Training on Using Virtual Lab-Based Scientific Investigation Design Learning to Improve Science Teachers' Ability in Teaching Learning and Innovation Skills

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ABSTRACT

Learning and Innovation Skills (4Cs) are one of the important abilities that must be mastered in the 21st century. The program aims to increasing participants' knowledge regarding virtual lab based-scientific investigation (VLSI) and learning and innovation skills (4Cs), (2) training participants' abilities in developing science instructional tools that are VLSI design oriented.

The subjects were the science teachers of junior high school in Yogyakarta City. It was held on 18-19 August 2023 and was attended by 30 teachers. The stages of this activity include preparation, implementation and evaluation. At the preparation stage, coordination between members, division of tasks, determination of activities and materials sequence were carried out. In addition, coordination was also carried out with partner coordinators to determine the time and place of activities. At the implementation stage, knowledge enrichment and workshop on developing science instructional tools to implement VLSI were carried out. Finally, the program was closed by evaluating both process and results as well.

The results shows that the program able to increase teachers' knowledge regarding VLSI and 4Cs and able to train participants' abilities in compiling VLSI-oriented instructional tools. This can be seen from the increase in pretest and posttest scores and the resulting instructional tolls which is in the "Good" category. It is hoped that the results of the training can help teachers face the challenges of science learning in the 21st century.

Kata Kunci: *Training, Science Learning Design, Virtual lab-based scientific investigation (VLSI), Learning and Innovation Skills (4Cs)*