



## The Role of Scientific Literacy Instruments For Measuring Science Problem Solving Ability

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### ABSTRACT

A critical aspect of measuring judgment in the 21st century is scientific literacy. In addition to the scientific literacy aspect as part of the grade 21 skills assessment, there are other essential aspects, namely student problem-solving skills. Based on the articles collected, it can be concluded that to meet the necessities of life in various situations in the global era, Literacy ability is a fundamental thing that all students must own. The role of scientific literacy instruments is needed to measure students' science problem-solving abilities. Because scientific literacy is an individual's ability to identify, explain and conclude scientific evidence by using the ability to solve problems based on how to understand, plan, solve, and reassess. This can be seen from the many theories and teaching methods that support the results obtained from the forty-four journals reviewed. The criteria for the articles used are those published in 2017-2022. The purpose of this article review is to determine the role of scientific literacy instruments in measuring students' problem-solving abilities by using a literature review that gathers sources from several previous articles.

### INTRODUCTION

In the 21st century, scientific literacy is an essential assessment aspect for students to determine the quality of education in a country. In the current era of information and globalization, students need good scientific literacy skills to have sufficient competence to compete in solving problems for each individual (Shohib et al., 2021). Scientific literacy is essential for students to understand, identify, explain and utilize scientific findings to solve problems faced by modern society (Budiarti & Tanta, 2021; Karimah et al., 2021). In solving real problems, scientific literacy is essential in involving scientific thinking skills and overcoming community problems, such as developing life skills, where reasoning skills are needed in the context of society (Oktalia et al., 2021).

Scientific literacy instruments were analyzed using expert review from 4 validators and analysis of classical tests, including item validity, reliability, discriminatory power, and difficulty level (Oktalia et al., 2021). As for some basic concepts of scientific literacy that have functional. The indicators are 1. Students can explain basic science concepts in the text; 2. Students can explain science concepts correctly, but their understanding needs to be improved (low) (Muhariyansah et al., 2021). The OECD states that scientific literacy includes the ability to (a) explain scientific phenomena, (b) evaluate and design scientific investigations, and (c) interpret data and evidence scientifically (Rosana et al., 2020).

In addition to aspects of scientific literacy as part of 21st-century skills, there are other essential aspects, namely student problem-solving skills. This skill is needed for students because every individual is constantly dealing with various problems.

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