ABSTRAK

Hapizah (2015). Peningkatan Kemampuan Penalaran Matematis, Komunikasi Matematis, dan Kemandirian Belajar Mahasiswa Calon Guru Matematika melalui *Blended Learning* dengan Strategi *Probing-Prompting.*

Penelitian ini bertujuan untuk menyelidiki pencapaian dan peningkatan kemampuan penalaran matematis, kemampuan komunikasi matematis, dan kemandirian belajar mahasiswa melalui *blended learning* dengan strategi *probing-prompting* (BLPP). Metode penelitian yang digunakan adalah *mixed methods* dengan model *concurrent embedded* (KUANTITATIF dan kualitatif). Penelitian dilaksanakan di salah satu perguruan tinggi negeri di Sumatera pada mahasiswa jalur masuk SBMPTN dan USM. Masing-masing jalur masuk dibagi menjadi dua kelas yaitu eksperimen dan kontrol. Pada kelas eksperimen diterapkan pembelajaran *blended learning* dengan strategi *probing-prompting* (BLPP) dan pada kelas kontrol diterapkan pembelajaran dengan strategi *probing-prompting* (PP). Instrumen penelitian terdiri dari tes kemampuan awal mahasiswa (KAM), tes kemampuan penalaran matematis (KPM), tes kemampuan komunikasi matematis (KKM), skala kemandirian belajar (KBM), dan lembar observasi. Analisis data menggunakan uji-*t*, uji-*t*', uji U Mann-Whitney, Uji Kruskal-Wallis, dan ANOVA Satu Jalur. Penelitian kualitatif menggunakan *grounded theory* melalui tiga langkah yaitu *open coding*, *selective coding*, dan *theoretical coding*. Hasil penelitian menunjukkan bahwa: (1) pencapaian dan peningkatan KPM, KKM, dan KBM yang melalui pembelajaran BLPP lebih baik daripada mahasiswa yang mendapatkan pembelajaran PP; (2) tidak terdapat pengaruh interaksi antara pembelajaran dan KAM terhadap pencapaian dan peningkatan KPM, KKM, dan KBM; (3) tidak terdapat pengaruh interaksi antara pembelajaran dan jalur masuk PT terhadap pencapaian dan peningkatan KPM, KKM, dan KBM; (4) KKM KAM tinggi adalah baik, KKM KAM sedang adalah cukup baik, dan KKM KAM rendah adalah cukup baik; (5) Keunggulan implementasi BLPP adalah peran dosen hanya sebagai fasilitator, perkuliahan menjadi lebih menarik sehingga KPM, KKM, dan KBM menjadi lebih baik, menyebabkan mahasiswa aktif mencari sumber-sumber belajar. Kelemahan implementasi BLPP pada umumnya tidak ada.

Kata Kunci : *blended learning*, *probing-prompting*, kemampuan penalaran matematis, komunikasi matematis, kemandirian belajar.

ABSTRACT

Hapizah (2015). The Enhancement of Mathematical Reasoning Ability, Mathematical Communication Ability, and Independent Learning of Mathematics Prospective Teachers through Blended Learning and Probing-Prompting Strategy

The goal of this research is to investigate the achievement or enhancement of mathematical reasoning ability, mathematical communication ability, and independent learning of mathematics prospective teachers as the applying result of blended learning and probing-prompting strategy. The method of this research is the mixed methods, with concurrent embedded models (QUANTITATIVE and qualitative). This research was running at a state university in Sumatera, and the compositions of students were from national selection system (SBMPTN) and local selection system (USM). The experiment class was learning through blended learning and probing-prompting strategy, meanwhile the control class was learning through probing-prompting strategy only without blended learning. The instruments of this research were the mathematical prior knowledge test, the mathematical reasoning ability test, the mathematical communication ability test, the independent learning scale, and the observation sheets. Data analyzing-methods of this research were t-test, t'-test, U Mann-Whitney test, Kruskal-Wallis test, and one-way ANOVA. The qualitative research used grounded theory through three steps: open, selective, and theoretical coding. The results of this research show four interesting points. The first one is that the achievement or enhancement of mathematical reasoning ability, mathematical communication ability, and independent learning of mathematics prospective teachers whom learnt through combinations of blended learning and probing-prompting strategies much better than probing-prompting strategy only. The second one is that there is no an interaction between learning and prior mathematical knowledge toward the achievement or enhancement of reasoning ability, communication ability, and independent learning of mathematics prospective teachers. The third one is that there is no an interaction between learning and university entryways toward achievement or enhancement of mathematics prospective teachers' in reasoning ability, mathematical communication ability, and independent learning. The last one but not the least is that the advantages of implementation of combination between blended-learning and probing-prompting strategy are that the lecturer is only facilitator appropriate to student-centered learning, that face-to-face and online learning activities were dominated by students, and that learning activities became more interesting and made students more active finding learning materials from internet. In general, there are no weaknesses of implementation of blended learning with probing prompting strategy.

Keywords: blended learning, probing-prompting, mathematical reasoning ability, mathematical communication ability, independent learning