

A Metacognition-Based Digital Learning Worksheet

An Authentic Project-Based Learning Guide for the Undergraduate
Preservice Automotive Vocational Teachers

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BLOG POST

Several challenges have been being faced in many sectors nowadays including education. Vocational education which has a function for preparing students in working life needs to be paid attention to for dealing with the challenges. This research project has an objective to develop an instructional technology based on metacognition in form of a digital learning worksheet for prospective automotive vocational teachers. This worksheet will be used as a project-based learning guide to promoting metacognitive abilities that are essential for conducting sustainable learning (Evans, 2018; Matsumoto-Royo & Ramírez-Montoya, 2019; Medina et al., 2017; Wijnen-Meijer, 2020).

Design-Based Research (DBR) and Experimental Research (ER) are utilized in this research project as the research methodology. DBR will be used to construct the metacognition-based digital learning worksheet while ER will be used for assessing the effectiveness of the worksheet. This DBR consists of six micro-cycles (MiC) (Pool & Laubscher, 2016). Firstly, in the MiC 1, collaboration with an automotive lecturer in UNY is essential to identify the problems and the deficiencies of current educational practice. Secondly, the potential solution is created in the MiC 2, starting with inviting automotive teachers, automotive practitioners, educational psychology practitioners, and educational media practitioners in a focus group discussion (FGD) to discuss the needed learning materials and needed criteria for constructing the worksheet. Thirdly, in the MiC 3, the product is assessed by educational media experts, subject matter experts, and educational psychology experts. Fourthly, in the MiC 4, the students give their opinion about the strengths and weaknesses of the product. Fifthly, based on the data from the previous step, in this MiC 5 step, the product is redesigned and reconstructed. Finally, in MiC 6, the final product is judged on its usability by using a usability evaluation questionnaire. In the ER, the design of post-test control and the experimental group will be used (Cohen et al., 2017). The group members are selected randomly into those two groups. The students in both groups will be assessed on their metacognitive abilities and the quality of their learning products.

The expected result of this research project is having a metacognition-based digital learning worksheet that could prepare students to have sustainable learning abilities. As automotive vocational teacher candidates, they need to always stay updated along with the growth of both

automotive technology and educational technology (Abdullah et al., 2019; Diep & Hartmann, 2016; Nurhadi & Zahro, 2019; Nurtanto et al., 2020; Subarno & Dewi, 2019).

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