International Journal of Current Educational Research
Homepage: https://www.journal.iel-education.org/index.php/ijocer
Email: ijocer@iel-education.org
p-ISSN: 2961-8517; e-ISSN: 2961-8509

IJOCER, Vol. 2, No. 1, June 2023

Page 66-79

Research on Bibliometric Analysis of Toulmin's Argument Pattern (TAP) in Learning Physics in the Last Ten Years

Setyo Admoko[1*], Kiki Lutfiah Arizah[1], Nadi Suprapto[1], Utama Alan Deta[1], Suliyanah[1], Eko Hariyono[1], Madlazim[1], Rizki Fitri Rahima Uulaa[2], Mohammad Walid Rasuliy[3], Yuli Sutoto Nugroho[4]

[1] State University of Surabaya, Surabaya, Indonesia
[2] National Taiwan University of Science and Technology, Taipei City, Taiwan
[3] International Islamic University of Islamabad, Islamabad, Pakistan
[4] Queen Mary University of London, London, England

DOI: https://doi.org/10.53621/ijocer.v2i1.184

Sections Info

Article history:
Submitted: November 26, 2022
Final Revised: April 24, 2023
Accepted: April 28, 2023
Published: June 3, 2023

Keywords:
Bibliometric;
Learning Physics;
Research Trend;
Scopus Data;
Toulmin's Argument Pattern.

ABSTRACT

Objective: Toulmin's Argument Pattern (TAP) is the most widely used argumentation pattern and was first used in science education. TAP has a significant contribution as literature in explaining the concept of argumentation. This study aims to identify the contribution and describe the research profile of applying TAP in physics education during the last ten years. **Method:** The method used in this research is a bibliometric analysis based on Scopus data with the help of MS Excel and VOSviewer. The results of this study obtained 67 documents related to TAP. **Results:** Based on the results of bibliometric data visualization related to TAP, 4 clusters (1) discuss TAP focused on learning processes and activities in the classroom. (2) the application of TAP focused on assessing argumentation and critical thinking skills (3) TAP was associated with the identification of the components of scientific argumentation (4) TAP related to contextual problem-solving in improving scientific literacy. **Novelty:** Physics is the subject that appears the most in research related to the use of TAP, among other science subjects. Based on the results of this study, TAP has several contributions to physics learning in improving students' argumentation skills so that it can be an opportunity for further research. That way, the next one will be able to discuss more deeply related to the TAP, which is applied to physics learning to improve argumentation and critical thinking skills.

INTRODUCTION

Modern life demands mastery of several essential skills to participate and compete in global competition. Competition in the 21st century encourages everyone to strive for qualified skills (Chalkiadaki, 2018). 21st-century skills are synonymous with 4C: critical thinking, creativity and innovation, communication, and collaboration (Erdoğan, 2019; Jan & Jrf, 2017). Education in the 21st century provides new provisions for the skills students must possess to succeed academically and in life (Erdoğan, 2019). In the 21st century, communication skills are critical. The target is skilled and effective oral and written communication (Chalkiadaki, 2018). In building a skilled and knowledgeable society, 21st-century skills are needed, one of which is arguing (Gonçalves & Silva, 2015; Mishra & Mehta, 2017).

Research on argumentation in science education has grown and intensified over the last twenty years. Argumentation is major in science education (Chan & Erduran, 2022). Argumentation in science education has many benefits, including developing critical skills, promoting a spirit of inquiry, increasing conceptual understanding, and improving student academic performance (Faize et al., 2017). Argumentation is a

6._184_Setyo_Admoko_et_al_66-79.doc

ORIGINALITY REPORT

17%	16%	12%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.journal.iel-education.org Internet Source	4%
2	jurnal.untan.ac.id Internet Source	3%
3	www.atlantis-press.com Internet Source	2%
4	docs.lib.purdue.edu Internet Source	1%
5	Yosan Setyo Utomo, Ashadi, Sarwanto. "Argumentation Skills Profile on 8th Grade Students using Toulmin's Argument Pattern on Controversial Topic", Journal of Physics: Conference Series, 2019 Publication	1%
6	Binar Kurnia, Mohd Zaidi, Nadi Suprapto, Utama Alan, Tsung-Hui Cheng. "The Trend of Physics Education Research During COVID-19 Pandemic", International Journal of Educational Methodology, 2022 Publication	1%