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Analysis of Work Readiness Research Instruments for Vocational High School of the Mechanical Engineering Program

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ABSTRACT

Objective: One of the levels of education in Indonesia is Vocational High School (VHS). VHS provides various skills programs, and VHS's graduates should have greater opportunities to work based on their competencies. However, in East Java, most of the unemployed are VHS graduates. One of the skills programs at VHS is the Mechanical Engineering Skills program. The research purpose was to analyze the instrument research of work readiness vocational high school of the Mechanical Engineering program. **Method:** This research used a quantitative method. Instrument Work Readiness (WR) with variable problem-solving skills (PSS), Technology Skills (TS), Teamwork Skills (TWS) and Self-management Skills (SMS). Validity test of instrument used software Winstep Rasch analysis and reliability test of instrument used software Stata. The instrument, which has been validated by experts, was tested on 30 respondents. **Results**: aspect validity about test quality, model of legibility, and instrument sheet. Instrument validity of PSS was advisability 91.3%, CVR 0.92 and reliability 0.797, TS was advisability 93.6%, CVR 0.95 and reliability 0.491, TWS was advisability 90.3%, CVR 0.87 and reliability 0.798, SMS was advisability 92.6%, CVR 0.86 and reliability 0.941, WR advisability 95%, CVR 0.95 and reliability 0.946. **Novelty:** New model research instrument for measuring problem-solving skills, technology skills, teamwork skills, and self-management skills on the work readiness of students at Machining Engineering Vocational High School in East Java together. Machining engineering specially measured Computer Numerically Controlled (CNC) competence likely design workpiece, CNC programming, programming simulation, and inputting CNC programming.

INTRODUCTION

The quality of research data is influenced by the quality of research instruments and the quality of data collection. Quantitative research collects data using instruments (Creswell, 2012). Instruments are tools that help someone achieve research goals. The quality of the instrument is influenced by validity and reliability. Validity is a measure that the variable is the correct variable to be studied. Instrument assessment by validators or judgment experts to assess aspects of the questionnaire's validity.

Research instruments in the form of questionnaires and performance tests. Questionnaires are used to measure changes in behavior related to students' affective aspects (Arivina & Jailani, 2020). Questionnaire to measure self-management skills variables and student work readiness variables (García-Aracil et al., 2019; McManus & Rook, 2021; Zhu et al., 2020). The essence of a test is special and systematic

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