



Development of Chemistry Lecture Sets for Reducing Logical Fallacy in Arguing

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ABSTRACT

Objective: This study aims to develop a lecture set designed to reduce the occurrence of logical fallacies by training students' argumentation skills. **Method:** The lecture sets were developed to refer to the stages of the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). Validity was validated by three validators on student activity sheets and argumentative ability assessment sheets. The validity of the test results was obtained based on the mode of calculation and the percentage of agreement between validators. **Results:** The lecture sets are structured by containing six types of logical fallacies, namely relative privation, blind authority fallacy, hasty generalization, questionable cause fallacy, reification fallacy, and non sequitur, and includes general chemistry lecture material, namely stoichiometry, atomic structure, periodicity of elements, chemical bonds, the concentration of the solution, the equilibrium of ions in the solution, and the colligative properties of the solution. The chemistry lecture sets for reducing logical fallacies in arguing has been declared valid by the validator. **Novelty:** The results of this study can be used as a reference by teachers, lecturers, or other researchers who wish to study more about logical fallacies.

INTRODUCTION

The development of information today is so fast. The flow of information is enormous in terms of quality and quantity. The quality of the information spread in cyberspace is very diverse; some are even misleading and disturbing. Hoaxes contain false news or non-sourced news. Today, hoaxes are very widely spread through internet media. The development of information technology that has quickly triggered the spread of hoax information through the internet has become uncontrolled (Mustofa & Mahfudh, 2019). For example, information on creamer powder, packaged in the video format, is visualized that creamer powder is highly flammable if sprinkled over a fire. The visualization is not wrong, and it is a fact. Problems will arise when the visualization is narrated with misleading information; for example, the creamer contains explosives. The narrative of a fact or news of this kind is a form of statement called a "claim."

The claim states, "If the creamer powder is flammable like an explosive, it can be interpreted that the creamer contains explosives or other materials that resemble explosives." This statement can be categorized as a false claim. This false claim occurs because of a logical error or so-called logical fallacy. A logical fallacy is an error in reasoning that describes irrelevant arguments. The general public still believes in this false claim. This shows that the community still needs to have adequate argumentation skills. In everyday discussions, logical fallacies often occur in society; even scientists are not immune to logical errors. Whether this logical fallacy is innate since the individual is at school or college, answering this question requires an assessment process that can be accounted for through research. If, according to the definition above, then a person's

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