

## **ABSTRACT**

**Selamat Riadi, 2020. *Development of Teaching Factory Based on Metacognitive Skills (TEFA-BMS) Learning Models in Machining Technology Field.***

*This research aimed to develop a Learning Model of Teaching Factory Based on Metacognitive Skills (TEFA-BMS). The TEFA BMS is a model developed for Prospective Vocational Teachers in machining field in responding the demands of graduates skills in Machining Engineering on the Industrial Revolution era 4.0, who are not only skilled in working technically, but also able to think, behave, and act creatively in facing of unexpected changes.*

*The research and development method used was ADDIE (Analysis, Design, Development, Implementation and Evaluation) development design model. The research subjects involved are 82 students and 5 lecturers of Mechanical Engineering Education, State University of Medan, which designed with Two-Group Pretest-Posttest Design. The instruments used were standard and valid tests and non-tests. The validity of the instrument tested using the Software of Lisrell 88, SPSS 22, and Aiken's V Formula.*

*The results showed that the learning model of Teaching Factory Method on Metacognitive Skills (TEFA-BMS) on Machining Technology was valid with Chi-Square = 219.76, P-Value = 0.98032, while RSMEA value = 0.000 and  $\chi^2/df = 0.8292$ , have fulfilled model's fit (goodness-of-fit models). The feasibility model average has practicality reached to 87.72%, while the effectiveness of the model tested by t-test has succeeded to increase learning outcomes significantly 15.44 or 0.000 < 0.05 and gives a difference of learning outcomes significantly between experimental and control class (mean 87.39 and 81.10) or 0,000 < 0.05. The learning model implementation of Teaching Factory Based on Metacognitive Skills (TEFA-BMS) provides a large space for students to improve the aspect of affective, cognitive, and psychomotor by adopting service order technology in the industry. Thus the learning model of TEFA-BMS has been able to contribute to produce the best graduates of Mechanical Engineering Education.*

**Keywords:** *Learning Model; Machining Technology; TEFA-BMS.*

## ABSTRAK

**Selamat Riadi, 2020. Pengembangan Model Pembelajaran *Teaching Factory Based on Metacognitive Skills* (TEFA-BMS) pada Bidang Teknologi Pemesinan. Disertasi Pascasarjana Fakultas Teknik Universitas Negeri Padang.**

Penelitian ini bertujuan untuk mengembangkan Model Pembelajaran *Teaching Factory Based on Metacognitive Skills* (TEFA-BMS). Model TEFA BMS ini merupakan model yang dikembangkan untuk Calon Guru SMK bidang pemesinan dalam menyikapi tuntutan kemampuan lulusan bidang Teknik Pemesinan pada era Revolusi Industri 4.0, yang tidak hanya terampil bekerja secara teknis, namun juga mampu berpikir, bersikap dan bertindak secara kreatif dalam menghadapi perubahan yang tidak terduga.

Metode penelitian dan pengembangan yang digunakan adalah model disain pengembangan ADDIE (*Analysis, Design, Development, Implementation dan Evaluation*). Subjek penelitian yang dilibatkan adalah 82 orang mahasiswa dan 5 orang dosen Pendidikan Teknik Mesin Universitas Negeri Medan, yang dirancang dengan *Two-Group Pretest-Posttest Design*. Instrumen yang digunakan adalah tes dan non-tes yang standard serta valid. Validitas instrumen diuji dengan menggunakan Software Program Lisrell 88, SPSS 22, serta Rumus Aiken's V.

Hasil penelitian menunjukkan bahwa uji Model Pembelajaran *Teaching Factory Based on Metacognitive Skills* (TEFA-BMS) pada Teknologi Pemesinan adalah valid dengan  $Chi-Square= 219,76$ , nilai  $P-Value=0.98032$ , sedangkan nilai  $RSMEA=0.000$  dan nilai  $x^2/df = 0,8292$ , telah memenuhi uji kecocokan model (*goodness-of-fit models*). Kelayakan model mempunyai tingkat kepraktisan rata-rata model mencapai 87,72%, sedangkan efektifitas model yang diuji dengan t-test telah berhasil meningkatkan hasil belajar secara signifikan 15,44 atau  $0,000 < 0,05$  dan memberikan perbedaan hasil belajar yang signifikan antara kelas eksperimen dan kelas kontrol (*mean* 87,39 dan 81,10) atau  $0,000 < 0,05$ . Implementasi Model Pembelajaran *Teaching Factory Based on Metacognitive Skills* (TEFA-BMS) ini memberikan ruang yang besar kepada mahasiswa untuk meningkatkan aspek afektif, kognitif, dan psikomotornya dengan mengadopsi teknologi pelayanan order di industri. Dengan demikian Model pembelajaran TEFA-BMS telah mampu memberikan kontribusi untuk menghasilkan lulusan Pendidikan Teknik Mesin yang terbaik.

**Kata kunci:** Model Pembelajaran, Teknologi Pemesinan, TEFA-BMS.