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Strategy Integration Writing to Improve Mastery of Concepts and Communication Skills

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ABSTRACT

This study aims to identify the integration of the Writing to Learn strategy in improving the mastery of concepts and communication skills of vocational high school students. The study used a sample design of 33 grade X vocational high school students who were divided into 4 groups to determine the improvement of students' communication skills. The instruments used were 10 pretest and posttest questions to measure students' conceptual abilities, while the instrument for writing skills used LKPD with a Problem Based Learning model. Students were guided to develop ideas based on problems designed in the LKPD. The data analysis technique used N-gain calculations. The results of the calculations obtained a calculation of <g> an increase in conceptual knowledge of 0.54 with a medium category, the calculation of <g> from the first meeting to the second meeting was 0.33 with a low category, <g> from the second and third meetings was 0.57 with a medium category and <g> from the third and fourth meetings was 0.8 with a high category. It can be concluded that the Problem Based Learning model with the Writing to Learn strategy to improve students' mastery of concepts and communication skills is effective for use in science learning.

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INTRODUCTION

The Independent Curriculum is an effort to improve the skills needed by students in the global era. High school (SMA/KV) graduates are required to possess communicative thinking and acting skills through a scientific approach as a means of

self-development within the educational unit. Along with the rapid development of science and technology, teachers and the involvement of various parties in the learning process are needed so that students have the skills necessary for their future lives. According to Sintiawati (2021), communication skills are crucial because students are required to be able to convey their ideas.

The low learning outcomes of students in the Natural Sciences subject over the past two years have become a major problem. Students' lack of ability to express ideas or concepts is one of the problems faced. In line with Yusefni's (2015) research, science learning found in schools has not fully facilitated students to be actively involved in learning, especially in revealing students' communication skills verbally, because teachers have not provided opportunities for students to communicate interactively in learning. Therefore, students need to master the skills to express problems or ideas they have to others. These communication skills can be developed through the learning process using student activities to think critically in solving problems. Collaboration, cooperation, and good communication activities can be carried out during the learning process and are designed in the lesson plan.

According to Melida (2016), students' theoretical knowledge can influence their assessment and decision-making, because in solving a problem, students must first know and understand the problem, so they are able to solve the problems they face. Meanwhile, according to Siregar (2020), one of the subjects that requires a deeper understanding of concepts to achieve optimal results is Natural Sciences. Therefore, effective and innovative strategies are needed in the learning process. This aligns with Purba (2020) who stated that classroom teaching and learning strategies make learning more independent, engaging, motivate students, and train them to solve problems with teacher guidance.

The selection of appropriate learning models and strategies will impact students' conceptual mastery and communication skills. One strategy capable of improving these aspects is the Writing to Learn strategy. According to Sintiawati (2021), conceptual mastery is a component of cognitive abilities and communication skills. According to Siregar (2022), communication is not only done verbally but can also be done in written form. Based on the results of previous research by Hamidah (2018), the implementation of the writing to learn learning strategy can be seen using observation sheets. This study used a multiple-choice test design in line with Sintiawati's (2021) research and a communication skills instrument for writing a practicum report. Meanwhile, in Aries' (2019) study, writing assignments in the form of journals were given at the end of the lesson regarding material discussed during class. In contrast to previous research, Melida (2016) used a quasi-experimental design with a nonequivalent control group design, this study used a one-shot case study. A research design using a nonequivalent control group involves two groups of subjects, one receiving treatment and the other a control group. Both groups receive a pretest

and a posttest, as described in Abraham's (2022) journal. This study used one group of subjects, each receiving a pretest and a posttest.

METHODS

This The research method chosen to find a solution to the problem was a quantitative method, namely a quasi-experiment with a one-shot case study design. Similar research was conducted by Fadillah (2023) with using the same design involving only one group without a pre-test given treatment, then continued with a post-test, and did not have a control group as a comparison. The sample of this study was 33 students. The population selected in this study was one class X at SMK Telkom Sidoarjo. The research instrument used was a multiple-choice test to measure mastery of the concept of quantities and units, while to measure students' communication skills, they were given the task of writing a research report on the material studied.

This study was conducted in 4 meetings with each meeting lasting 90 minutes. In the first meeting, students were given a pre-test to master the concept and were given an explanation of the learning process that would be carried out. In the second and third meetings, students studied with the guidance of LKPD which had been prepared in advance and designed to explore students' abilities through problems. LKPD is a supplement to teaching materials in the PBL learning model and contains instructions to train students' understanding of the topic of quantities and measurements and train students to be able to communicate the results of observations and measurements on various problems given. Each student's writing assignment in the LKPD was checked and given feedback. At the fourth meeting, a post-test was administered to measure students' conceptual mastery, while students' writing skills were measured using the Student Worksheet (LKPD) and the third meeting. At the fourth meeting, students were given a post-test to assess their conceptual mastery. According to Afridiani (2020), learning using Student Worksheets (LKPD) can improve students' conceptual understanding.

FINDINGS AND DISCUSSION

The results of this study were used to determine the increase in students' mastery of concepts and writing skills by using learning models.*Problem Based Learning* with the Write to Learn strategy. Implementing this strategy in learning requires students to work independently by expressing their understanding of the material in writing and seeking other references to develop their writing. According to Yuliati (2019), the PBL model has advantages, including helping students improve their learning activities and develop their knowledge through their own learning.

1. Improving Concept Mastery

Students' concept mastery is obtained from the average pretest and posttest scores of students at the first and fourth meetings.

Table 1.N-Gain Value and Average Pretest and Posttest Values

<Pretest>	**<Posttest>**	**<g>**	**Criteria**
67	85	0,54	Currently

Table 1 shows that students' understanding of the concepts of the Science subject before and after learning using the PBL model has increased relatively with moderate criteria. This is because, according to the results of observations, there is a tendency for student motivation to be more active in learning and have higher scores than other students. Based on these values, it can be concluded that students experienced an increase in conceptual mastery by using the Write to Learn strategy, because students experienced reading repetition, so students were guided to read from various sources and had a positive impact on cognitive abilities and writing skills. This is in line with Sa'adah et al. (2020) who stated that students are able to find a concept formed from their thoughts so that it can support in improving conceptual understanding.

2. Improving Students' Writing Skills

Writing skills are obtained from students' communication skills scores from the results of the Student Worksheet (LKPD) at the second and third meetings. These skills are measured through writing assignments given to students. Students are given LKPD designed to explore problem-solving thinking skills with indicators of data results, discussion aspects, and writing format aspects. Assessment of students' written communication skills can be seen from the clarity and correctness of concepts, the mode of representation used, the breadth and depth of material, conceptual hierarchy and organization of writing, the main idea of the writing, and writing and punctuation rules, according to Sintiawati (2021). According to Maulana (2015), the PBL model has an influence on improving students' abilities in writing and critical thinking.

Table 2. Average Assignment Grade for Each Meeting

Task 1 to Assignment 2	<Task 1>	<Task 2>	<g>	Criteria
	47	65	0,33	Currently

Task 2 to Assignment 3	<Task 2>	<Task 3>	<g>	Criteria
	65	85	0,57	Currently
Task 3 Task 4	<Task 3>	<Task 4>	<g>	Criteria
	85	97	0,8	High

Table 2 shows the average assignment scores given at each meeting, and the increase can be seen with each meeting. This indicates that students' writing skills were relatively low at the first meeting. After learning using the writing to learn strategy with the PBL method, students' writing skills increased relatively, reaching a high category at the fourth meeting. This contrasts with previous research by Aries (2019) where students' representational skills when writing were still low. Although the increase was small, this was due to the gap between active and passive students in group discussions. Nevertheless, learning using the PBL model is highly recommended for implementation in the learning process because it can challenge students' abilities and provide satisfaction in discovering new knowledge and increasing learning activities, as previously research in the journal Dewi (2019).

The results of the calculations using N-Gain can be concluded that students experienced an increase in conceptual knowledge and writing skills by using LKPD assignments at each meeting with the WtL strategy and PBL model, so that it can be used for further research in Science subjects. In addition, this strategy is also able to improve other abilities, such as High-Order Thinking Skills (HOTS) or 21st-century skills. The obstacle in this study is the quality of students' writing who do not yet understand the importance of writing activities, so that students' writing results are not the result of their own understanding. So it is necessary for teacher guidance in the writing process, by providing feedback on each writing. According to Hamidah (2018), students' writing results tend to be the same as their friends' writing, this is because students have not been able to feel the benefits of writing activities directly, so students do not write important points in their writing.

CONCLUSION

Based on the research and data processing above, it can be concluded that there is an increase in conceptual understanding and students' writing skills after learning using the writing to learn strategy and the PBL model. The increase in conceptual understanding after learning continues to increase with a moderate category, while data analysis of student writing assignments shows an increase in students' writing

skills in each meeting from the moderate category, medium and then to the high category. Therefore, it can be concluded that using the WtL strategy and the PBL model can improve students' writing skills.

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