

The Development of Civic Education Scientific Literacy on Improving the Students' Quality of Scientific Work in Higher Education

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Abstract—The background of research by the amount of research produced by students is not balanced with good quality research measurement. Research topics in students' scientific work are often repetitive and even have so much similarity values between one another. Even the topic is already looking obsolete and has no novelty/innovation value in it. One effort that can be done to minimize the symptoms of plagiarism and repetitive topics, it is necessary to mapping the topic of scientific work and methodology to help the birth of student research results in the form of articles published in reputable scientific journals. The purpose of this study is to describe the mapping of the quality of scientific work of postgraduate students of Universitas Pendidikan Indonesia. Research method: The research approach used is a quantitative approach to survey method. Research subjects are Civic experts, lecturers, and students. The result of the research shows that: 1) Mastery of students' ability in preparing scientific works is categorized as 'Good Enough' so that there are some indicators that need to be re-developed their ability in preparing scientific papers both thesis and dissertation; 2) The research topics that become the main reference can be grouped into six dimensions: (a) curricular dimension; (b) Cultural social dimension; (c) The dimensions of Civics; (d) Analysis of Civic Implementation; (e) Character Analysis of Learners, and (f) Analysis of Professional Teacher Development.

Keywords: *civic education, scientific literacy, scientific work, students*

I. INTRODUCTION

One of the missions of the Universitas Pendidikan Indonesia is that the university should be able to conduct research to create and develop innovative educational theories and practices as well as other innovative scholars and rooted in local wisdom. In this case, not only lecturers who must carry *Tridharma Perguruan Tinggi* even students should contribute to research, education, and devotion activities. The final student has the obligation to contract the final project as one of the requirements in completing his / her studies either in S1, S2 or S3 level. By writing a thesis, students contributing to the advancement of scientific knowledge in a research field, a researcher receives recognition from those who will become his peers confirms the new researcher's status as a member of the chosen scientific field [1].

The amount of research produced by the students, especially the Graduate students, is not accompanied by good research quality measurement. Research topics in theses and dissertations are often repetitive and even have so much similarity values between one another. Even the topic is already looking obsolete and has no novelty/innovation value in it. This resulted in student research not having a major impact on the improvement of the nation according to the needs encountered. The fast changing research trends and the considering growing volume of publications, keeping up with the research trends is hard even for experts topics [2], [3] or perform a historical analysis on how research topics change in the past [4], [5], [6].

In addition, the form of plagiarism is often seen among researchers. Scientific works, especially theses, theses, or dissertations should maximize their originality. A scientific work can be said to be original if it meets several criteria as follows: 1) the author says something that has never been said by others; 2) the author performs empirical work that has not been done before; 3) the author synthesizes things that have never been synthesized before; 4) the author makes a new interpretation of the ideas or works of others; 5) the author does something newly done in another country, but not yet done in his country; 6) the author takes the existing techniques to apply them in a new field or area; 7) the author conducts research in various disciplines of science using various methodologies; 8) the authors examine topics that have not been studied by people in the field of science that occupied; 9) the author examines existing knowledge in an original way; 10) the author adds knowledge in a way that has not been done before; 11) the author writes new information for the first time; 12) the author gives exposition to the ideas of others; and 13) the author continues the results of an original work [7], [8].

Students are required to conduct research by observing the quality of science and originality. Thus, this theory is one form of human resource investment that is used for knowledge, skills, values, norms, attitudes, and behaviours that are useful to humans. Technology can improve the quality and competitiveness. Of course, there should be an assessment of the quality of students' writing skills. Based on the background, it will be studying as a student of the Indonesia University of Education. Specifically, the accuracy described in the following questions is as follows: 1) What is

the general way to create a scientific literacy civic education?
2) How the mapping of students' scientific work quality?

II. THEORETICAL REVIEW

A. Scientific Literacy

In revolution industry era, the digital-age literacy skills very needed. The digital literacy skills in accordance consist of basic literacy, scientific literacy, economic literacy, technological literacy, visual literacy, information literacy and multicultural literacy [9]. Scientific literacy means knowledge and understanding of the scientific concepts and processes required for personal decision-making, participation in civic and cultural affairs, and economic productivity. Economic literacy means the ability to identify economic problem, alternatives, costs and benefits; analyze the incentives at work in economic situations; examine the consequences of changes in economic conditions and public policies; collect and organize economic evidence; and weigh costs against benefits [10].

[11] PISA study sees scientific literacy as the capacity to use scientific knowledge, to identify questions and to draw evidence-based conclusions in order to understand and help make decisions about the natural world and the changes made to it through human activity. This was later modified and PISA moved to determining scientific literacy in three dimensions.

First, scientific concepts, which are needed to understand certain phenomena of the natural world and the changes made to it through human activity..... The main content of the assessment is selected from within three broad areas of application: science in life and health; science of the earth and the environment and science in technology.

Second, scientific processes, which are centred on the ability to acquire, interpret and act upon evidence. Five such processes that are present in OECD/PISA relate to: o the recognition of scientific questions o the identification of evidence o the drawing of conclusions o the communication of these conclusions o the demonstration of understanding of scientific concepts.

Third, scientific situations, selected mainly from people's everyday lives rather than from the practice of science in a school classroom or laboratory, or the work of professional scientists. As with mathematics, science figures in people's lives in contexts ranging from personal or private situations to wider public, sometimes global issues [12].

B. Scientific Work

Scientific work is defined as a scientific essay that presents facts and written according to good and correct writing methodology [13]. In the manual for the preparation of scientific papers [14] that writing scientific papers is very important and is part of formal academic demands. At the Indonesian University of Education itself, writing scientific papers can be part of a lecture assignment given by lecturers to students, in the form of essays, bibliographic annotations,

reviews of books, scientific articles, and is one of the requirements for completion of studies to obtain a bachelor, master or doctoral degree in the form of theses, theses and dissertations. In line with what [15] stated, there are several types of scientific works that can be written by people in addition to papers and theses, working papers, research reports, theses and dissertations. It turned out that the term was used to give the name of a written work that is religious. All types of scientific essays that always present a result that is immoral. As for mapping science, it can be done through a variety of ways including co-classification and co-words. Co-words mapping is done through analysis of the appearance of terms that are shared by other documents. Co-words analysis is based on co-occurrence of keywords used to index articles or documents. This method is very useful in mapping the contents of documents in the field of science. The relationship between terms in co-words analysis can be assessed using software [16], [17].

III. RESEARCH METHODS

The research approach used is the qualitative and quantitative approach or known as mixed research (mixed method) with "dominant-less dominant design" pattern [18]. The method of research used survey, that used large and small population for taken data. Use, the definition of a survey on the definition of a sample survey in which information is collected from most populations. So it is different from the census where information collects from or about the entire project [19].

The survey used in this study is categorized in a survey study conducted for the sake of the sample survey. The purpose further, called explaining or explaining namely social phenomena and examine the relationship variable. The characteristics of survey method are descriptive and verification, explanatory or confirmatory, data collected from predetermined samples, data of research variables collected by using certain data tools, ie questionnaires [20], [21].

This study takes a sample of the population using a questionnaire as a basic data measurement tool. [22] states that "in the survey study, the researcher selects a sample of respondents and uses a questionnaire to collect information about the variables the researcher concerned. The population in this study is all students of Universitas Pendidikan Indonesia. Respondents are divided into three parts: Civics Experts/Experts in the field of Civics, learning, research, user or user consisting of S2 and S3 students, and alumni of master and doctoral program Civic Education Universitas Pendidikan Indonesia. The research instrument used as the data collected as follows: 1) Questionnaire (Questionnaire); 2) Field Notes, and 3) Focus Group Discussion (FGD) Guidelines. Qualitative data analysis is carried out through the following steps: (1) deploying data reduction by summarizing field reports, collecting key points appropriate to the research focus; (2) to arrange systematics based on certain categories and classifications; (3) create display data in the form of tables or drawings. The relationship between the data with each other becomes clear and intact (not loose); (4) conduct cross-site analysis by comparing and analyzing data in depth; and (5) organize findings, draw conclusions in

general forms and their application, and develop share [23]. Quantitative data analysis using percentage formula.

To obtain the data range of reality perception in preparing the scientific work of thesis and dissertation is obtained from the result of questionnaire dispersion as much as 23 items of questions distributed to 53 students. Questionnaires that researchers disseminate are closed questionnaires, ultimately the respondent does not need to explain the answers to the proposed statement items. The scale used in making the questionnaire (+) to negative (-) with a score: strongly agree (5); very mastered (4); master (3) enough master; (2) not mastering, and very not mastering (1).

IV. DISCUSSION

A. Students' Basic Capability in Preparing Scientific Work

Based on data, the percentage results of each of the theses and dissertations, it is necessary to describe the average achievement of each indicator. If depicted in a graph of the average scores of each indicator then it can be seen the largest average achievement as follows:

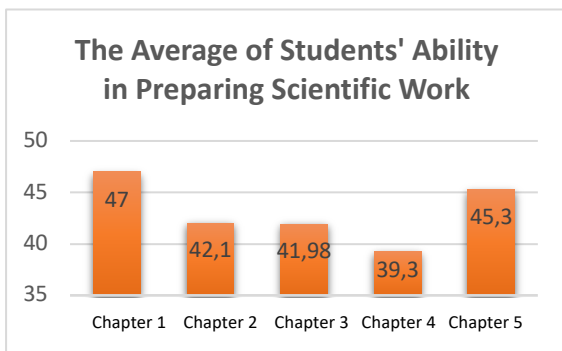


Figure 1. The Average of Students' Ability in Preparing Scientific Work

Based on the diagram above shows that the level of mastery of students' ability in preparing higher scientific work in chapter 1. Students have the ease and understanding in arranging abstract, background problems, problem identities, problem formulation, research objectives and research benefits. While the level of mastery of the ability of students in preparing the lower scientific work in chapter 4. This means that students lack the mastery and understand in preparing descriptions of research results, hypothesis testing, and discussion.

Then after accumulated as a whole that the mastery of students' ability in preparing scientific papers has an average category of 43.14% of the respondents of 53 people with a minimum value of 39.3% and a maximum value of 47.5. Referring to the description table, obtained the mean value for the variable X is 43.14 by classifying the category of 5 answer options from 24 statement items, then obtained the following classification:

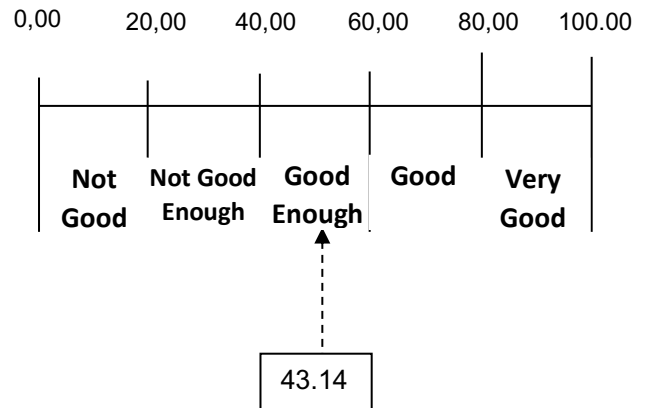


Figure 2. Mastery of students' ability in preparing scientific works

Based on the classification can be said that, mastery of students' ability in preparing scientific works belonging to the category 'Good Enough' so that it looks some indicators that need to be developed ability in preparing scientific papers both theses and dissertations.

B. The Mapping of Students' Scientific Work Quality

Problems in choosing a research topic can arise in the event of a very frequent repetition by students with previous researchers. With this condition, then the control of the research topic or title of research needs to be done. Research mapping can be done by analyzing the coverage of subject/research topics to avoid plagiarism and evaluation of the research topic categories that still need to be developed [24]. Based on the examination that has been done on 235 titles of scientific work each of 201 thesis titles and 34 titles dissertation produced from 2014 until 2017. The results obtained show the diversity of research topics from theses/dissertations that have been produced based on issues citizenship. Some of the current and up to date citizenship issues based on current developments include the following: 1) Development of Civic Education as socio cultural movement in society; 2) The development of learning models (methods, media, teaching materials, and evaluation) that can make Civic Education a powerful study area (fun, challenging, meaningful, integrated, and value-based); 3) Assessment of the problems of the nation state from the perspective of Civic Education that is able to provide a way out for Indonesia from adversity to rise into a more advanced and civilized nation State in global arena; 4) Assessment of law enforcement efforts in democratic and welfare states that require good citizenship. One of the efforts of establishing good citizens through the process of civic education and/or citizenship Education; 5) Assessment of the change of values that occurs when schools are confronted with students who are more interested in new cultures. Assessment of the various efforts of schools in the conduct of the national identity that is challenged by new cultural elements brought especially by the mass media. Assessment of possible conflicts between receiving what the school sends and what is received from cultural agents from outside the school,

particularly television; 6) Assessment to understand and strengthen commitment to the basic state (Pancasila), Basic Law (UUD NRI 1945), Unitary State of the Republic of Indonesia, and Bhinneka Tunggal Ika, and 7) Critical and reflective assessment of the philosophy and science of Civic Education (ontology, epistemology, axiology) to produce agreement of the academic community and scientific tradition and the achievement of an agreement on the Civic Education scientific paradigm.

The issue of citizenship which becomes the reference of the above research topics can be grouped into six dimensions which are: 1) curricular dimension; 2) Cultural social dimension; 3) Civic Dimension; 4) Analysis of Civic Implementation; 5) Character Analysis of Learners, and 6) Analysis of Professional Teacher Development. More can be illustrated in the following figure 3.

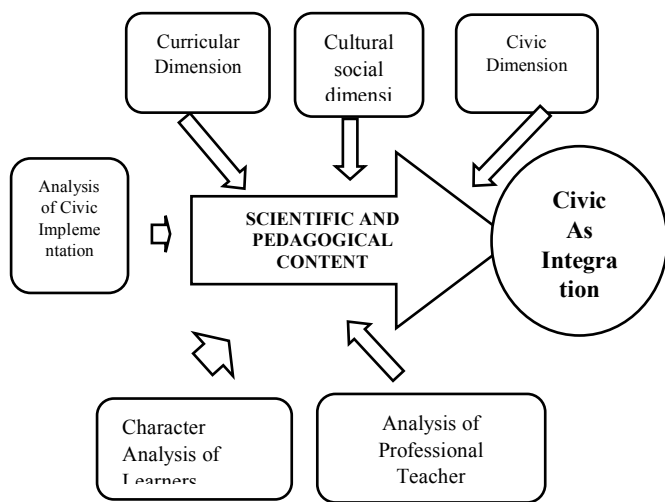


Figure 3 : Plot and Scope of Civic Education Research

The results as mentioned above show some research findings that can be analyzed by using various theories and views as follows:

First, based on the results of data processing shows that the mastery of students' ability in preparing scientific works belonging to the category 'Enough Good' so that it looks some indicators that need to be developed ability in preparing scientific papers both theses and dissertations. The level of mastery of the students' ability in preparing the higher scientific work in chapter 1. Master and doctoral students have the ease and comprehension in arranging abstract, problem background, problem identity, problem formulation, research objectives and research benefits. While the level of mastery of the ability of students in preparing the lower scientific work in chapter 4. This means that students lack the mastery and understand in preparing descriptions of research results, hypothesis testing, and discussion. Students need to do a description of the findings of facts and data obtained during the study, both quantitative data and qualitative data. For examples, which make clear that key elements of good writing include: Asserting a thesis (up front); developing an argument through use of analysis and synthesis of sources, facts, and legal argument (weighed in a measured way); and

writing in a clear, simple, and direct or concrete tone [25], [26], [27].

In the results of the research thesis writer/dissertation students are expected to present data and facts in the form of narration, tables, drawings, graphs, or diagrams. The data presented in the form of tables or diagrams should be described in a narrative, by giving an interpretation of the contents of the table or diagram presented. While the discussion, written analysis or study of the results found in the study. The study or analysis was done by explaining what was produced in the study, then linked with other relevant studies and theories used as the basic framework of the study. The existence of conformity between the results and the theory referred to or the fundamental differences that appear should be described in detail, with the author's analysis, what factors underlie the existence of such differences.

[28] states that there are two general patterns that can be followed, ie, nonthematic and thematic patterns. The nonthematic way is the way of exposure of discovery and discussion that is separated, while the thematic way is the way of exposure of the combined findings and discussion. Exposure of findings and discussion on qualitative research, the researcher presented the results of the data analysis and evaluated whether the major findings resulting from the analysis of the data answered the proposed research question. Meanwhile, the exposure of quantitative research findings as described by the [29] is usually preceded by the delivery of data processing results that can be in the form of tables or graphs in which contains statistics both descriptive and inferential about the variables that become the focus of research do. Things to remember here are important principles related to how data is presented to make it easier for readers to understand the results of research that has been done.

Secondly, the research themes that have been designed by the Civic Education Study Program for the integrated S1, S2 and S3 courses for a period of 5 years from 2013 to 2017 are adjusted from six dimensions to five dimensions including: dimensions curricular, cultural social dimension, science dimension of Civics, dimension of characteristic analysis of learners in school, and dimension of professional teacher development. Overall aspects of each of these dimensions amounted to 48 themes. Of the 48 issues that became the center of attention in the field of civic education, there are 14 topics of thesis and dissertation research produced by master and doctoral students of Civic Education Universitas Pendidikan Indonesia. The number of research topics in the first rank is "Development of the character of Indonesian society based on Pancasila values" of 48 titles (23.9%). Next, number two is about "Development of Value Dimension and Attitudes in School" as much as 34 titles (16.9%). After that the top three topics are about "Ethnopedagogical Studies in local and / or local genius (local wisdom)" as many as 29 titles (14.4%). The fourth most recently selected topic is in the fourth place on "Innovative Civics Learning Models in Schools (Direct

Learning, Problem Based Learning, Cooperative Learning, etc.)" of 12 titles (6.0%).

The tendency of research conducted at master and Ph.D students of Post-Graduate Civic Education UPI tend to have a focus or a similar topic, this is related to the process of meeting the increasingly obstructive study. Students are more practical, follow the trend, innovation, and have a tendency to give up in completing their studies. It can also be understood because since following the education, students are faced with issues and situations related to the development of the character of both researches conducted by lecturers and students. In addition, the relatively recent course of character education theory followed by graduate and post-graduate students raises the desire to test whether the theories can be successful if carried out in their daily tasks. Another tendency that appears from the results of the studies, especially the students of the Graduate School either master and doctoral is the achievement of research objectives related to the purpose of Civic Education in fulfilling the participation of quality and responsibility in the life of politics and society both at local and national level. Such participation requires the following civic competencies: (1) mastery of certain knowledge and understanding; (2) development of intellectual and participatory abilities; (3) the development of certain characters or mental attitudes; and (4) a true commitment to the fundamental values and principles of constitutional democracy [30].

This change follows the phenomenon of growing educational problems in the field. Some changes tend to focus on the method of study and the field of study, some topics tend to disappear and certain topics tend to reappear [31]. Based on research [32] providing insights into the topics that have the potential to become trending topics in the future is also important for researchers to catch up with the rapid progress of research. The results are the publications 2016, which denotes reinforcement learning is predicted as the fastest rising trending topic in Indonesia. In 2017, the percentage of papers working on 'reinforcement' even increases up to 21/466. With the predicted rising topics, researchers could change to explore new promising research topics in their future studies.

V. CONCLUSION

The conclusions of the research results obtained until the final report are prepared are as follows: 1) mastery of students' ability in preparing scientific works belonging to the category 'Good Enough' so that it looks some indicators that need to be developed ability in preparing scientific papers both thesis and dissertation; 2) the results of expert validation on the quality of scientific works both thesis and dissertation shows that most aspects of the quality criteria of scientific work have been considered good with an average of 43.24%; 3) Research trends conducted at master and doctoral students of Post-Graduate Civic Education of Universitas Pendidikan Indonesia tend to have a similar focus or topic, especially the first research topic is "Development of the character of Indonesian society based on Pancasila values" of 48 titles (23.9%); 4) graduate and postgraduate

students in completing the study including in the preparation of thesis and dissertation experienced several internal constraints, including difficulties in writing the thesis, busyness, not having enough time to solve, lazy, have family problems, insufficient operational funds, suitable for guidance. Most master students of Civic Education and doctoral as much as 38.5% have their own busy so that in completing the thesis and dissertation experience obstacles; 5) efforts are made to improve the quality of research and develop the quality of scientific work of students in the aspects of counseling, code of ethics, plagiarism, testing/assessment of research results, recognition and research results, joint research partners, and publications.

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