**Using Online Simulation in Problem-Based Learning for Improving Scientific Argumentation**

**Riwayani1, Insih Wilujeng2, Jumadi3**

1,2,3 Universitas Negeri Yogyakarta

1 yaniriwa@gmail.com, 2 insih@uny.ac.id, 3 Jumadi@uny.ac.id

**Abstract**

The tendency of students using mobile phones both in the classroom and outside the classroom, gives educators the initiative to make it an online lesson. Physics as one of science, can be supported by online simulation and innovative learning models. Problem-based learning with online simulation can broaden the information literacy and assist students in arguing at the inquiry phase. It is primarily in providing data or evidence supporting claims. This study aims to see an increase in student argumentation after a problem-based learning process. The research method is quasi experiment. The sample of this research is 25 students of class XI MIA 3 in SMA N 1 Prambanan Yogyakarta. The data technique uses pre-test and post-test. Data were analyzed using paired sample t-test. The results showed the use of online simulation in the problem-based learning can improve students' argumentation ability. This is possible with the sig value. (2-tailed) 0.000 <0.05 which states the different of data average on pre-test (is 14) and post-test (is 47). Student argumentation profile on pre-test shows level 1 of 0,512%, level 2 of 0,016% and wrong answer or no fill 0,472%. While the argumentation profile on post-test shows level 1 of 0.304%, level 2 of 0.376%, level 3 of 0.24%, level 4 of 0,024% and wrong answer or not 0,056%. This shows that the student's argumentation profile is increasing on level 4.

**Keyword:** Online simulation, Problem-based learning, Scientific argumentation