

PROGRAM PERKULIAHAN ANATOMI TUMBUHAN BERBASIS KERANGKA INSTRUKSIONAL DIMENSI BELAJAR MARZANO UNTUK MENGEMBANGKAN LITERASI KUANTITATIF MAHASISWA

ABSTRAK

Penelitian ini bertujuan untuk menghasilkan program perkuliahan Anatomi Tumbuhan yang efektif mengembangkan Literasi Kuantitatif (LK) mahasiswa melalui pengembangan Keterampilan Preparasi dan Observasi Mikroskopis (KPOM) dan kemampuan penalaran dalam konsep anatomi tumbuhan. Penelitian dilakukan dengan desain *Research and Development* yang meliputi empat tahap yaitu tahap studi pendahuluan, perencanaan, pengembangan dan implementasi. Hasil studi pendahuluan menunjukkan perlunya mengembangkan literasi kuantitatif sebagai *Habits of Mind* melalui perbaikan perkuliahan Anatomi Tumbuhan. Berdasarkan studi pendahuluan dikembangkan Program Perkuliahan Anatomi Tumbuhan berbasis Kerangka Instruksional Dimensi Belajar Marzano untuk Mengembangkan Literasi Kuantitatif Mahasiswa (Program Perkuliahan Antumb Kredibel) yang terdiri dari tahap perkuliahan 1 (pembekalan LK), Tahap perkuliahan 2 (Pengembangan LK), dan Tahap perkuliahan 3 (Aplikasi LK). Pada tahap perencanaan dihasilkan rancangan program perkuliahan, bahan ajar serta instrumen penelitian. Pada tahap pengembangan dilakukan dua kali ujicoba program pada 34 mahasiswa Biologi semester 2 angkatan 2013/2014 (ujicoba 1) dan 28 mahasiswa Biologi semester 2 angkatan 2014/2015 (ujicoba 2). Pada tahap implementasi dilakukan pengukuran dampak program menggunakan desain *Multiple-Group Time Series Design* dengan variasi yang dimodifikasi pada 24 mahasiswa Biologi semester 2 dan 35 mahasiswa Pendidikan Biologi semester 4. Keberhasilan program diukur secara kualitatif dan kuantitatif dari LK, KPOM, dan kemampuan penalaran. Hasil implementasi menunjukkan bahwa Program Perkuliahan Antumb Kredibel berhasil mengembangkan literasi kuantitatif mahasiswa biologi dan mahasiswa calon guru biologi. Pengembangan literasi kuantitatif disebabkan berkembangnya KPOM dan kemampuan penalaran dalam konsep anatomi Tumbuhan. Hasil uji korelasi memperlihatkan adanya korelasi positif yang signifikan antara KPOM dengan literasi kuantitatif dan antara literasi kuantitatif dengan kemampuan penalaran konsep dalam Anatomi Tumbuhan.

Kata Kunci. *Literasi Kuantitatif, Anatomi Tumbuhan, Habits of Mind, Dimensi Belajar Marzano*

THE PLANT ANATOMY COURSE PROGRAM BASED ON MARZANO'S DIMENSIONS OF LEARNING INSTRUCTIONAL FRAMEWORK TO DEVELOP STUDENT'S QUANTITATIVE LITERACY

ABSTRACT

The research was conducted to develop an effective Plant Anatomy course program to develop student's quantitative literacy (QL) through improvement of preparation and microscopic observation skill (PMOS) and reasoning ability in plant anatomy concept. This Research was carried out using *Research and Development* design that consisted of four phases, namely preliminary study, planning, developing, implementation stages. The result of preliminary study indicated the necessity for developing the quantitative literacy as *Habits of Minds* through the improvements in Plant Anatomy Course. Based on preliminary study, Plant Anatomy Course Program was developed based on Marzano's dimension of learning instructional framework in order to promote student's quantitative literacy (Antumb Kredibel Course Program). The program consisted of three phases; they are Phase 1 (QL Provision), Course Phase 2 (QL Development), and Course Phase 3 (QL Application). The planning stage developed a design for the course program, teaching materials, and research instruments. In development stage the program was trialed two times to 34 Biology students of cohort 2013/2014 in 2nd semester for the first trial and 28 Biology students of cohort 2014/2015 in 2nd semester for second trial. In the implementation stage, the effect of the program was assessed by using *Multiple-Group Time Series Design* with modified variations to 24 Biology students from 2nd Semester and 35 Biology Education students from 4th Semester. The success of the program was assessed both quantitatively and qualitatively from QL, PMOS, and reasoning ability. The result of implementation indicated that the program was successfully developed the quantitative literacy for biology students and biology education students. The quantitative literacy is resulted from developing PMOS and reasoning ability in plant anatomy concept. The result of correlation test showed that there was significant positive correlation between PMOS and quantitative literacy as well as between quantitative literacy and reasoning ability for concept in Plant Anatomy.

Keywords. Quantitative Literacy, Plant Anatomy, Habits of Mind, Marzano's Dimension of Learning