Santrinitas Yulia Dwi Rahmawati, 2019. **Developing Supplementary Chemistry Module based on Problem Based Learning to Improve Students’ Critical Thinking Ability on Hydrocarbon Compounds of SMA.** Thesis. First Supervisor: Prof. Dr. Ashadi. Second Supervisor: Dr. Endang Susilowati, S.Si., M.Si. Science Education Department, Chemistry Program, Teacher Training and Education Faculty, Sebelas Maret University.

**ABSTRACT**

This research aimed to 1) describing the characteristics of the existing textbook under the perspective of problem based learning; 2) knowing the feasibility of the textbook, 3) knowing the effectiveness of the textbook to students, critical thinking and learning outcomes.

This study was a research and development referring to Borg and Gall. Module design was developed into Draft I. Then Draft module I undertook preliminary field test validated by expert practitioner validator, and than revised for the first time based on validators recommendation. The result of expert validation shows that this module is feasible to be implemented. This module was tried out to 10 students of the eleventh grade at SMA Negeri 1 Gemolong dan SMA Negeri 1 Sukodono as a subject. The result of try out shows that this module is categorized good. Then it was tried out in a bigger scale to the eleventh grade students at SMA Negeri 1 Gemolong dan SMA Negeri 1 Sukodono. The assessments of critical thinking and learning outcomes were taken.

The result of this research reveals that: (1) the development of chemical module based on the cycles of problem based learning creates the characteristics of critical thinking in each step, (2) This module belongs to feasible. It was analyzed by using Aiken formula shows that the calculated validity index is 0.787 while the Aiken validity index is 0.740; (3) This module is effective to improve students’ critical thinking. It can be seen from the significance n-gain values are less than 0.005. The results of this effective test showed that there were significant differences between the control and the experimental class on critical thinking ability.

Key words : Module, Problem Based Learning, Critical Thinking Ability