

Investigating the Potential of Mixed Teaching Methods to Enhance Manufacturing Process Learning in Undergraduate Program

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Abstract. The learning process is essential for the development of learners. Especially for the students in need, focus on building skills consistent with future work. As the traditional method teaches a one-size-fits-all curriculum, mixed teaching methods are believed to be tailored to individual experiences and learning levels. The researcher has designed a hybrid teaching process incorporating Bloom's taxonomy to enhance learning efficiency. According to this taxonomy, personal learning occurs in three domains: cognitive, affective, and psychomotor. Despite having diverse learning backgrounds, individuals are expected to achieve similar learning outcomes, such as knowledge, understanding, and application. This study aimed to investigate the potential of mixed teaching methods and traditional learning methods to improve manufacturing process learning in undergraduate programs. The research was conducted with a quasi-experimental design with two sample groups (15 people per group), which compared the learning outcomes before and after the experiment and compared the experimental and control groups. The experimental group had a program to promote the mixed-learning process. To understand how welding parameters affected the quality of welding practice specimens, the emphasis on welding practice was combined with an analysis of the problems encountered during practice. Instructors asked questions to allow students to reflect and self-practice. The t-test analysis revealed that the learning outcomes of the experiment group showed a statistically significant improvement compared to the pre-experiment level, at the 0.05 significance level.

Keywords. traditional learning method, mixed teaching methods, Bloom's taxonomy, quasi-experimental design

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