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# Using Toulmin's Argument Pattern on Problem Solving Model to Improve Problem-Solving Analysis Ability: Learning Alternatives During the Covid-19 Pandemic

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**ABSTRACT**
The lecture process even in the Covid-19 pandemic must continue. The right of students to obtain good teaching must still be fulfilled. Lectures are conducted online using the Zoom, WhatsApp, Google Drive, Google Form platforms. The platform is assembled in a problem solving model with Toulmin's Argument Pattern. Problem solving analytical skills are the main focus of the Statistics course. This study aims to improve students' analytical problem solving skills, describe their improvement and describe student responses with Toulmin's Argument Pattern in problem solving models. The research design used a one group pre-test and post-test design. The research subjects were 30 students of the Unesa Physics Department. The instruments used in collecting data include: (1) problem solving analysis ability test sheets, (2) student response questionnaires. The research data scores that have been collected after going through a series of prerequisite tests, normality tests and homogeneity tests are then analyzed using paired t-tests to find out if there are differences in pre-test scores and post-test scores for solving analytical skills. student problems. The mean level of improvement in pre-test scores and post-test scores was calculated using normalized gain. The results showed an increase in problem-solving analytical skills in the medium and high categories. Student responses in lectures were very positive.

## INTRODUCTION

The lecture process even in the Covid-19 pandemic must continue. The right of students to obtain good teaching must still be fulfilled. Future lecture activities include developing skills needed in the 21st century. 21st century skills are considered capable of strengthening social capital and intellectual capital (Dorongin, 2017). Communication skills, collaboration, critical thinking and problem solving, creative and innovative. One of the fundamental abilities that must be achieved by students is problem solving ability (Bilgin, 2015). Statistics is a compulsory subject for students of the Department of Physics at Unesa. This course trains analytical skills and solving research cases for thesis completion (Faqih & Lukiyadi, 2014). The practical implications are used in Research Methods and Thesis. When working on a thesis there is a research method, here comes the use of statistics to answer the problem formulation presented. With regard to analytical and problem solving skills, each student has varying capacities in completing assignments, for that it is necessary to make efforts to improve analytical skills in problem solving with models or patterns that can help students complete their assignments (Tresnaningsih, 2013; Setyowati et al, 2019).

Problem solving is a process of applying previously acquired knowledge into new, unfamiliar situations (Nurlela, 2018). Problem solving as an attempt to find a way out of difficulties to achieve a goal (Rosbiono, 2017). Problems that need to be considered,

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