

A LEARNING MODEL FOR PHYSICS TEACHER ENCODING AND CONCEPT NETWORKING REDUCTION OF MISCONCEPTION BASED ABILITY

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ABSTRACT

The purpose of this research is to obtain a learning model for information processing based on valid encoding and concept networking capabilities (IPB-ECNA) to reduce misconceptions and foster creative attitudes in prospective physics teacher students, as well as to determine the effect of encoding ability and concept network in reducing misconceptions and achieving creative attitude of prospective physics teacher students. The type of research used is Research and Development (R&D) using the 4D model from Thiagarajan. The product developed is a model equipped with model tools in the form of modules and worksheets. The instrument used to collect data on misconceptions, encoding abilities, and concept networks is a test. Creative attitude data collected by questionnaire. The subjects of this study were 75 students of the physics education study program, Faculty of Mathematics and Natural Sciences, Yogyakarta State University. The direct, indirect, and total effects of encoding ability, concept networking ability, and creative attitude variables on reducing misconceptions were analyzed using a structural equation model (SEM). From the results of the study it can be concluded that the IPB-ECNA learning model is feasible to use to reduce misconceptions and foster the creative attitude of prospective physics teacher students. Coding skills and concept networking have a direct effect on reducing misconceptions and creative attitudes. The effective contribution of encoding skills and concept networking to reduce misconceptions and creative attitudes of prospective physics teacher students is 19.63% and 32.87%, respectively.

Kata Kunci: IPB-ECNA, Reduction of Misconceptions, Encoding, Concept Networking, Physics Teacher