

# The Development of Science Virtual Test to Assess 7<sup>th</sup> Grade Students' Critical Thinking on Matter and Heat Topic

Yustika Sya'bandari<sup>1</sup>, Dr. Harry Firman, M.Pd<sup>2</sup>, Lilit Rusyati, M.Pd<sup>1</sup>

<sup>1</sup>International Program on Science Education Department, Universitas Pendidikan Indonesia, Jl. Dr.Setiabudi No. 229, Bandung 40154, Indonesia

<sup>2</sup>Chemistry Education Department, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudi No. 229, Bandung 40154, Indonesia

\*Email: yustikasya@gmail.com

## ABSTRACT

An efficient way to improve the quality of education in critical thinking is developing the better tests. The test has been shifted towards the use of computer-based procedures. Lack of specific topic of critical thinking tests in science and the advanced of technology made the author intended to develop a test to measure students' critical thinking in the matter and heat topic based on computer for seventh grade junior high school. Generally, the process of developing the test consists of 5 steps: (1) content analysis; (2) constructing multiple choice items; (3) readability test and expert validation; (4) limited tryout; and (5) larger application. Based on larger application, it is obtained the reliability value, difficulty level, discriminating power and distractor quality. The method that used in this research was descriptive. The subject was 117 students of public Junior High School in Kabupaten Bandung. The development of the instrument resulted 30 items that represent 8 elements and 21 sub-elements to measure students' critical thinking based on Inch in matter and heat topic. The instrument is further called as Science Virtual Test Matter and Heat (SVT-MH). The alpha Cronbach ( $\alpha$ ) is 0.642 which means that the instrument is sufficient to measure students' critical thinking matter and heat topic. The SVT-MH still need items revision to make the higher reliability.

**Keywords:** *Science virtual test, critical thinking, matter and heat, validity, reliability.*