Influence of Scientific and Technological Literacy-Based Integrated Science Teaching in the Theme 'Food Packaging' on Junior High School Students' Scientific Literacy

Ahmad Mudzakir[1)], Anna Permanasari[1)], Dhita Rismayani Priatna[2)]

[1)] Department of Chemistry Education, Indonesia University of Education, Bandung
[2)] "Plus" State Senior High School, Pekanbaru, Riau

Abstract

This study investigated the influence of scientific and technological-based integrated science teaching in food packaging theme on 7th grade students' scientific literacy. Based on existing theoretical frameworks, a teaching model and their assessment tools were developed, which developed and measured students' ability to: a) recognize scientific concepts as such and define some key-concepts (scientific contents); b) use their understanding of scientific concepts to acquire, interpret and act on evidence (scientific processes); and c) use their knowledge in science to read a short article, or analyze information provided in commercial ads or internet resources (scientific situations). As a result of the intervention period of the six teaching hours, significant positive changes (n-gain 0.71) occurred in the scientific literacy of students on all dimensions of scientific literacy. In the content dimension, the results were highest of *photosynthesis concept* (n-gain 0.77) and the lowest of *physical properties concept* (n-gain 0.62). The lowest increase of scientific literacy in process dimension appeared of *identifying scientific issue* (n-gain 0.64) and the highest of *using scientific evidence* (n-gain 0.76). The highest results of scientific literacy in context dimension appeared of *food packaging* (n-gain 0.78) *context* and the lowest of *wood block context* (n-gain 0.38). The findings can be helpful in the process of designing new curricula, and emphasizing certain instructional strategies in order to foster scientific literacy.

Key words: scientific and technological-based integrated science teaching, scientific literacy, food packaging, junior high-school students