%	80.12	a
Remap-TPS	57.14	9.59	87.68	9.90	30.54	54.83%	87.68	b

Based on Table 5, the experiment (Remap-TPS assisted by Wizer.me and MindMup application) obtained better corrected average results than the control class (TPS). The experimental class Remap-TPS assisted by Wizer.me and MindMup obtained results of 87,681, but in the control class it was 80.121. The LSD notation shows different symbols, meaning that there is a significant difference so that the research hypothesis is accepted.

Based on research data, it indicates that the Remap-TPS learning model assisted by the Wizer.me website and the MindMup application has an effect on students' communication skills. The corrected average value of the remaining communication skills of students taught with Remap-TPS learning assisted by the Wizer.me website and the MindMup application is better than TPS learning. Therefore, it can be said that the Remap-TPS learning model assisted by the Wizer.me website and the MindMup application can empower the communication skills of high school students.

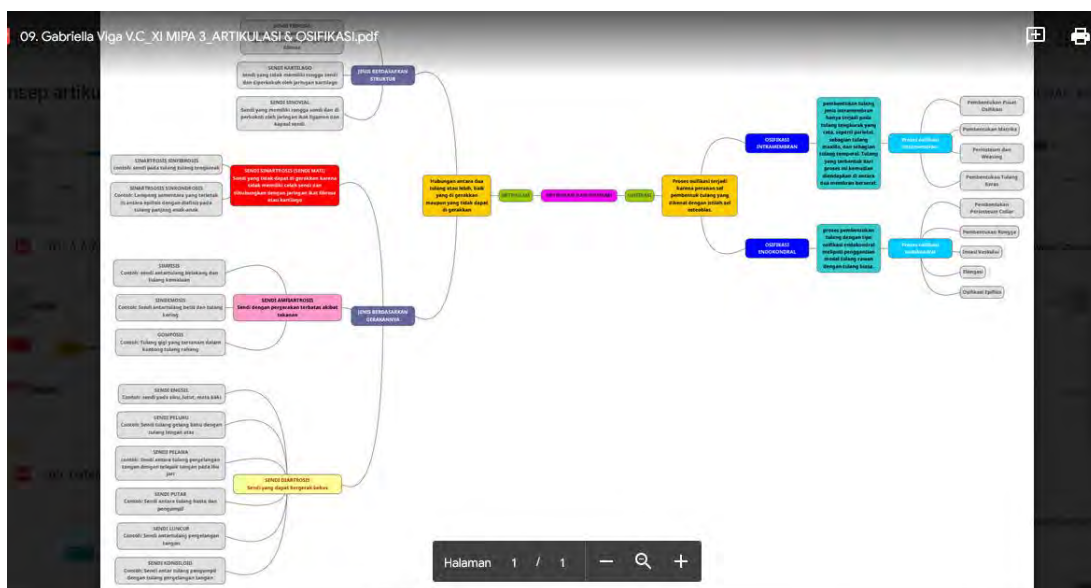


Figure 1. Results of students' concept map work on the articulation and ossification topic

The increase in communication skills is due to the Remap-TPS syntax integrated with Wizer.me and MindMup. The syntax begins with the activity of reading material that has been determined by the teacher, reading materials are allowed to come from anywhere, with the provisions in accordance with the material to be taught (Zubaidah et al., 2018, 2020), so that students gain knowledge from the readings that have been read. Reading activities have many benefits that will describe students' initial knowledge to foster understanding and levels of confidence in sharing opinions through communication (Rintaningrum, 2019).

The next learning syntax is making a concept map. Concept maps at first glance seem to have no effect on communication skills, but that is not entirely true because from the concept map assignment, students can describe their understanding to be more structured and more meaningful (Nurzullayevna & Qizi, 2021; Patrick, 2011). The understanding that students have can show the quality of their communication (Brodin & Renblad, 2020).

The results of the concept maps that have been made by students are arranged in a complex and coherent manner, indicating that students have understood the material they will learn. Figure 1 and Figure 2 are examples of concept maps arranged by students using MindMup that have been made in a complex manner on different materials.

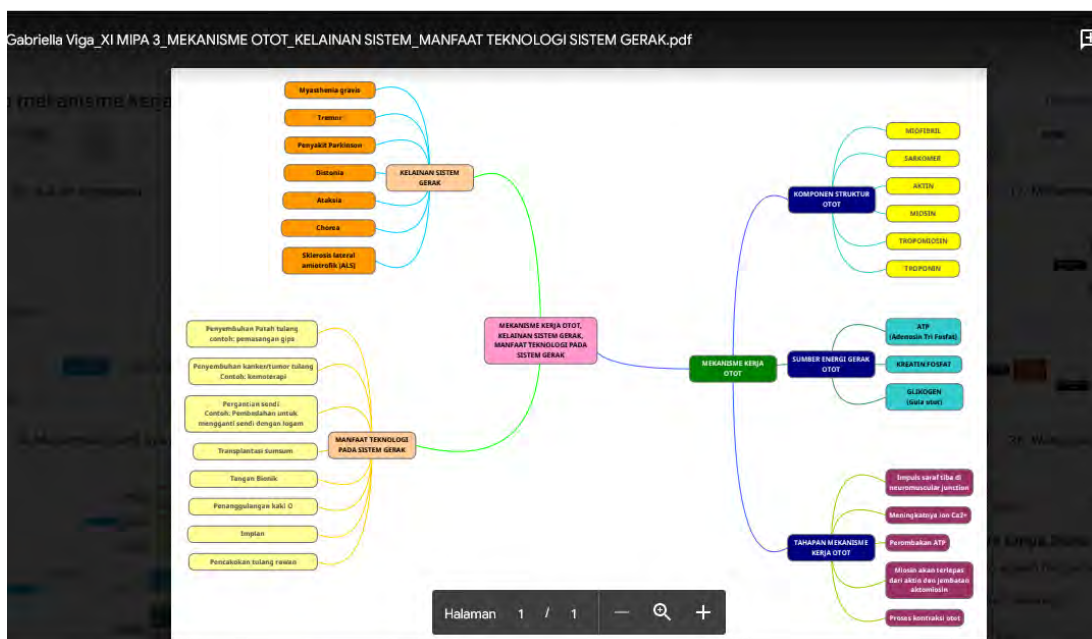


Figure 2. Results of students' concept map on the muscular system, muscle disorders and the use of technology topic

The next learning stage is the TPS learning model assisted by Wizer.me triggers the emergence of student communication skills. At the thinking stage, students are required to think about the problems given by the teacher through Learning Activity Unit (LAU) based on online media Wizer.me. Students are trained in communication skills through the features available in it, in each answer column, there is a voice recorder feature, so that students can answer directly using speech. The beginning of LAU is presented in the form of images related to the problem which students can later analyze the problem. Figure 3 and Figure 4 document examples of LAUs generated via Wizer.me.



Figure 3. Example of LAU based on the Wizer.me website features Fill in an Image

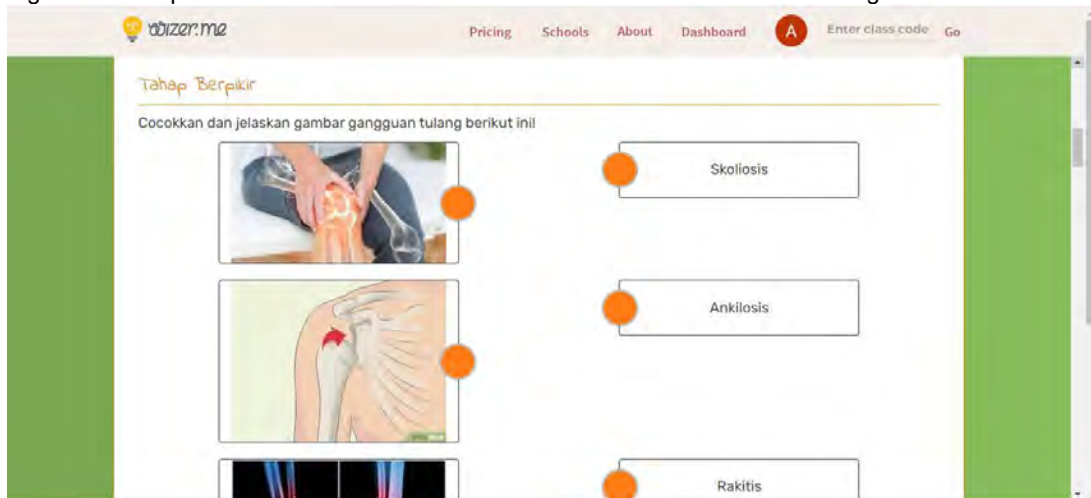


Figure 4. Example of LAU based on the Wizer.me website with the Match feature

The results of the students' analysis are then discussed with their peers through the pair stage. At this stage, students discuss with their peers and share ideas or exchange information and communicate opinions in finding reference sources. The pair stage can trigger students to respond and help each other with their partners (A'raafi et al., 2024; Ariska et al., 2022). The communication process in this syntax triggers students to be experts in communicating by being trained in how to communicate. Students are first trained to communicate in small groups, namely with their partner friends. The last stage, namely the share stage, students are required to share what they have discussed and what they understand to be presented in front of the class. The sharing stage requires students to be proactive in conveying ideas to increase self-confidence (Sari et al., 2019).

Learning activities using Remap-TPS assisted by Wizer.me and MindMup can have an impact on student communication. Students in the experimental class have a greater increase in communication skills compared to the control class. Students who are taught using TPS appear less skilled in communicating. According to Tugtekin and Koc (2020), the use of digital can improve verb communication. The use of interactive digital platforms has a positive impact on learning (Praheto et al., 2020). Therefore, Remap activities can help students gain knowledge and mature the concepts they have, so that when learning in class using TPS students follow the learning more even though discussion activities are very limited. Thus, the application of Remap-TPS assisted by Wizer.me and MindMup is able to involve students to be active in learning, so that it can be an alternative solution to improve students' communication skills.

Conclusion

There is an influence of Remap-TPS learning model assisted wizer.me website and MindMup application on communication skills. This is shown the results of the ANCOVA hypothesis test with F count = 11.098 with p-value = 0.002. the results of the LSD test showed a significant difference between the experiment and control classes. This can be seen from the highest average posttest value in the Remap-TPS assisted wizer.me website and MindMup application class (9.89) and TPS class (7.57). it is necessary to develop the impact of the Remap-TPS learning model assisted wizer.me website and MindMup

application on other 21st century skills. This study needs to be expanded by comparing other interactive media-assisted learning models.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Author Contributions

H. F. Jauhari: writing original article, conducting research, collecting data, review and revision; **M. I. A'raafi:** methodology, collecting data, review and revision; **S. Zubaidah:** writing original article and review; **A. Gofur:** writing original article and review.

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