

**APPLICATION OF PROJECT BASED LEARNING (PjBL) LEARNING  
MODEL FOR LEARNING ACHIEVEMENT AND STUDENTS 'CAPABILITY  
OF COOPERATION IN CLASS XI MAN 4 SLEMAN IN THE MATERIALS  
OF SUPPORTING STUDENTS 2018/2019**

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**ABSTRACT**

This study aims to find out 1) a significant difference in the learning achievement of students in class XI MIPA MAN 4 Sleman in the realm of knowledge, attitudes, and 2) the ability of cooperation between the application of the Project Based Learning (PjBL) learning model and the conventional learning model on the Buffer Solution material. This research is an experimental study using Quasi Experimental Design namely Posstest Only with Nonequivalent Groups Design. The population used in this study were all students of class XI MIPA MAN 4 Sleman in the academic year 2018/2019 by using 2 classes as research samples. Data were analyzed using the Independent Sample T-Test parametric test for learning achievement in the realm of knowledge, as well as the non-parametric Mann Whitney U test for learning achievement in the realm of attitudes and collaborative abilities. The results of this study can be concluded that (1) there are significant differences in the learning achievement of students in class XI MIPA MAN 4 Sleman in the realm of knowledge, (2) there is a significant difference in student learning achievement in class XI MIPA MAN 4 Sleman in the realm of attitude, and (3) there is a significant difference between students of Class XI MIPA MAN 4 Sleman in the ability of cooperation between the application of the Project Based Learning (PjBL) learning model and the conventional learning model on the Buffer Solution material.

***Keywords: PjBL, Learning Achievement, Cooperation Ability, Solution Buffer.***