

**THE DEVELOPMENT OF MODULE AS INSTRUCTIONAL MATERIAL
AND ITS EFFECT ON LEARNING ACHIEVEMENT OF STUDENTS
ON HUMAN NERVOUS SYSTEM TOPIC GRADE
XI IA SMAN 2 BALIGE ACADEMIC
YEAR 2011/2012**

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Abstract

One of biology learning material which has physiological concept is human nervous system topic that categorized difficult to comprehend because of its complicated characteristics because this topic deals with complex physical and chemical mechanism. Based on pra-observation to study school, 61% students didn't reach minimum criteria of completeness in learning process and the performance of handbook was less systematic and less attractive in presenting the concept. Learning module was delivered to contribute positively to increase learning achievement of students. The objective of this study was developing of module based instruction in order to solve the difficulties in understanding human nervous system and knowing the effect of module on learning achievement of students on human nervous system that use module as instructional material. This study was consisted of two stages. First was developmental stage that followed Dick and Carey (2001) model. It was aimed to produce product which has assessed during validation process in order to get its feasibility on material aspect, presentation aspect, readability aspect and grafity aspect. Based on Validation results of material expert showed that: (1) material aspect was 77.73%, (2) presentation aspect was 66.67%, (3) readability aspect was 77.73%. The Validation result of learning design experts to grafity aspect was 92%. Assessment result of small group testing showed; (1) material aspect was 91,6%, (2) presentation aspect was 95%, (3) readability aspect was 98,3%. (4) grafity aspect was 97,5%. Assessment result of bigl group testing showed that: (1) material aspects was 90%, (2) presentation aspect was 86.16%, (3) readability aspects was 87.78%. (4) grafity aspect was 91.22%. Second was the implementation stage to see the effect of module to learning achievement of students. Population was regular class students grade XI-IA SMAN 2 Balige that consists of 3 classes. Sample was consists of 2 classes which taken with random sampling technique where XI-IA6 as experimental class (module class) and XI-IA5 as control class (handbook class). Each class was contains of 34 students. Instrument that used to collect data was multiple choice test (25 items) and essay test (3 items) where for pre-test and post-test was same. From result, it was obtained t_{count} was 4,875 and $t_{tabel} = 1,669$ (with $\alpha = 0,05$ dan $dk = 34+34-2 = 66$). It can be obtained that $t_{count} > t_{table}$ or $4,875 > 1,669$, it meant H_0 was rejected and H_a was accepted. Based on study result, it can be concluded that Learning achievement of module based instruction students is higher than handbook based instruction students in human nervous system in grade XI IA SMAN 2 Balige at academic year 2011/2012. On the whole, module as instructional material is more effective as for biology learning as compared to handbook as instructional material. Because by using module, students are provided learning according to their ability level and needs, creating interest among students in reading.

Keywords: Module Development, Learning Achievement, Module-Based Instruction, Handbook-Based Instruction

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