

Development of Guidelines for Writing Scientific Publication Articles for Undergraduate Students in The Department of Civil Engineering

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ABSTRACT

The Students of the Applied Bachelor of Civil Engineering Department in Polines were declared to have passed perfectly after publishing scientific articles in journals. It must be realized by students that the role of scientific publications is very important to support their careers and names after actually graduating from Polines. The aims of this research are (1) to describe the need and urgency of a guide for writing scientific publication articles for students and (2) to develop a guide for writing scientific publication articles for students of the Civil Engineering Department. This study uses a research and development approach. The validation of this guide is carried out in terms of content/material feasibility, presentation, language, and graphics. The target user guide for writing articles for scientific publications is Bachelor of Applied Civil Engineering students. The results of this study are (1) guidelines for writing scientific publication articles are needed to support the skills of Civil Engineering students to be productive in writing scientific publication articles and (2) guidelines for writing scientific publication articles for students of the Civil Engineering Department are developed based on regulations, systematics, and based writing ethics so that the results can be accounted for and have a scientific contribution in vocational College.

Keywords: *R & D, Writing, Scientific publication, Department of Civil Engineering.*

INTRODUCTION

The education in Indonesia runs dynamically and adapts to the times. This is indicated by the existence of various changes in regulations and policies involving educational institutions. These changes were made to create a better and quality Indonesian education. Efforts to improve the world of education are carried out in various ways in accordance with the laws and regulations and the needs of stakeholders involved in the world of education. One of them is by establishing an internal higher education quality assurance system in accordance with the mandate *Permendikbudristekdikti* Number 62 (2016). The establishment of the system is a way to improve the quality of education in universities.

The efforts to improve the quality of tertiary institutions are by preparing students as well as possible in the cognitive, affective, and psychomotor domains. Students must be equipped with various aspects of knowledge that are in accordance with their fields in a comprehensive manner and be able to demonstrate credibility in accordance with the ideas and ideas they have. The affective domain is able to provide experience for students to be able to learn to behave well on campus and off campus in accordance with the context of their desired needs. The psychomotor aspect also has a good impact on students because it is

able to provide scientific fields practically by cultivating and increasing the skills of each student in the academic realm. Learning that is based on increasing student competence which includes the cognitive, affective, and psychomotor domains can make students more academically competent and have character according to the personality of students in higher education (Jannah and Sulianti, 2021).

Improving student competence is the full responsibility of higher education institutions. This is in line with the mandate of the Minister of Education and Culture Number 3 of 2020 concerning National Higher Education Standards. Semarang State Polytechnic (Polines) as one of the state vocational tertiary institutions in Indonesia has an obligation to be able to manage and improve the competence of its students holistically. This is done with various efforts in the field of education both in the cognitive, affective, and psychomotor domains (Agustina, R., & Ikhlas, 2022). Educational activities at Polines are carried out with a composition of 40% theoretical learning and 60% practical learning to support student competency skills in accordance with their fields and competences.

Polines always strives to improve the quality of vocational tertiary education in academic and up-to-date ways. One of the things that is being done is by encouraging lecturers and students to be productive in writing scientific journals, both in the national and international realms. Lecturers are given a target to be able to work through academic writing that comes from research, dedication, and theoretical studies in accordance with the times and technology. Students also feel the urge to make scientific work in the form of journal articles. For students at the D4 or applied undergraduate level, it is hoped that they can make a journal article as a means of completing graduation, while also producing a research thesis in semester 8.

The demand to be able to produce scientific work in the form of journal articles is felt to be very heavy for students. They tend to be confused about where to start writing. In fact, various examples of journal articles are available on various online channels so that by opening a laptop, students can find various models of journal articles that are appropriate to the field of vocational education. The various examples available on online channels were apparently not helpful enough for students to produce writing because they needed other technical matters. Students need the means to read and study practically when writing their final assignments and scientific papers (Budhyani & Angendari, 2021). Therefore, students need to be given academic facilities as a means to minimize their difficulties in writing scientific papers.

The difficulties experienced by students as mentioned above are also experienced by students of the Polines Civil Engineering Department. They need assistance and manual tools to improve their competence in writing scientific journal articles. Thus, the preparation and development of a Guidebook for Writing Scientific Articles for Civil Engineering Students is an answer to the questions and demands of the current needs of applied undergraduate students. This manual is expected to be able to assist students in writing journal articles. This manual consists of several chapters that discuss the nature of scientific publications, journal articles, the systematics of journal articles, and the ethics of writing journal articles. Students can use this manual as well as possible as a means to improve their competency in writing journal articles that originate from research in theses that have been made with the previous academic guidance process.

METHOD

This research is a Research & Development which was carried out from May 2022 to November 2022. This research began with observation, needs analysis, making proposals, the research process, and trials of one class at the Civil Engineering Department. This handbook contains various kinds of knowledge related to the nature of scientific publications, journal articles, the systematics of writing articles, and the ethics of academic writing for students. This research and development procedure is carried out in a simple manner by collecting initial data, product design guidebooks, validation, drafting designs, product revisions, and product finalization according to the needs of students who use this book (Sugiyono, 2011). Researchers only carried out the first 6 steps of research and development due to limited resources and time.

RESULT AND DISCUSSION

Scientific publication is a publication system that is carried out based on regulations and peer review in order to achieve the highest possible level of objectivity. This publication system varies depending on each field, and always changes dynamically because the development of scientific publications is very fast following the progress of the times and the dynamics of progress in the academic world. Scientific publications are currently undergoing major changes due to the transition from print publishing formats to electronic formats, which have a different business model from the previous pattern (Purwanto, Asbari, & Julianto, 2021). The general trend that is running now, access to scientific journals electronically is provided openly. This means that more and more scientific publications can be accessed free of charge via the internet, both those provided by journal publishers and those provided by journal article authors.

Scientific publication is a form of scientific communication to convey ideas, ideas and scientific discoveries in science and technology. Scientific publications contain various perspectives for studying certain scientific fields with the principles of scientific work. Before writing a scientific publication article, the writer must carry out some kind of scientific research carefully and have the right steps. Research in this case also takes various forms because it doesn't have to be based on research in the field, but research can be done by reviewing/studying the literature and then the author can convey his ideas and brilliant ideas in the form of scientific publication articles. In fact, authors of scientific publication articles also have the right to write about "rebuttals" to certain scientific findings or views. The guidelines for Writing Scientific Publication Articles for Civil Engineering Students as long as they are based on scientific and comprehensive reasons and can be scientifically justified.

Scientific publications have an important role in efforts to improve academic quality. Scientific publications are also able to provide an overview of academic visions in the future. In the current era, Guidelines for Writing Scientific Publication Articles for Civil Engineering Students, research and various types of research have developed rapidly in Indonesia so that scientific publications are important in the development of science.

Therefore, every academician must have an active attitude in making scientific publications, especially for students and lecturers who are closely related to academic life and conducting the latest research.

Scientific publications are a forum for communicating data, information, and scientific thoughts from individuals or groups in order to provide scientific contributions and up-to-date knowledge based on research results or a comprehensive literature review (Jabri, & Ismail, 2021). Another role of a scientific publication is as a good archiving tool regarding the findings and results of scientific research as evidence of the capability and professionalism of individuals and institutions in the academic realm, especially in the higher education environment. Higher education has a very vital position in terms of improving the quality of education based on research improvement and published scientifically. The existence of this scientific publication is expected to increase the ability and competence of academics and practitioners to convey their ideas and ideas in the form of scientific articles that are published nationally and international form.

The role of scientific publications for students is a good academic tool because it can hone students' abilities to think logically and analytically in order to express their ideas and ideas in the form of scientific articles (Firmansyah, Qadri, & Arham, 2020). As academics, students must have the character of thinking academically that is able to implement the characters of accuracy, sharp thinking, critical attitude, and responsibility in their portion as students. These characters are ideally attached to students. The results of critical and academic thinking are usually in the form of critical reviews or cutting-edge innovations. This innovation will be more meaningful if it is written in the form of scientific publication articles that can be enjoyed by students and the wider community and of course it is useful for many people. This is a concrete reason that scientific article writing skills are needed for students of thr college.

Students are also required to have the ability to carry out scientific publications in the present. Many campuses have provided policies to students to carry out scientific publications of the final research results of their studies before they are declared to have passed and are entitled to graduate. This is also able to provide a positive indication that the baton of good higher education academics must always be continued scientifically. Students as agents of change should be demanded and at the same time given the widest possible opportunity in order to channel their academic ideas such as writing articles and conducting scientific publications.

The skills of writing scientific publication articles for students need to be socialized and studied comprehensively in the current era (Darmalaksana, 2021). This must be done because producing a scientific publication article is an academic demand that cannot be avoided. To meet this need, students need to be fostered continuously and given concrete facilities as a provision for them to understand the nature of scientific publication articles and also be skilled at writing them carefully, both in the realm of publication at the national and international levels. The tool that can support students' understanding and writing skills of scientific publication articles is a guideline for writing scientific publication articles. Guidelines are written in the form of modules or guides that can be used by students to understand and apply knowledge and knowledge that is specifically discussed (Lisnawita, Van FC, & Musfawati, 2021). Guidelines or modules for writing scientific publication

articles are expected to become Guidelines for Writing Scientific Publication Articles for Civil Engineering Students, namely as a bridge for students to know and understand the realm of academic scientific publication articles. More than that, the existence of a guide for writing scientific publication articles is expected to improve the skills of writing scientific publication articles for students.

A guideline for writing scientific publication articles that are very important for students provides encouragement for writers to create an academic work in the institution that oversees the author, namely the Department of Civil Engineering, Semarang State Polytechnic (Polines). The academic work is in the form of guidelines for writing scientific publication articles intended for students in the Civil Engineering Department. This guideline consists of various materials regarding the nature of scientific publication articles, national and international scientific articles, the systematics of writing scientific articles, and ethics in the systematic writing of scientific publication articles. Based on interviews and field observations, the level of publications by Civil Engineering students is not high. The majority of students are still concerned about doing scientific publications in internal journals at the Department of Civil Engineering and/or those managed by Polines. Students also have not yet explored their ability to improve their skills in writing scientific publications in national and international journals.

Polines has a vision and mission to be better nationally and internationally. This is done by improving the quality of institutional management, facilities and infrastructure, as well as superior human resources, both in terms of soft skills and hard skills. One way to improve this is by providing a structured policy that one of the requirements for D-IV (Applied Bachelor) Polines students can be declared passed if the student has produced scientific publication articles published in national and international journals. This step is taken as a concrete step of implementation *Permendikbud* Number 3 (2020) about *Standar Nasional Pendidikan Tinggi* and *Surat Dirjen Belmawa Kemenristekdikti* Number B/565/B.B1/HK.01.01/2019 about student scientific publications. This will also change the more visionary paradigm that students can become complete academics because apart from being skilled in their fields, they are also able to produce academic work that can be accounted for in the world of education. This will certainly add credibility and value for Polines as an institution that is able to collaborate with students and lecturers to perform at the national level and even internationally.

The campus and Department of Civil Engineering provide a policy that the requirements for students to graduate as an Applied Bachelor are if the student has done scientific publications, both in national and international journals. Therefore, to support the needs of students in the Civil Engineering Department, the authors created Guidelines for Writing National and International Scientific Publication Articles for Civil Engineering Students. The purpose of making this guidebook is as follows. (1) Providing knowledge for students related to national and international scientific publication articles; (2) Provide reference material for students to express their ideas and ideas in writing articles for national and international scientific publications; (3) Increasing students' interests and talents to play an active role in writing articles for national and international scientific publications; (4) Training students to improve their competency in writing articles for national and international scientific publications; (5) Expanding students' horizons in carrying out the

principles of thinking academically and putting them into scientific publication articles; (6) Providing the principles of writing scientific publication articles based on good and correct writing ethics; (7) Instilling self-confidence for students to contribute to the advancement of science.

CONCLUSION

Scientific publication articles are a means of expressing ideas, ideas, knowledge, and new findings which are written based on systematics and published in journals or proceedings so that the ideas of the authors can be widely known. Scientific publication articles produced by students have a role as a means of acknowledging the credibility of academics because they have played a role in the realm of academic scientific writing. This is a good thing for the development of campus life in the present, considering that scientific publication articles in journals are the works of lecturers who conduct research. If there are students who publish, the number is very small compared to the number of lecturers' scientific publication articles. Therefore, the writing of scientific publication articles by students must be supported and facilitated as much as possible.

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