ABSTRAK

YUSNITA ANWAR NASUTION. Pengembangan Lembar Kerja Mahasiswa Berbasis Inkuiri Kontekstual terhadap Kemampuan Berpikir Tingkat Tinggi, Sikap Ilmiah dan Keterampilan Proses Sains Materi Mikrobiologi Air Pada Mahasiswa Pendidikan Biologi FMIPA UNIMED. Tesis. Program Pascasarjana Universitas Negeri Medan. April 2018.

Penelitian ini bertujuan untuk mengetahui keefektivan LKM berbasis inkuiri kontekstual terhadap kemampuan berpikir tingkat tinggi, sikap ilmiah, dan keterampilan proses sains materi mikrobiologi air. Jenis penelitian ini adalah penelitian dan pengembangan berdasarkan model pengembangan Borg & Gall. Sampel penelitian ini dipilih secara acak dengan menggunakan dua kelas, satu kelas yang menggunakan LKM berbasis inkuiri kontekstual (eksperimen) dan satu kelas menggunakan LKM konvensional (kontrol). Proses penelitian dan pengembangan dimulai dengan perancangan LKM, instrumen yang digunakan untuk mengumpulkan data yaitu angket yang digunakan untuk validasi LKM oleh tim ahli materi, desain, dosen mikrobiologi, uji coba perorangan, uji kelompok kecil dan uji kelompok terbatas terhadap LKM berbasis inkuiri kontekstual. Uji coba produk yang dikembangkan pada mahasiswa Pendidian Biologi Universitas Negeri Medan. Instrumen yang digunakan pada setiap proses pembelajaran berupa angket dan soal dalam bentuk essay. Hasil penilaian para ahli yaitu ahli materi terhadap kelayakan isi sebesar (93,75%), terhadap kelayakan penyajan (91,44%), dan komponen inkuiri kontekstual (87,82%) dengan kriteria sangat baik, ahli desain sebesar (89,06%) dengan kriteria sangat baik, penilaian dosen sebesar (93,75%) dengan kriteria sangat baik, uji coba perorangan (86,66%) dengan kriteria sangat baik, uji coba kelompok kecil (87,22%) dengan kriteria sangat baik, dan uji kelompok terbatas (91,12%) dengan kriteria sangat baik. Pengumpulan data uji coba produk dilakukan dengan pretes-postes. Hasil analisis data menggunakan uji-t (2 tailled). Berdasarkan hasil uji t pada berpikir tingkat tinggi diperoleh (t_{hitung} = 4,001; p = 0,000), pada sikap ilmiah diperoleh (t_{hitung} = 2,616; p = 0,010), dan pada ketrampilan proses sains (t_{hitung} = 3,175; p = 0,020) dari hasil tersebut menyatakan bahwa terdapat perbedaan kemampuan berpikir tingkat tinggi, sikap ilmiah dan keterampilan proses sains mahasiswa materi mikrobiologi air. LKM berbasis inkuiri kontekstual untuk berpikir tingkat tinggi 8,58% lebih efektif, untuk sikap ilmah 4,51% lebih efektif dan untuk keterampilan proses sains sebesar 5,92% lebih efektif dibanding yang menggunakan LKM konvensional. Hasil penelitian dapat disimpulkan bahwa LKM berbasis inkuiri kontekstual terhadap kemampuan berpikir tingkat tinggi, sikap ilmiah dan keterampilan proses sains, materi mikrobiologi air layak dan efektif digunakan dalam proses pembelajaran mikrobiologi.

Kata Kunci : LKM, Inkuiri Kontekstual, Berpikir Tingkat Tinggi, Sikap Ilmiah, Keterampilan Proses Sains.

ABSTRACT

YUSNITA ANWAR NASUTION. The Development of Contextual Inquiry-based Students Worksheet on Higher Order Thinking Skills, Scientific Attitudes and Science Process Skills for the Topic of Water Microbiology of Biology Education Students UNIMED. Thesis.Postgraduate Program of UniversitasNegeri Medan. April 2018.

The aim of this study was to find out the effectivity of contextual inquiry-based students worksheet on higher order thinking skills, scientific attitudes and science process skills for the topic of water microbiology. The study was a Research and Development design adopted from Borg & Gall. The samples were randomly chosen by using two classes, one class with contextual inquiry-based students worksheet(experimental group) and another class with conventional students worksheet (control group). The process of this research and development study was started by the design of students worksheet, the instruments to collect the data in the form of questionairres for worksheet validation, validated by material and design experts, microbiology lecturers, individual trial, small group trial and limited group trial towards the contextual inquiry-based students worksheet. The instruments used in every learning process were questionairres and essay tests. The results of assessment from those experts were included; material experts on content advisability of 93.75%, on presentation advisability of 91.44%, and contextual inquiry components of 87.82%, respectively in a very good criteria, the assessment from design experts of 89.06%, microbiology lecturers of 93.75%, individual trial of 86.66%, small group trial of 87.22%, and limited group trial of 91.12%, consecutively in a very good criteria as well. The data collection of product trial was employed by the pretest-posttest. The result of data analysis was using t-test (2-tailed). From the result of t-test on students' higher order thinking skills has obtained that (t_{value} = 4.001; p = 0.000), t-test on students' scientific attitudes has obtained that (t_{value} = 2.616; p = 0.010), and t-test on students' science process skills has obtained that (t_{value} = 3.175; p = 0.02), based on that results have stated that there were the differences among students' higher order thinking skills, scientific attitudes and science process skills for the topic of water microbiology. A contextual inquiry-based students worksheeton higher order thinking skills of 8.58%, on scientific attitudes of 4.51% and on science process skills of 5.92%, were allmore effective rather than by using conventional students worksheet. The results could be concluded that contextual inquiry-based worksheet on students' higher order thinking skills, scientific attitudes and science process skills were advisable and effective to be applied in the learning process of microbiology course.

Keywords: Students Worksheet, Contextual Inquiry, Higher Order Thinking Skills, Scientific Attitudes, Science Process Skills.