Analysis of Writing Programs and Students’ Errors to Increase the Students’ Writing Skill

Nunung Widijantie

1 English Laboratory of Chemistry Vocational School Politeknik AKA Bogor, Bogor, Indonesia

Correspondence: Nunung Widijantie, English Laboratory of Chemistry Vocational School Politeknik AKA Bogor, Bogor, Indonesia.

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Abstract
This study presents the analysis of writing programs which can increase the students’ writing skill by concerning students’ errors. The method used qualitative and quantitative analyses. The participants involved in this study were 30 students of the third level majoring in analytical chemistry department in Politeknik AKA Bogor, academic year 2021/2022. The Researcher wanted to know the area of errors in each writing program. The result shows that the average of grade students got in the program of teaching reading and vocabulary was 68.75% with 31.25% error in the area of identifying the words: analysis, analyze, analytical, analyst, prepare, preparation, determine, determination, require, and statistically. In the program of teaching grammar and structure, the students’ score average was 70% which was bigger than the first program. Meanwhile the average of error was 30% in the area of using past tense, present tense, present perfect tense, modal auxiliary, passive voice, relative clause, past and present participle. In the next program, analyzing sentences from chemistry textbook, the students had difficulty in identifying main and relative clauses, and analyzing present and past participles in a sentence. The students obtained 71.25% for the average of grade and 28.75% error. In writing from simple to complex sentences, the students got score 77.5% and 22.5% error in the area of making sentences consisting of main and relative clauses and applying present and past participles as verb in a sentence. Finally, after having 4 programs stated above, in the program of writing practice report, the students got average of grade 80% meaning excellent, and 20% error in the area of interpreting data in writing and developing main idea. This research finds that the writing programs: teaching reading vocabulary, teaching grammar and structure, analyzing sentences from chemistry textbook, writing from simple to complex sentences, and writing practical report are the writing programs that can increase the students’ writing skill. To make the decision which area of writing programs needs to have more attention, it can be determined by analyzing the students’ errors.

Keywords: writing program, skill, students’ error, average of grade

1. Introduction
The importance of writing as an essential language skill urges the investigation and finding effective and influential techniques, methods and approaches to improve this skill in different contexts (Bonyadi & Lachin, 2018:33). James (1998) believes that finding techniques for boosting writing skill as well as finding effective techniques to correct learners’ writing errors are the prominent concern of second or foreign language teachers and learners where a lot of people are involved in the process of writing for different aims and objectives.

Industries need to recruit the chemistry vocational school graduates who have good competency that can be applied appropriately to the industrial process. Because it does not need to spend extra budget to give training for such employees. Thus, chemistry vocational school graduates are demanded to have good skill as analysts to work in industrial process and interpret the analysis correctly in writing. They must be able to make a report based on data analysis having been conducted in laboratory and industrial process. Therefore, they must have good writing skill for making a report. However, a lot of chemistry vocational students, whose mother tongue is not English have difficulty to transfer their thought in writing. They have difficulty not only in grammar but also in choosing academic words, organizing the words, and writing from simple to complex sentences. In this case, teacher must think appropriate approach and program to make students have writing skill such as the ability to decide the word choice, consolidate grammar, structure, and make complex sentences. The students must have wide experience to train their ability to transfer interpretation of analysis result in writing.
This aim of this research is to find the writing programs that can increase the students’ writing skill by concerning students’ errors. The researcher applied five writing programs to the students, then analyzing the students’ errors in every writing program. If the students’ errors are very big in particular writing programs, the teachers must give big attention on the areas to increase the students’ writing skill. Thus, it can be concluded that the writing programs can increase the students’ writing skill. The participants involved in this study were 30 students of the third level majoring in analytical chemistry department in Politeknik AKA Bogor, academic year 2021/2022.

2. Literature Review

2.1 Writing Skill

According to Richards and Richard (2002:293), listening, speaking, reading, and writing are generally called the four language skills. Speaking and writing are called the active/productive skills and reading and listening, the passive/receptive skills. Deshpande (2014:68) states that the non-native speaking students of the English language do need constant opportunities for improvement and development at every stage of learning how to write.

2.2 Writing Program

Writing program is a set of materials that teachers take to increase the students’ writing skill. Richards and Richard (2002:322) explain that materials in language teaching can be linguistic, visual, auditory, or kinesthetic, and they may be presented in print, audio or video form, on CD-ROMS, on the internet or through live performance or display. The materials are designed based on English for Specific Purposes (ESP) in chemistry field. The characteristic feature of the language complexity of authentic texts used in ESP courses is that authentic texts reflect the real-life language containing a great diversity of grammatical and lexical elements which means that they are much more abundant in language forms than the texts constructed for language teaching purposes (Gilmore, 2007:97). Richards and Theodore (2002:16) explain about approach and method in teacher preparation programs as follows: (1) the study of approaches and methods provides teachers with a view of how the field of language teaching has been evolved, (2) experience in using different teaching approaches and methods can provide teachers with basic teaching skills that they can later add to or supplement as they develop teaching experience. Thus, teachers can develop a program to a better program based on their experience in using different teaching approaches and methods. The following are the writing programs analyzed in this study:

a. Teaching Reading Vocabulary. As chemical analysts, the students are highly expected to have competency in reading. Therefore, they are expected to understand vocabulary. The texts must be designed based on ESP because the target is the students of chemistry vocational school. According to Richards and Richard (2002:443), reading is perceiving a written text in order to understand its contents. The understanding that results is called reading comprehension. Widijantie and Wuriy (2018:10), state that the students are expected to enrich vocabularies on chemistry terminology to understand the texts.

b. Teaching Grammar and Structure. Grammar, like vocabulary, is fundamental to all language learning (Jordan, 1997:173). Furthermore, Rahman and Sumon (2017:123) state that grammar of the language is important. This is because acceptability and intelligibility, both in speech and in writing within as well as outside one’s own circle or group depend on the currently followed basic notions and norms of grammaticality.

c. Analyzing Sentences from Chemistry Textbook. Analyzing the structure of a sentence, also known as parsing a sentence, is the act of looking at a sentence to determine its components. The components of the sentence are what deliver the information we need to understand what a sentence is telling us (Hose, 2017).

d. Writing from Simple to Complex Sentences. Writing skill seems to be problematic in language learning since it engages in not only in generating and organizing of ideas but also in translating these ideas into readable texts (Richards & Renandya, 2002:303).

e. Writing a Practical Report. Writing a practical report is the highest level of writing in this study. If the students have been taught how to make sentences and combine main clause and several relative clauses in a sentence, the teacher can ask students to make a report which focuses on students’ activity at chemistry laboratory. As a chemistry analyst, the student must have ability to interpret and write the result of chemical analysis they have done at laboratory. In writing, according to Yoandita (2019:1), students faced difficulties in organizing and developing ideas. They were not able to develop ideas on the texts they wrote.

2.3 Students’ Error

Hayes and Flower (1980) state that a great part of skill in writing is the ability to monitor and direct one’s own composing processes. However, writing is not easy as stated by Na Phuket and Normah (2015:99) that writing is the...
most difficult skill in English, so most EFL students tend to make errors in writing. In assisting the learners to successfully acquire writing skill, the analysis of errors and the understanding of their sources are necessary. Meanwhile, Johnson (2001:59) states that second language learners mostly concern on the errors they have produced. “An FL learner’s language is perhaps never more interesting than when she gets things wrong. When she produces correct, error-free utterances, they may tell us little about what is going on in her mind. But as soon as an error is made, we can look at its nature and try to work out why it was made” Another researcher (Klassen, 1995:134) defines error as a form or structure that a native speaker deems unacceptable because of its inappropriate use.

3. Method

This study is qualitative and quantitative research. According to Williams and Andrew (2002), qualitative research is to describe the quality of something in some enlightening way. Qualitative research can lead to conclusion about what is possible, what can happen, or what can happen at least sometimes; it does not allow conclusion about what is probable, general or universal. In other words, qualitative research is used to measure data in subjective way. Participants involved in this study were the third level students of analytical chemistry class that consisted of 30 students in academic year 2021/2022. The participants were selected based on their attendance in the class following the whole writing programs. If the students did not follow one of the writing programs, they cannot be calculated in grading.

In this study, the researcher used data collection method by explaining the writing programs to the students in the class. In every program, the students analyzed and made 10 sentences, with the grade distance 0-100. The following are the actions taken by the teacher in giving writing programs to the students in the process of teaching and learning:

1. Teaching Reading Vocabulary. In this method, the students were taught to enrich vocabulary by reading text about chemistry provided by the teacher. The instrument used in this program was taken from Pomeranz and Clifton, Food Analysis Theory and Practice (1980). The students learned to identify the words and glossary of chemistry terms and tried to use the words in their own sentences appropriately. The text can be seen in the following table.

<table>
<thead>
<tr>
<th>Table 1. The Activities in the Program of Teaching Reading Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying the word</td>
</tr>
<tr>
<td>Analysis Analyze Analytical Analyst Prepare Preparation Determine Determination Require statistically</td>
</tr>
</tbody>
</table>

To get the score, each activity was calculated by concerning on the right answers that were multiplied by 10, then divided by 4. The score was 0.5 for each number, if there were right and wrong structures in a sentence.

2. Teaching Grammar and Structure. After having practice at laboratory, the students had to make a practical report. To support the ability in writing, teacher explained some tenses that were mostly used in making a report, such as past tense, present tense, present perfect tense, modal auxiliary, passive voice, relative clause, past and present participle. In this program, the students identified Subject and Predicate of 10 sentences from the text above, identified patterns of grammar of sentences from the text, analyzed structure of words, and applied the patterns structurally. The students made 10 simple sentences by using past tense, present tense, present perfect tense, modal auxiliary, passive voice, relative clause, past and present participle. Each activity was also calculated by concerning on the right answers that
were multiplied by 10, and divided by 4. The score was 0.5 for each number, if there were right and wrong structures in a sentence.

3. Analyzing Sentences from Chemistry Textbook. In this program, the students analyzed sentences from chemistry textbook to highlight the subject, predicate, and to learn the structure and the meaning of sentences. It was possible that one long sentence consisted of independent and dependent clauses. If the students got the main and dependent clauses (Relative Clause) in the sentence, they could easily translate the meaning of the sentence. However, they mostly have difficulty in identifying the main and relative clauses. By using this program, the students had an experience to analyze sentences and learned how to make the sentences. The text was taken from Pomeranz and Clifton, Food Analysis Theory and Practice (1980).

The sample should be large enough for all intended determinations. Homogenous sample of 250 gm (or ml) are generally sufficient. Samples of spices are often limited to 100 gm, and of fruits and vegetables increased to 1000 gm. The samples should be packed and stored in such a way that no significant changes occur from the moment of sampling until the analysis is completed. The container should be identified clearly. Official and legal samples must be sealed in such a way that they cannot be opened without breaking the seal. Raw materials are analyzed to determine whether the delivery approximates previous deliveries or if the material from a new supplier is up to the buying sample. Process control samples are generally analyzed by rapid tests in the plant to make adjustments in producing an acceptable and uniform product. Periodic checks of finished products show whether the food meets legal requirements, is acceptable to the consumer, and has reasonable shelf-life. Buying samples are submitted by suppliers of raw materials prior to delivery. Most complaint samples are submitted by customers.

The students analyzed the sentences stated in the text trying to get the subject, predicate, main and relative clauses. There were 10 sentences that they had to analyze. If the students could answer correctly, the point was 10. On the other hand, if there were right and wrong answers in a sentence, the point was 0.5.

4. Writing from Simple to Complex Sentences. For this purpose, students got an experience organizing ideas and transferring in writing. The practice started from giving an experience writing very simple and short sentence. The next step, teacher can ask them to make longer sentences. If the students have learned passive voice, modal auxiliary, relative clause, present and past participles, they can make complex sentences by using the patterns. The examples of the simple and complex sentences can be derived from the following table.

Table 2. Simple Sentences and Complex Sentences

<table>
<thead>
<tr>
<th>Simple Sentences</th>
<th>Complex Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>The analyst took enough sample in laboratory.</td>
<td>By using Passive Voice</td>
</tr>
<tr>
<td>She is able to analyze the data.</td>
<td>By using Modal Auxiliary: can</td>
</tr>
<tr>
<td>The process is actually a very inefficient one.</td>
<td>By using Relative Pronoun: can</td>
</tr>
<tr>
<td>The process is involved in flame photometry and atomic absorption.</td>
<td></td>
</tr>
<tr>
<td>The detectors require too much energy.</td>
<td>Combining by using Past Participle as Verb</td>
</tr>
<tr>
<td>The detectors are used for the visible and ultraviolet regions.</td>
<td>Combining by using Present Participle as Verb</td>
</tr>
<tr>
<td>The molecules are carried down to the next particle.</td>
<td></td>
</tr>
<tr>
<td>The molecules remain in the mobile phase</td>
<td></td>
</tr>
<tr>
<td>Synthetic rubbers are polymers.</td>
<td>Combining by using Past Participle as Verb</td>
</tr>
<tr>
<td>The polymers are tailored to be capable of quick recovery from large deformations.</td>
<td></td>
</tr>
</tbody>
</table>

In this program, the students made 10 sentences from simple to complex sentences. The grading system focused on the students’ ability in writing simple sentences, writing Main Clause (MC) and Relative Clause (RC), using present and past participles as verb, and writing 2 or more relative clauses in one sentence. The right answer would be graded 10 points for each sentence, and 0.5 was for mixed right and wrong structures in a sentence.

5. Writing a Practical Report. Writing a practical report is the highest level of writing in this study. If the students have been taught how to make sentences and combine main clause and several independent clauses in a sentence, the teacher can ask students to make a report which focuses on students’ activity at chemistry laboratory. As a chemistry analyst, the student must have ability to interpret and write the result of chemical analysis they have done at laboratory. In this study, before writing a practical report, the teachers taught the students writing programs numbers 1 up to 4 stated above in order to increase the students’ writing skill. In this program, the students made 10 sentences to describe the analysis result. The grading system focused on the students’ ability in choosing correct words based on the context, interpreting data, using correct grammar, and developing main idea. The right answer was multiplied by 10 points for each sentence, and 0.5 for mixed right and wrong structures in a sentence.

6. Analyzing Students’ Error. The next step was analyzing the students’ errors that occurred in every writing program. Then, the data was analyzed statistically. In each writing program, the students made 10 sentences. To get the score, the right sentences were multiplied by 10. If there were right and wrong structures, it would be graded by 0.5. Then the
researcher analyzed the error answers and the areas that the errors occurred. The researcher used data analysis method by calculating the students’ errors to get the score, analyzing the writing programs in which the students had the biggest errors, and drawing the conclusion about the writing programs that can increase the students’ writing skill.

4. Results
The following tables show the average grade the students got in every writing program.

4.1 Teaching Reading Vocabulary

![Teaching Reading Vocabulary](image1)

Figure 1. Teaching Reading Vocabulary

Teacher should teach reading vocabulary specifically to the students before asking them to make sentences in a report. The students were taught to enrich vocabulary by reading text about chemistry provided by the teacher. Then, they learned glossary of chemistry term and tried to use the words in their own sentences appropriately. In the program of teaching reading vocabulary shown by figure 1, the students got scores 70, 75, 65, 65 respectively for the sub programs of identifying the word, analyzing the meaning, finding the synonym of the word, and using word in a sentence. The grade average that the students got in this program was 68.75. It indicated that the students had little ability to identify the word in a sentence, analyze the meaning, found the synonym of particular word, and used the word in a sentence. In identifying the words (Table 1) ‘analysis’ and ‘analyze’, they made error to use the words structurally. Some of the students explained that the word ‘analysis’ is a verb that literally it is a noun. It was also for the words ‘require’ that they put as subject of a sentence. However, they had ability in analyzing the meaning of the words in the text. They had difficulty in finding the synonyms of some words such as require, develop, apparatus, and accuracy. It was also in using the words in a sentence, the students still had problem to put the words structurally.

4.2 Teaching Grammar and Structure

![Teaching Grammar & Structure](image2)

Figure 2. Teaching Grammar & Structure

To develop students’ skill in writing, teachers have to strength students’ knowledge on grammar and structure. Teaching grammar and structure is one of the important programs that can develop students’ writing skill. The figure 2 shows that the students got good score in the programs of teaching grammar and structure, in which the students got grade 75 in identifying subject and predicate of a sentence, 70 in identifying patterns of grammar, 70 in analyzing structure of words in a sentence, and 65 in applying the pattern in a sentence structurally. The grade average that the students got in this program was 70. It indicated that the students had good ability to identify subject and predicate in a sentence.
However, they had difficulty in identifying patterns of grammar in a sentence such as the patterns of passive voice, present perfect tense, and modal auxiliary. In analyzing structure of words, the students had difficulty in recognizing adverb of manner, if the position of the word was in the middle of a sentence. Example in this sentence: “If the sample is not prepared properly for analysis, or if the components have been altered during that preparation, the results will be inaccurate regardless of the effort, the precision of the apparatus, and the techniques used in the analysis”, the students had difficulty to recognize that the word ‘properly’ was adverb of manner. Applying the patterns structurally also became problem for the students.

4.3 Analyzing Sentences from Chemistry Textbook

Analyzing sentences from chemistry textbook was like the program of literature study, in which the students tried to get the main and relative clauses in a sentence, in which it might occur more than one in a sentence. Besides that, the students tried to analyze predicate and the meaning of main and relative clauses. In this program, the students got 65 in analyzing main clause, 70 in analyzing relative clause, 70 in analyzing predicate, and 80 in analyzing the meanings of main and relative clauses. The grade average that the students got in this program was 71.25. It indicated that the students had little ability to analyze predicate, main and relative clauses in a sentence, but they could analyze the meaning of main and relative clauses. Example in this sentence: “The samples should be packed and stored in such a way that no significant changes occur from the moment of sampling until the analysis is completed”, the students had problem in identifying the main and relative clauses. The students recognized the relative clause from relative pronoun such as ‘which’ and ‘that’. The problem also occurred in analyzing predicate of main and relative clauses. However, the students had ability in understanding the meaning of the main and relative clauses.

4.4 Writing from Simple to Complex Sentences

The students must have experience to make sentences grammatically. They have studied chemistry vocabulary, grammar, structure, and relative clauses in the previous programs that can increase their ability to make sentences. After having previous programs, the students did practice to build a sentence which started from simple to complex sentences. In this program, the students got 80 in writing simple sentences, 80 in writing main and relative clauses, 75 in using present and past participles as verb in a writing, and 75 in combining 2 or more relative clauses in a sentence. The grade average that the students got in this program was 77.5, which indicated that the students had good ability in writing simple sentences, main clause and relative clause, but they still had little ability in applying present and past participles as verb
in a sentence and combining 2 or more relative clauses in a sentence. Table 2 above shows that the students had to make sentences from simple to complex ones. Writing two or more relative clauses in a sentence was not easy for students. However, they have got the learning and experience in program three that the students analyzed sentences from chemistry textbook. In program four, they tried to make sentences by using main and relative clauses.

4.5 Writing Practical Report

Finally, the students had a program to write practical report. As being chemistry analysts, the students must have ability to write the result of data analysis in a practical report based on the activity they did in chemistry laboratory. Figure 5 shows that the students got 85 in choosing correct words based on the context, 80 in interpreting data in writing, 80 in using correct grammar, and 75 in developing main idea. The grade average that the students got in this program was 80, which indicated that the students had good ability in choosing the words based on the context, interpreting data in writing, and using correct grammar, but they still had difficulty to develop main idea. If the students have been in the program five: writing practical report, they have ability in choosing correct words, interpreting data, using correct grammar, and developing main idea, because they have got writing program 1 up to 4. But if they still had problem in developing main idea, the students can retake the third and fourth programs.

4.6 Students’ Errors in Writing

Based on the result of the grades that the students derived, the occurrence of the students’ errors can be analyzed in every writing program as shown by the following table.

Table 3. The Area of the Students’ Errors in Writing Programs

<table>
<thead>
<tr>
<th>No</th>
<th>The Programs</th>
<th>Average of Grade</th>
<th>Average of Students’ Error</th>
<th>The Area of Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teaching Reading Vocabulary</td>
<td>68.75</td>
<td>31.25</td>
<td>Identifying the words: analysis, analyze, analytical, analyst, prepare, preparation, determine, determination, require, statistically.</td>
</tr>
<tr>
<td>2</td>
<td>Teaching Grammar &amp; Structure</td>
<td>70</td>
<td>30</td>
<td>The use of past tense, present tense, present perfect tense, modal auxiliary, passive voice, relative clause, past and present participle.</td>
</tr>
<tr>
<td>3</td>
<td>Analyzing Sentences from Chemistry Textbook</td>
<td>71.25</td>
<td>28.75</td>
<td>Identifying Main and Relative Clauses, analyzing present participle and past participle in a sentence. Example: There are various standard techniques used to identify the chemical structures of polymers.</td>
</tr>
<tr>
<td>4</td>
<td>Writing from Simple to Complex Sentences</td>
<td>77.5</td>
<td>22.5</td>
<td>Making sentences consisting of main and relative clauses, applying present and past participles as verb in a sentence</td>
</tr>
<tr>
<td>5</td>
<td>Writing a Practical Report</td>
<td>80</td>
<td>20</td>
<td>Interpreting data in writing, developing main idea.</td>
</tr>
</tbody>
</table>

The table shows that in the program of teaching reading vocabulary, the students had the average of error 31.25 in the area of identifying the words as shown in tables 1 and 3. They had problem to use the words as noun, verb, or adjective in a sentence. In another program, teaching grammar and structure, the students got error 30, in which they had problem to use past tense, present tense, present perfect tense, modal auxiliary, passive voice, relative clause, past and present participle. In the program of analyzing sentences from chemistry textbook, the students got the average of error 28.75. In this program, the students identified main clause and relative clause. A complicated sentence might contain main
clause and relative clause. If the students understand the pattern of grammar and structure, it is very easy for them to find main clause and relative clause. The students still had difficulty to make sentences by using relative clause and the problem occurred because of intralingual. They knew the pattern of the grammar but they still got confused how to make it in sentences. However, the students could increase their ability on the next program, writing from single to complicated sentences. In this area, the students made error for about 22.5, mostly in making a sentence consisting of main clause, relative clause, and applying present and past participles as verb in a sentence. In the final program, writing a practical report, they could increase their ability in writing. The students have got experience to build sentences form the previous programs so that they have ability in writing a practical report.

4.7 Using Students’ Error for Teaching

Second language learners mostly concern on the errors they have produced. “An FL learner’s language is perhaps never more interesting than when she gets things wrong. When she produces correct, error-free utterances, they may tell us little about what is going on in her mind. But as soon as an error is made, we can look at its nature and try to work out why it was made” (Johnson, 2001:59). Another researcher (Klassen, 1995:134) defines error as a form or structure that a native speaker deems unacceptable because of its inappropriate use. In this method, teacher analyzes the students’ errors that occur in every writing program, and identifies the area of students’ errors. Then the teacher uses the students’ errors for teaching so that the students know the area of errors they have made and learn from it. If they know the students’ errors and the area that mostly occurs, they can develop program to overcome the error and concern on the area of errors when teaching. Hopefully, this strategy can increase the students’ writing skill.

5. Conclusion

There are several writing programs that the students can learn to increase their writing skill. From the finding obtained in this research, the writing program that should be given more attention was the program of teaching reading vocabulary since the students got more errors comparing with other programs. The teacher should explain more deeply the words related to chemistry major. If the students have ability in identifying the words in a sentence, they can make good practical report. Teaching reading vocabulary program is the first program that can increase the students’ writing ability. Because the students know to use the words structurally after having the program. Then teacher can give other writing programs based on the students’ errors that need to have more attention. This study shows that it is very important to teach the students from the simple material as a foundation. Teaching of reading vocabulary, grammar and structure was intended to build foundation for constructing sentences. The next program, analyzing sentences from chemistry textbook could give further experience to the students to learn other sentences form textbook, in which it could increase the students’ writing skill. Then, the students practiced to write sentences from simple to the complex ones. Finally, the students had ability to write a practical report. Thus, this research finds that the writing programs: teaching reading vocabulary, teaching grammar and structure, analyzing sentences from chemistry textbook, writing from simple to complex sentences, and writing practical report are the writing programs that can increase the students’ writing skill. To make the decision which area of writing programs needs to have more attention, it can be determined by analyzing the students’ errors.

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