

ABSTRACT

Desi Safitri, NIM 4203121028 (2024). The Effect Of TPACK Based Differentiated Collaborative Learning Model To increase Motivation and Physics Problem Solving Ability in SMA N 1 MERBAU.

This study aims to see the motivation and problem solving ability of students using the TPACK-based differentiated collaborative learning model in light waves material in class XI at SMA N 1 Merbau. This type of research is a quasi experiment that uses 36 students from class XI 1 as the experimental class and 36 students from class XI 3 as the control class. Sampling was done using cluster random sampling technique. The instrument used is a test instrument for students' problem solving skills. The results of the pretest test of the two groups using SPSS 30 for windows obtained a significance value > 0.05 , namely $0.078 > 0.05$ in the experimental class and $0.026 > 0.05$ in the control class, which indicates that H_0 is accepted, indicating that the initial test results of students in the experimental and control groups are the same. Furthermore, different experiments were carried out on both groups, resulting in an average posttest score for the experimental group of 70.57 and an average result for the control group of 62.48. the results of the posttest normality and homogeneity checks showed that both data had a normal and homogeneous distribution. Furthermore, hypothesis testing revealed several findings, namely: 1) a significant difference in problem solving ability between students taught with the TPACK-based Differentiated collaborative model and those who received conventional teaching, with $t_{count} > t_{table}$ ($2.967 > 1.667$). 3) There is an interaction between TPACK-based guided collaborative learning model and student motivation with $F_{count} (AB) > F_{table}$ ($4.497 > 3.13$) and $sig < 0.05$.

Key Word : TPACK Based Differentiated Collaborative Model, Motivation, Problem Solving Ability, Waves

