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The Application of Think Talk Write (TTW) Learning Model to Improve Students' Communication Skills

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Abstract: Communication skills are one of the mandatory skills that students must master for the development of the 21st century. The use of innovative learning models can also help students to understand the concept of material. The purpose of this study was to improve the communication skills of class X SMK students on the material of the atomic structure and the periodic table of elements by using the Think Talk Write (TTW) learning model. The research subjects used were students of class X Pharmacy in the academic year 2022/2023. Research data used on communication skills through observation sheets and study documentation and for learning outcomes used through description tests for pretest and posttest. The data analysis used was quantitative with a quasi-experimental design research type. The results showed that there was an increase in communication skills through observation sheets with an average value of 80.96 in the high category and documentation studies with an average value of 73.21 including the high category. The use of the Discovery Learning learning model showed that the students' communication skills had increased with an average score of 76.44 on the observation sheet in the high category and the study of documentation with an average value of 70.12 was included in the high category. The conclusion was that the application of the Think Talk Write (TTW) learning model was more effective than the application of the Discovery Learning learning model, so the researchers recommend to use this learning model to help improve students' communication skills.

Keywords: Think Talk Write; Comunication Skill; Student Centre.

Introduction

Chemistry subjects at school are still considered as difficult subjects because they are conceptual and procedural, so students have difficulty memorizing and understanding them (Sogandi, et al., 2019). For example, the material for atomic structure and the periodic table of elements is conceptual due to the need to understand and memorize the concepts of quantum numbers and Aufbau diagrams, while procedurally students must understand the electron configuration to determine the group and period of an ion in the periodic table. The statement shows that to understand the material of the atomic structure and the periodic system, students must firstly understand the procedure for describing electron configurations to understand the concept of determining quantum numbers and how to draw Aufbau diagrams. This will not be achieved if the teacher only measures understanding of concepts based on written test questions, without paying attention to how the student's ability to communicate. The purpose of this communication is to transfer data in the form of re-explanation in describing the electron configuration, starting with the determination of the number of quantum numbers to describe the electron configuration based on the Aufbau principle. If they can convey exactly what they wrote, then it will be easier for them to understand the principle of determining groups and periods. Thus, communication skills have an important role to measure students' understanding of capturing the material.

Based on the results of the Field Experience Practice (PPL) activity at SMK Kartika XIX-3 Cirebon City in the 2021/2022 academic year material for acid-base solutions in 13 students of class X Pharmacy, it was found that the learning process in the classroom was still directed at the ability of students to memorize

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information, so that their communication skills were lacking, the data obtained by communication skills between students who had a presentation was 31% of 13 students. Conventional learning models and techniques are one of the supporters of the low communication skills of students. Although students are given the opportunity to study in groups to discuss the material being taught, but when asked to explain the material again, students are less capable due to a lack of initial understanding of the basic concepts of acid-base solution material. The teacher only conveys the material without doing the pretest and posttest, so the teacher does not know the understanding ability of the students.

Communication skills are one of the 21st century thinking skills that must be possessed by students. Nofrion (2018) describes communication skills as a process of someone conveying a message through verbal and non-verbal symbols to others so that the recipient of the message can interpret the message and there is a change in knowledge, attitudes, and skills according to the purpose of message sender. Nofrion's statement shows that chemistry learning is conceptual and procedural in nature that needs to be conveyed because it has material content about symbols that need to be proven verbally and non-verbally. Science communication to the general public is a skill that requires a lot of practice and careful attention to language, tone, and diction. Unfortunately, few undergraduate and graduate science curricula offer opportunities to practice these skills, and most scientists do not receive formal training in science communication (Bernard and Michaut, 2013; Brownell *et al*., 2013; Oliveira *et al*., 2019; Petzold and Dunbar, 2018).

Think Talk Write (TTW) is one of the cooperative teachings that is built by the way students think, discuss, and copy back in written form. Progress flow teaching is seen from the participation of students in thinking after the reading process. Then discuss and exchange opinions (sharing) with each group. On the next step, student express by writing (Hamdayana, 2014). This learning forces students to think about a problem, to discuss for exchange opinions, and finally students get express the problem with writing. This type of learning allows students to master and organize opinion before expressing it into form writing. This study also helps students in combining and elaborating opinions through discussion (Nandau *et al*, 2019). Thus the use of the TTW Model is expected to improve students' communication skills in learning chemistry.

Method

In this research design, the approach used was quantitative because this study used numerical data that could be processed using statistical methods, while the type of research used was quasi-experimental research (Quasi-Experimental Design) using one experimental and one control class that were not selected randomly. This research was conducted in the odd semester of the 2022/2023 academic year. The implementation time was 13 to 20 of August 2022. This research was conducted at SMK Kartika XIX-3 Cirebon City. The subjects of this study were 14 students of class X Pharmacy as the experimental class and class X Nursing with a total of 24 students as the control class.

Table 1: Research Design

Group	Pretest	Treatment	Posttest
Experiment	T_1	X	T_2
Control	T_1	-	T_2

Notes:
X : Treatment withThink Talk Write method
- : Treatment with Discovery Learning method
T_1 : Pretest adduction
T_2 : Posttest aduction

The implementation of this research was preceded by the provision of a pretest first, then treatment was given in the form of learning using the TTW learning model for the experimental class and using the Discovery Learning learning model for the control class. At the time of treatment, observations were also made based on observation sheets and documentation studies to determine the improvement of students' communication skills. After being given treatment, a posttest was held, for pretest and posttest in the form of description questions. The analysis technique used was descriptive analysis, non-test.

Result and Discussion

Result

Communication Skill Improvement

Communication skill improvement with the Think Talk Write (TTW) learning model using research results from the observation method and student documentation studies are reviewed by looking at the criteria according to Setyaningsih (2020: 65):

Table 2: Communication Skill Criteria

Communication Skill Level	Category
66-100	High
56-65	Medium
0-55	Low

The description of the research result based on observations and documentation studies of them were as follows:

a. Observation Sheet

This activity was carried out during the learning activities to see how the communication skills of class X students of SMK Kartika XIX-3 Cirebon City were. As prior to that, the researcher had prepared an observation

sheet that would be used in this activity. The following was the average result of the observation sheet on communication skills for class X Pharmacy and X Nursing.

Table 3: Observation Score Average

Class	1st Meeting	2nd Meeting	Total Average	Category
X Pharmacy	79.071	82.857	80.964	High
X Nursing	75.208	77.667	76.437	High
Total Average			78.70	High

The results of the calculation of the observation sheet on the implementation of activities in class X Pharmacy as an experimental class showed that the average communication skills of meetings 1 and 2 were 80.964 in the high category. The results of the calculation of the observation sheet on the implementation of activities in class X Nursing as a control class showed the average communication skills of meetings 1 and 2 were 76.437 in the high category.

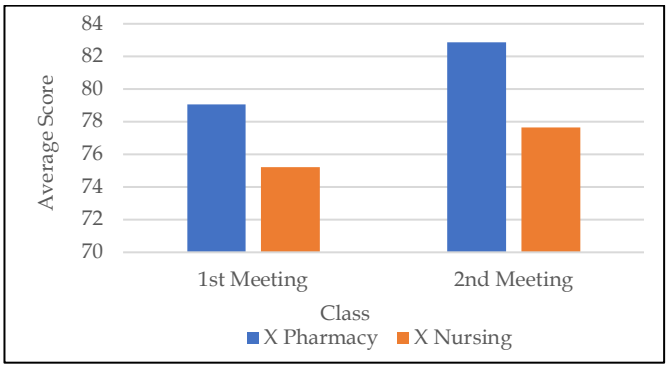

Figure 1. Diagram of Average Observation Results

b. Documentation Study

This activity was carried out during the learning activities to see how the communication skills of class X students of SMK Kartika XIX-3 Cirebon City were. Prior to that, the researcher had prepared a documentation study sheet that would be used in this activity.

Table 4: Average Score of Documentation Study

Class	1st Meeting	2nd Meeting	Total Average	Category
X Pharmacy	66.857	79.571	73.214	High
X Nursing	62.667	77.667	70.167	High
Total Average			71.69	High

The results of the calculation of the documentation study sheet on the implementation of activities in class X Pharmacy as the experimental class showed the average communication skills of meeting 1 and 2 were 73,214 with high category and in class X Nursing as a control class showed the average of communication skills in meeting 1 and 2 were 70,167 with high category.

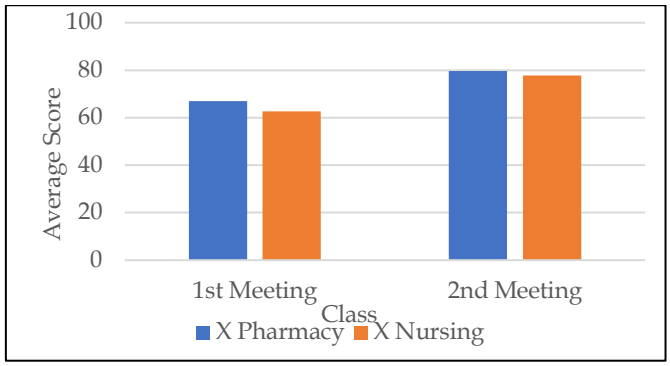

Figure 2. Diagram of Documentation Study Result Average

Table 5: Communication Skill Average Score of X Class SMK Kartika XIX-3 Cirebon City

Class	Observation	Documentation Study	Average	Category
X Pharmacy	80.964	73.214	77.089	High
X Nursing	76.437	70.167	73.302	High

Based on the table above, the results showed that class X Pharmacy (Experimental Class) using the Think Talk Write (TTW) learning model experienced a higher increase with a value of 77.089 (high category) compared to class X Nursing (Control Class) which used the Discovery Learning with a value of 73.302 in the high category. It can be concluded that the use of the Think Talk Write (TTW) learning model has increased in the communication skills of class X students of SMK Kartika XIX-3 Cirebon City in the 2022/2023 academic year in the subject of chemistry, atomic structure and the periodic table of elements.

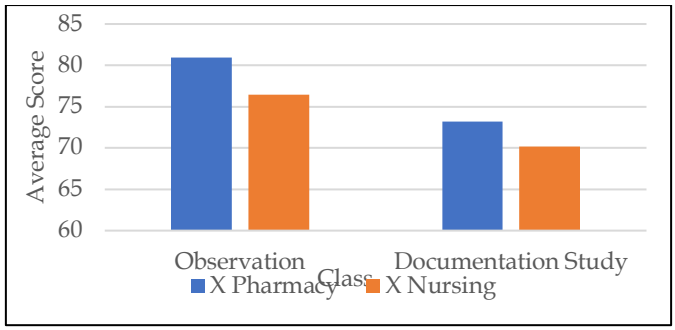

Figure 3. Diagram of Communication Skill Result Average

Figure 4. Learning Activity by TTW

Discussion

The cause increase in student communication skills is caused by the Think Talk Write (TTW) learning process that helps students to discuss with each other in writing answers to every question that the teacher gives that the Think talk Write learning model gives students time to think, respond and help each other and practice writing skills (Nugroho *et al*, 2018; Nandau et al, 2019; Harefa, 2020; Rufaidah, 2018). This statement shows that this learning model trains students to think carefully and precisely in expressing their ideas to solve problems in discussion activities with teacher guidance so that students are actively involved in the learning process.

In the Think Talk Write learning model, students work together in groups to find answers, express ideas, discuss with their group friends and then record the results of their discussions and present them in front of the class to help in improving communication skills and learning outcomes in the cognitive realm of students, this is by following what was conveyed by Rustian, et al (2021). Nurlailasari, et al (2015) revealed that the Think Talk Write (TTW) learning model involves students thinking with themselves after the reading process, then talking and sharing ideas with their group of friends and presenting other groups before writing the results of their discussion reports, so that the parties involved in communication activities in class are teachers and students.

The Think Talk Write (TTW) learning model spurs the enthusiasm of students to be actively involved in solving problems given in group discussion activities by generating ideas in writing form as well as not only in thinking and speaking so that students can obtain the chemical concepts taught, this is by following Nursaidah (2021) means that the Think Talk Write (TTW) learning model of students feel challenged to be actively involved in solving problems through communication so that students acquire the concepts taught.

After using the Tink Talk Write model in the Experiment class to compare the results, the discovery learning model was used in the control class in training communication skills, and the data showed that this model was able to train communication skills. In the Discovery Learning learning model, students can actively express their ideas in discussion activities and present the results in front of other group friends, this is by Following Sari, et al (2017) show that one of the learnings that can improve student communication skills is Discovery Learning where the learning process is carried out in groups with discussions and presentations. Nurastuti, et al (2019) revealed that learning using Discovery Learning can improve communication skills because each student has the opportunity to participate in talking and discussing with other friends which causes a positive effect by feeling more confident and active in the classroom. Halimatussadiah and Halimah (2017) stated that the learning steps in the Discovery Learning learning model also support the development of student's communication skills.

Based on the data from the study, shows that the communication skills used in the experimental class using the think talk write model, are higher than the control class that uses the discovery learning model, it is because in the Discovery Learning model there are no learning steps that focus on strengthening speech skills specifically, such as in the Think Talk Write module. The activity refers more to discussion and presentation activities that do not involve learning steps in thinking activities so that when discussing and doing percentages, the material to be delivered can be well conceptualized and students can carry out percentage activities smoothly and confidently.

Conclusion

When compared to the using of Discovery Learning learning model, the using of the Think Talk Write (TTW) learning model on the material of the atomic structure and the periodic system of elements can improve communication skills and learning outcomes in the cognitive domain of students of class X SMK Kartika XIX-3 Cirebon City.

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