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# Effectiveness of ADI-STEM to Improve Student's Science Literacy Skill

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**ABSTRACT**

**Objective:** This study aims to analyze the effectiveness of the Argument-Driven Inquiry (ADI)–Science, Technology, Engineering, and Mathematics (STEM) model in improving students' scientific literacy abilities. **Method:** The method used in this research is the literature review method. The literature review is a type of research that is used to collect data and information by collecting and reviewing various references. This study analyzes as many as 20 articles both national and international that can be accounted for. The articles used were published in 2015-2022. The steps taken in this study were identifying topics, finding and selecting appropriate articles, analyzing and synthesizing the literature, and concluding. **Result**: Based on the results of the studies and analyses that have been carried out, it can be concluded that: (1) the application of the ADI learning model can improve students' scientific literacy skills; (2) the ability to argumentation skills to increase students' scientific literacy; (3) integrating STEM into the learning process is also able to improve scientific literacy skills because STEM provides opportunities for students to identify real-life problems. **Novelty:** This study reveals that students' scientific literacy can be increased effectively by implementing the integration of ADI and STEM. These findings invite researchers, educators, and the government to develop learning that facilitates ADI-STEM in learning.

## INTRODUCTION

The 21st century is a century of globalization full of challenges. The transformation process of the 21st century is an era where science and technology, especially communication technology, are developing very rapidly which has an impact on free competition that is so tight in all aspects of human life (Tomovic et al., 2017). The challenges faced by society require a paradigm shift in the education system that can provide a set of 21st-century skills that students need to face every aspect of global life. The World Economic Forum has identified 16 skills needed in the 21st century, one of which is scientific literacy (World Economic Forum, 2015)

Scientific literacy is the ability to engage with science-related issues, and with scientific ideas, as a reflective citizen (OECD, 2019). Scientific Literacy is also defined as the need for society in general in solving problems that require the understanding and application of science. The OECD (2019) describes the characteristics of someone who is an expert in science, namely someone who can: (1) explain phenomena scientifically; (2) evaluate and design scientific investigations; and (3) interpret data and evidence scientifically. Therefore, a person skilled in science uses scientific knowledge to identify questions and draw conclusions based on evidence to understand and help make decisions about the natural environment and changes due to human activities. By being skilled in science, one can engage with issues related to science, and with scientific ideas as a reflection of society (Wulandari & Sholihin, 2016)

Scientific literacy is one of the important things that must be learned in Indonesia. The Organization for Economic Cooperation and Development (OECD) has announced

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