

Developing Text-Based and Character-Based Indonesian Textbooks through Active Learning to Improve the Undergraduate Students' Scientific Writing Skills

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ABSTRACT

Textbooks are learning tools used to support a teaching program. Textbooks are standard books, compiled by experts in their fields for teaching purposes and objectives. Textbooks are equipped with teaching facilities that are harmonious and easily understood by users both in the school or college environment, so that they can support any teaching program. The curriculum becomes a guide in the use of textbooks, which in its development is also adjusted to the learning objectives. In addition to using books, instructors can use facilities or techniques in accordance with the goals that have been made previously. The use of textbooks by combining textbooks, methods and other facilities is intended to facilitate the use of books, especially students in understanding the material. The purpose of this study is to describe (1) the needs of students and lecturers in Indonesian textbooks based on text and characters; (2) the development of Indonesian textbook models based on text and characters; (3) the effectiveness of the books developed, and (4) the distribution of products.

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This type of research is research and development using Research and Development (R& D) method which refers to Borg and Gall (1983). The research conducted in 4 stages, namely: (1) introduction, (2) model development, (3) model testing, (4) dissemination. The research approach in the exploration stage is a qualitative descriptive approach. Data collection finished through in-depth interview studies, observation, documentation, and questionnaires. Data analysis techniques were carried out with interactive analysis models. Model testing was carried out by experimental research.

The results of this study indicate: (1) the exploration phase shows that Indonesian language textbooks used in UNS, UMS, and UNISRI Surakarta, are not suitable for the needs of students and lecturers, (2) the stage of developing the model produces character-based textbooks through initial field testing; and (3) effectiveness testing shows that the t value obtained is 0.17 which is then compared with the number of at tables (with $N = 90$, $\alpha = 0.05$) designating 1.64. Thus, the t-obtained (0.17) > t-table (1.64), the hypothesis was accepted (H_0 rejected), and the textbook stated significantly.

It means that the text-based and character-based Indonesian book was useful to improve scientific writing skills.

1. Introduction

Textbooks are textbooks in specific fields of study, which are standard books, compiled by experts in the area for instructional purposes and objectives, which equipped with teaching facilities that are harmonious and easily understood by the users in schools and colleges. High so that it can support something teaching program (Tarigan & Tarigan, 1986: 13). The use of textbooks based on learning objectives that refer to the curriculum. In addition to using books, instructors can use the facilities or techniques that are by the goals that have made previously.

The use that combines textbooks, methods and other facilities is intended to facilitate the use of books, especially students in understanding the material.

Writing skills for college students is a must (Sarwiji, 2002). College students are always involved with writing activities in their daily studies. Writing activities that they do is in the form of writing papers, writing a book report,



and ultimately writing a thesis or a dissertation by the level of their education. Conditions that occur in the Indonesian language learning in the undergraduate degree of Elementary Teachers Education (ETE) Program in Surakarta was not encouraging. It derived from the fact that the students' writing ability was low. Students found difficulties in finding the root of the problem to be written. They also do not master the rules of the Indonesian language use. In general, students experience difficulties in writing scientific papers. These difficulties include: (1) finding topics or issues to be written, (2) finding writing materials or references, (3) composing active sentences, (4) composing good paragraphs, and (5) mastering scientific writing techniques (Maslakhah, 2005). Some of these difficulties still occur to date.

Supriadi (2007) said that the recent rapid development of information flow requires the academic community in college to have the ability to write to support the learning as well as to enliven and stimulate a national culture. Intellectuals often convey ideas orally (as speakers) through seminars, interactive discussions, debates, and so on. It would be

better if they complete the materials in written form. For those reasons, this research is essential to help and guide the students in following the lecture of Indonesian language learning through active learning. Based on the explorative study, the lecturers' and students' need for text-based and character-based Indonesian textbook to improve scientific writing skill, the book of Indonesian language is expected to be more appropriate and by the needs and characteristics of the students.

Mahsum (2013) revealed that all Indonesian language lessons start from elementary school through high school are text-based. Likewise, Indonesian language learning in college should be text-based. With text-based, students use the language not only as a means of communication, but also a method of developing the ability to think. Therefore, this text-based learning needs to be understood by observers of Indonesian language teaching, teachers, lecturers, students, and related parties. It is appropriate that Text-Based Learning Textbook through Active Learning is used by undergraduate students in Elementary Teacher Training Program in Surakarta region, to improve the ability to write scientific writing.



According to Mustari (2014), the inculcation of character values is one of the fundamental efforts to empower the quality and quantity of characters to prepare the nation's current and future generations. Character values are developed based on 18 indicators, including religious, honesty, tolerance, discipline, hard work, independent, creative, democratic, curiosity, the spirit of nationality, love the country, appreciate the achievement, friendship, peace, reading habits, environmental care, social care, and responsibility. To implement the values of these characters in learning, among others is through Indonesian education for undergraduate students of Elementary Teacher Training Program in Surakarta region.

Ulum (2014) concluded that important character education is instilled to equip students independently. According to Asma (2014) states that character values include religious values, social norms, regulations or legal values, academic ethics, and human rights. This can be grouped into four main core values, namely: the benefits of human behavior towards its creator, society, nature and the environment, and the nation. Active learning in

activities that help students to test their feelings, values, and behavior (Silberman, 2006). Silberman explained during active learning; students do many activities. Students use their thinking to learn and develop ideas, solve problems, and implement what they learn in solving problems. According to Lorenzen (2001), active learning is a method of inviting students to be able to actively participate in group spaces. Active learning aims to optimize the use of all potentials possessed by students so that all students can achieve satisfying learning outcomes according to their characteristics.

Cherney (2008) reveals that the application of active learning depends on the level of the program, the material, the type of student, the kind of group, as well as the discussion required by the students to improve the understanding of the article. The application of active learning is needed to enhance the knowledge of Indonesian language receptive skills. The results of research conducted by Meyers & Jones (1993) concluded that by the application of active learning strategies, students could express in four aspects of language skills: listening, speaking, reading,



and writing. Prince's research (2004) concluded that the selection of active learning strategies in learning is an appropriate consideration to make learning effective. Active learning is a useful teaching technique when compared with conventional teaching techniques. The success of Indonesian language learning cannot separate from the existence of textbooks. Textbooks contain specific materials used as a teaching and learning guide at the school (Richards & Rodgers, 2002). Textbooks usually used in conjunction with other learning resources such as workbooks, teacher reference books or supporting texts (Tomlinson & Masuhara, 2008). Due to the need for text-based and character-based Indonesian textbook, this research is urgent to be done immediately in the undergraduate ETE Program in Surakarta.

2. Research Method

Type of the research used in this study was a development study proposed by Borg and Gall (2003). Furthermore, Borg and Gall said that research and development is a process used to develop and validate educational products. The study includes four stages: (1) exploration stage, (2) model development stage, (3) model

testing stage, and (4) dissemination and model implementation stage (Sukmadinata, 2010; Nurkamto, 2012). Exploration stage has done an in-depth study on the implementation of Indonesian language learning in the Undergraduate ETE Program in Surakarta. The purpose of this stage was to analyze students' and lecturers' need for Indonesian textbooks (text-based and character-based) that are considered able to improve students' scientific writing abilities optimally. The research approach used was the qualitative descriptive approach. Researchers emphasized the observation of the interaction between students and lecturers in the implementation of Indonesian language learning in the research location. Researchers also conducted in-depth interviews and questionnaires to the students and the lecturers and analyzed documents relating to research problems.

The data of this study obtained from various data sources available at the study sites. Types of data sources used were: 5 students and five lecturers, an Indonesian learning process in the group room and documents or archives. Data collection techniques used were in-depth interviews, observation, documentation, and



questionnaires. Data analysis of this research done by interaction analysis model (Miles and Huberman, 1992; Sutopo, 2002), conducted in 2 stages: during data collection and after the data collection process. In the model development stage, the primary objective was to produce an Indonesian textbook model (text-based and character-based). The development of a prototype textbook model was done in a cycle, which was both research and practice (Gall et al., 2003). The steps taken include preparation of prototype, implementation, evaluation of the application, and revision in a sustainable manner. The procedure used is the Glanz model theory guide (in Gall et al., 2003), which includes: data collection, analysis, data interpretation, reflection, and modification. The next cycle finished with the same procedure. Also, the Zuber-Skerritt model also used (in Cohen, 2000), which includes: careful planning, implementation of plans, observation, assessment, evaluation, critical analysis of implementation results, and subsequent cycle determination.

The development process finished with testing the textbook model in the field, through limited trials and extensive trials. Limited testing conducted in the Undergraduate ETE Program in Sebelas Maret University Surakarta. Extensive experiments conducted in the Undergraduate ETE Program in UMS Surakarta and UNISRI Surakarta. Data collection techniques used were in-depth interviews, participant observation, document analysis, tests, and focus group discussions.

Data analysis was finished in two ways: qualitative and quantitative. The model that has tested, then consulted with the expert so that the developed textbook model has substantive truth and quality. Validation finished by Prof. Dr. Herman J. Waluyo, M.Pd. (Indonesian language learning expert).

The model testing stage was aimed to test the effectiveness of Indonesian textbook models designed in improving students' scientific writing skill. Model testing finished by conducting experimental research. The type of empirical research used was quasi-experimental research. The innovative research design chosen was Quasy-experimental Design Model with Non-



equivalent Before-after Design (Wiersma, 1986; Cohen et al. 2000; Sugiyono 2013). The experimental procedures used were the concepts of Gall, Gall, & Borg (2003) and Cohen (2000). The experimental group used was 90 students of Undergraduate ETE Program Sebelas Maret University Surakarta. The control group was 85 students of Undergraduate ETE Program UMS Surakarta. The test was used to find the primary effect of Indonesian textbook designed on the students' ability to write a scientific essay.

Data collection techniques used were scientific writing test. The analysis of the research data finished through two stages, namely the requirements analysis test stage (normality test, homogeneity test, and balance test) and the data analysis stage to test the effectiveness of the model using independent t-test. The output of the model testing phase was a text-based and character-based Indonesian textbook that checked in a process and product. The dissemination phase finished by socializing the Indonesian textbook that has developed in the hope that the book implemented on scientific writing lessons, especially in universities that have Undergraduate ETE Program.

Dissemination finished through national seminars, article writing in international journals, as well as publishing the textbook with ISBN.

3. Result and Discussion

Based on the findings at the exploratory stage it can be concluded that there were problems in Indonesian learning of the ETE Program. The issues were (1) the absence of Indonesian textbooks, (2) the lack of ongoing education to improve students' scientific writing skill, (3) lecturers' lack of understanding of Indonesian scientific writing, and (4) an innovative learning models. In principle, students, lecturers, and policymakers agreed that Indonesian textbook (text-based and character-based) needed to develop immediately. Furthermore, based on the analysis of the students' and lecturers' need, the following results have achieved; (1) text-based and character-based Indonesian textbook needed to be developed to facilitate and guide students in improving scientific writing skills, (2) innovative learning procedure needed to be applied as a solution to the saturation of students in monotonous and non-varied lectures, and (3) validated scientific texts

needed to be given to help improving students' scientific writing skills.

Based on the findings at the exploration stage, there were six phases to be done at this stage of development, they were: (1) developing prototype into a textbook, (2) validating prototype through expert judgment, (3) validating and improving the prototype through limited trial in Undergraduate ETE Programs in Surakarta, (4) validating the model development outcomes though broader trials in the Undergraduate ETE Programs in Surakarta, (5) determining the textbook model, and (6) concluding the result.

This research data was in the form of scientific writing score of the Undergraduate ETE Program students in Surakarta area which used as a research sample, both for experimental group and the control group. In the experimental group, 90 respondents from the Undergraduate ETE Program of Sebelas Maret University, Surakarta, were given treatment in the form of teaching and learning process using an Indonesian textbook model developed through active learning. On the contrary, 85 respondents from the control group who came from the students of the

Undergraduate ETE Program of Muhammadiyah University Surakarta were treated using the old textbook model.

Referring to the above explanation, the total number of respondents was 175, i.e., 90 respondents in the experimental group, and 85 other respondents in the control group. In the experimental and control groups, all respondents were given a scientific writing skill test at the beginning (pre-test) before the experimental treatment performed. Meanwhile, after surgery, all respondents completed another analysis, called post-test.

Based on the description above, the research data description grouped into 6 (six) groups, namely: (1) pre-test score data of scientific writing ability on experimental group; (2) post-test score data of scientific writing skill in experimental group; (3) pre-test, post-test deviation score data of scientific writing skill in experimental group (4) pre-test score data of scientific writing skill in control group; (5) post-test score data of scientific writing skill on control group; and (6) pre-test post-test deviation score data of scientific writing skill in control group. Each group of research data described in the following statistics: (1) the



calculation of central tendencies, such as: mean, median, mode; (2) spread tendency, such as: variance and standard deviation; (3) the highest score; (4) the lowest rating; (5) span; (6) the frequency distribution; and (7) the histogram image frequency score.

Pre-Test Score Data On Scientific Writing Ability On Experimental Group

Based on the descriptive analysis conducted using the Excel 2013 program, the pre-test score of scientific writing skill from 90 experimental students could be reported as follows:

Table 1. Descriptive Analysis Assisted By Office Excel 2013 Program

Categories	Measure	Value
Central tendency	Mean	68.81
	Mode	67
	Median	68
Spread tendency	Variance	11.89
	Standard Deviation	3.45
	High Score	77
	Lowest Score	59

The frequency distribution of the pre-test score of students’ scientific writing skill was obtained through the calculation stages as follows:

- 1) determine the range, i.e., by reducing the highest data with the lowest data. The most top data was 77, and the lowest data was 59. Thus, the range was 18;



2) determine the number of interval classes. In this study five interval classes were used;

3) determine the length of the interval class by way of the range value divided by the number of interval classes, $18: 5 = 3.6$

which then rounded to 4.

4) choose the lower end of the first interval group. It finished by taking the weakest data. Therefore, the first interval group starts with a score of 59.

Based on the steps of preparing the frequency distribution, then the frequency distribution of the experimental group pre-test score of scientific writing skill could be seen in Table 2 below.

Table 2. Frequency Distribution Of Experimental Group Pre-Test Score

Interval	Absolut Frequency (f abs)	Relative frequency (%) (f rel.)
59 – 62	3	3,33
63 – 66	19	21,11
67 – 70	39	43,33
71 – 74	24	26,67
75 – 78	5	5,56
Total	90	100,00

b. Post-Test Score Data Of Scientific Writing Skills In Experimental Group

Based on the descriptive analysis conducted with the Excel 2013 program, the post-test score of 90 undergraduate students' scientific writing skill of Undergraduate ETE Program at Sebelas Maret University, Surakarta could be reported:

Table 3. Descriptive Analysis Assisted By Office Excel 2013 Program

Categories	Measure	Value
Central tendency	Mean	77.68
	Mode	75
	Median	77
Spread tendency	Variance	23.97
	Standard Deviation	4.90
	High Score	88
	Lowest Score	68

Based on the calculation above, the frequency distribution of experimental group students' scientific writing skill post-test score could be presented in Table 4 below.

Table 4. Frequency Distribution of Experimental Group post-test score

Interval	Absolut Frequency (f abs)	Relative frequency (%) (f rel.)
68 – 71	9	10,00
72 – 75	26	28,89
76 – 79	23	25,56
80 – 83	18	20,00
84 – 87	13	14,44
88 – 91	1	1,11
Total	90	100,00



c) Pre-Test Post-Test Deviation Score Data Of An Experimental Group

Based on the descriptive analysis conducted using Excel 2013 program, pre-test, post-test deviation score of 90 undergraduate students’ scientific writing skill of ETE Program at Sebelas Maret University Surakarta could be reported:

Table 5. Descriptive Analysis Assisted By Office Excel 2013 Program

Categories	Measure	Value
central tendency	Mean	8.87
	Mode	6
	Median	8.5
Spread tendency	Variance	13.76
	Standard Deviation	3.71
	High Score	17
	Lowest Score	2

Based on the above calculation, then the frequency distribution of the pre-test, post-test deviation score of the experimental group could be seen in Table 6 below.

Table 6. Frequency Distribution Of Pre-Test, Post-Test Deviation Score Of Experimental Group

Interval	Absolut Frequency (f abs)	Relative frequency (%) (f rel.)
2 – 4	10	11,11
5 – 7	25	27,78
8 – 10	27	30,00
11 – 13	17	18,89
14 – 16	7	7,78
17 – 19	4	4,44
Total	90	100,00



d) Pre-test score data of scientific writing skill in the control group

Based on the descriptive analysis conducted using Excel 2013 program, pre-test score of 85 undergraduate students’ scientific writing skill of the ETE Program in Muhammadiyah University Surakarta could be reported:

Table 7. Descriptive Analysis Assisted By Office Excel 2013 Program

Categories	Measure	Value
central tendency	Mean	63.81
	Mode	63
	Median	63
Spread tendency	Variance	12.70
	Standard Deviation	3.56
	High Score	72
	Lowest Score	54

Based on the above calculation, the frequency distribution of the control group pre-test score could be present in Table 8 below.

Table 8. Frequency Distribution Of Control Group Pre-Test Score

Interval	Absolut Frequency (f abs)	Relative frequency (%) (f rel.)
54 – 57	4	4,71
58 – 61	18	21,18
62 – 65	37	43,53
66 – 69	20	23,53
70 – 73	6	7,06
Total	85	100,00

e) Post-Test Score Data Of Scientific Writing Skill On The Control Group

Based on the descriptive analysis conducted using Excel 2013 program, post-test score of 85 undergraduate students' scientific writing skill of ETE Program at Muhammadiyah University Surakarta could be reported:

Table 9. Descriptive Analysis Assisted By Office Excel 2013 Program

Categories	Measure	Value
central tendency	Mean	72.78
	Mode	70
	Median	73
Spread tendency	Variance	13.36
	Standard Deviation	3.67
	High Score	80
	Lowest Score	65

Based on the above calculation, the frequency distribution of the control group post-test score could be presented in Table 10 below.

Table 10. Frequency Distribution Of Control Group Post-Test Score

Interval	Absolut Frequency (f abs)	Relative frequency (%) (f rel.)
65 – 67	6	7,06
68 – 70	22	25,88
71 – 73	20	23,53
74 – 76	20	23,53
77 – 79	16	18,82
80 – 82	1	1,18
Total	85	100,00

f) Pre-Test Post-Test Deviation Score Data Of Scientific Writing Skill In The Control Group

Based on the descriptive analysis conducted using Excel 2013 program, pre-test, post-test deviation score of 85 undergraduate students' scientific writing skill of ETE Program at Muhammadiyah University Surakarta could be reported:

Table 11. Descriptive Analysis Assisted By Office Excel 2013 Program

Categories	Measure	Value
central tendency	Mean	8.96
	Mode	8
	Median	9
Spread tendency	Variance	11.92
	Standard Deviation	3.45
	High Score	17
	Lowest Score	2

Based on the above calculation, then the frequency distribution of the pre-test, post-test deviation score of the control group could be seen in Table 12 below.

Table 12. Frequency Distribution Of Pre-Test Post-Test Deviation Score Of Control Group

Interval	Absolut Frequency (f abs)	Relative frequency (%) (f rel.)
2 – 4	8	9,41
5 – 7	22	25,88
8 – 10	29	34,12
11 – 13	18	21,18
14 – 16	4	4,71
17 – 19	4	4,71
Total	85	100,00



2. Requirement Analysis Test

An inferential data analysis, which was to prove whether the research hypothesis was accepted or rejected was done using the statistical test of the independent t-test. Data analysis with statistical technique required some requirements analyzed. These requirements include: (a) the normality test, (b) the homogeneity of variance test, and (c) the balance test. The data normality test was performed using the Lilliefors technique. Meanwhile, the homogeneity of variance test was achieved using the Bartlett-test technique; and the balance test was performed using the independent t-test technique.

a) Normality Test

As mentioned in the statement above, the data tested by normality in this research were two, namely (1) pre-test post-test deviation score of experimental groups, and (2) pre-test post-test deviation score of the control group. Here are the normality test results for both groups of the above data.

Normality Test Result of Pre-test Post-test Deviation Score for Experimental Group

Normality test on pre-test, post-test deviation score of undergraduate students' scientific writing skill in the experimental group resulted in a maximum L_0 of 0.0910. From the list of critical values L for Lilliefors test with $N = 90$ and the real level $\alpha = 0.05$ obtained $L_t = 0.0934$. From the above comparison, it appeared that L_0 was smaller than L_t , so it concluded that the pre-test, post-test deviation score of students in the experimental group came from the normally distributed population.

Normality Test Result of Pre-test Post-test Deviation Score for Control Group

Normality test on pre-test, post-test deviation score of undergraduate students' scientific writing skill in the control group resulted in a maximum L_0 of 0.0927. From the list of critical values L for Lilliefors test with $n = 85$ and the real level $\alpha = 0.05$ obtained $L_t = 0.0962$. From the above comparison, it appeared that L_0 was smaller than L_t , so it concluded that the pre-test, post-test deviation score of students in the control group came

from the normally distributed population.

b) The Result from The Homogeneity Of Variance Test

The homogeneity of variance test was conducted to test the similarity of variance between pre-test post-test deviation score of students in the experimental group and control group. The statistical technique used for this purpose is by the Bartlett's method. This test was intended to test the null hypothesis (H_0) which stated that the variance of pre-test, post-test deviation score of students' scientific writing skill in the experimental group and the control group was homogeneous on the level of $\alpha = 0.05$ against the alternative hypothesis (H_1) which states that the variance of pre-test post-test deviation score of students' scientific writing skill in the experimental group and the control group was not homogeneous at the same real level. The test criterion used was that H_0 rejected if it turns out, is smaller or equal to at the practical level $\alpha = 0.05$. Conversely, if the is higher than at the functional level $\alpha = 0.05$, H_0 is accepted which meant that the variance was homogeneous.

Homogeneity of variance test of pre-test, post-test deviation score of students in the experimental group and the control group showed = 0.46. From the chi-squared distribution table with df (degrees of freedom) 1 and the real level $\alpha = 0.05$ obtained = 3.84 which is much larger. Thus, based on the testing criterion, the null hypothesis (H_0) which stated that the variance of pre-test, post-test deviation score of students in the experimental group, and the variance of pre-test post-test deviation score of students in the control group accepted homogeneously. In conclusion, the difference of the pre-test, post-test deviation score of students' scientific writing skill in both groups was homogeneous.

c) Balance Test Result

The balance test was aimed to test the average equation of student scientific writing skill between the experimental group and the control group. The statistical test used was the t-test with the real level $\alpha = 0,05$. The hypothesis proposed: H_0 : if obtained > table, then the variance of students' scientific writing skill score of both groups were not balanced. H_1 : if the obtained < table, then the variance of students' scientific writing skill score of both

groups were balanced. The test result showed obtained $(-0.0037) < \text{table } (1.645)$. In conclusion, the average score of students' scientific writing skill of experimental group balanced with the control group.

3. Hypothesis Testing

Hypothesis testing was to know whether the proposed null hypothesis (H_0) rejected, or vice versa at a certain level of confidence the proposed alternative hypothesis (H_1) was accepted. By those mentioned in the previous section, testing of the research hypotheses tested by independent t-test technique. The statistical analysis technique was used to observe the effectiveness of the treatment in using text-based and character-based Indonesian textbook model through active learning, compared to those who did not use the textbook. The effectiveness of text-based and character-based Indonesian textbook model through active learning to improve the students' scientific writing skill of ETE Program Surakarta (UNS and UMS) was validated.

Based on statistical analysis with independent t-test technique obtained $t\text{-obtained} = 0.17$. Meanwhile, the critical area (df): $t(0.05: 173) = 1.64$ so df $\{t < -1,64 \text{ or } t > 1.64\}$ and $t = 0.17 < \text{do so } H_0: \mu_1 \neq \mu_2$ was accepted. Thus, there was a significant difference between students' scientific writing skill who were taught using text-based and character-based Indonesian textbook model through active learning, compared to students' scientific writing skill taught using the existing textbook model. In other words, it concluded that the text-based and character-based Indonesian textbook model through active learning could improve students' scientific writing skill.

The implementation of active learning was very supportive of Indonesian language learning to improve scientific writing skill optimally. Cherney (2008) concludes the application of working knowledge based on the level of the program, the material, the type of student, the kind of group, as well as the discussion required by the students to improve the understanding of the article.

Implementation of active learning is needed to enhance real knowledge, including scientific writing skill. Meyers & Jones (1993)

concluded that by the application of active learning strategies, students could express in the four language skills; listening, speaking, reading, and writing. Thus, the use of active learning in text-based and character-based Indonesian textbook was effective in improving students' scientific writing skill.

4. Conclusion

The exploratory stage showed that Indonesian textbooks used in UNS, UMS, and UNISRI Surakarta, had not met the students' and lecturers' need. The model development stage produces text-based and character-based Indonesian textbook through preliminary field testing. Based on the effectiveness testing phase of the textbook (nuclear field testing), the value obtained (0.17) was higher than the table (1.64). Thus the hypothesis was accepted (H_0 rejected), and the study was significant. It meant that the text-based and character-based Indonesian textbook was useful to improve students' scientific writing skills. The dissemination phase finished through socializing the textbook in national seminars, international journals, and the publication of Indonesian textbook with ISBN. The text-based and character-based Indonesian textbook

was effective for improving students' scientific writing skill. Teachers, policymakers, and students could accept the textbook as teaching material.

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