Learning Materials of Concept Attainment Model with Concept Mapping Techniques to Improve Students’ Creative Thinking Skills and Concept Mastery

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ABSTRACT
This research describes the validity of learning materials consisting of the syllabus, lesson plans, handouts, student worksheets, assessment of creative thinking skills, and concept mastery. The method is a modified research and development method, and this research is only limited to the validity of the learning materials. The developed learning materials were tested on 18 grade 10 Senior High School students. The data collection was carried out using the validation methods, and data analysis was carried out quantitatively. The results by three validators concluded that the syllabus obtained an average score of 3.81 with a completely valid category, lesson plan obtained an average score of 3.87 with a completely valid category. Meanwhile, handouts obtained an average score of 3.70 with a completely valid category. Student worksheets obtained an average score of 3.88 with a completely valid category. Assessment of creative thinking obtained an average score of 3.83 with a completely valid category, and assessment of concept mastery obtained an average score of 3.77 with a completely valid category. So that the learning materials developed is declared valid.

INTRODUCTION
Students must have various skills in the 21st century to face various challenges and succeed during a high-speed and dynamic world development. Students must possess various skills in the 21st century, including creative thinking skills, critical thinking, problem-solving, communication, and collaboration. One of the essential skills to be developed in education is creative thinking skills (Turkmen, 2015). This statement is in line with the National Education System that the purpose of national education is to develop the potential of students to become human beings who believe and fear God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. Based on the law, it is expected that one of the goals of national education is to create creative students. Students will find it easier to learn something if they have a good mastery of concepts. Therefore, students must have a good mastery of concepts to develop their creative thinking skills. Mastery of concepts is the ability of students to understand concepts both in theory and in the daily application (Astuti, 2017).

However, in reality, national education goals are not according to the desired and worsen with the COVID-19 pandemic. Based on a questionnaire distributed to 15 high school physics teachers or equivalent in East Java, it was found that 90% of teachers had difficulty implementing online learning models, and 100% of teachers stated that it was difficult to assess students’ creative thinking skills via online. Based on the results of Sari et al.’s research (2016), 54 students have creative thinking skills, which are pretty low, with an average percentage obtained of 39.76%. Students have not been able to
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