



Communicative language teaching or reading grammar translation: The effective reading teaching method for chemistry vocational students

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Abstract

The chemistry vocational students are expected to have competency not only in their skill as chemical analysts but also another competency in understanding English materials, such as understanding work operational procedures, manuals, material safety data sheet, etc. To support the students' English proficiency in order to meet the industrial needs, teacher must have good method to transfer English materials to the students. The objective of this research is to compare two methods: Communicative Language Teaching (CLT) method and Reading Grammar Translation (RGT) method in order to know the effective method that can improve the students' reading comprehension skill in chemistry field. The researcher used the second level of chemistry vocational students of Politeknik AKA Bogor, Indonesia. There were 2 classes involved in this research in which each class consisted of 30 students being the subjects of the research. Thus, in this case, there were 60 students involved in this research. Then, the researcher decided that class 1 consisted of 30 students treated by using Communicative Language Teaching (CLT) method and class 2 was for 30 students having treatment of Reading Grammar Translation (RGT) method. The researcher used pre test and post test to measure the result and calculated statistically. Based on the data of post test, it was derived that the students' variance score calculated by using F-test was at the same value ($P\text{-value } 0.893 > \alpha 0.05$). Meanwhile, the result of post test of significant test by using T-test showed that P-Value 0.002 was less than $\alpha 0.05$ ($P\text{-Value } 0.002 < \alpha 0.05$) in which it indicated that there was significant difference between the result of students' reading comprehension in class 1 (CLT) and class 2 (RGT). Thus it can be concluded that Communicative Language Teaching Method is more effective than Reading Grammar Translation Method applied to chemistry vocational students.

Keywords: method, clt, rgt, vocational, reading comprehension

1. Introduction

Teaching method is the technique that is used by teachers to transfer the materials to the students. According to Richards and Schmidt (2002) [12] method in language teaching is a way of teaching which is based on systematic principles and procedures, i.e. which is an application of views on how a language is best taught and learned and a particular theory of language and of language learning. Thus, teaching method takes an important role not only to transfer the materials to the students but also to improve the students' competency, especially for the students of vocational school who are prepared to be ready to get work. Chemistry vocational students are prepared to work as analysts in industries at specific fields such as food, chemical, pharmaceutical, home care industries and other products that need chemicals as the substances used in the production process. Therefore, the curriculum of chemistry vocational school is designed and developed based on the industrial needs. English is one of the competencies that students need to acquire. In learning English, chemistry vocational students need to understand the procedures and other English materials, focusing on chemistry fields. Therefore, they are expected to have reading skill as stated by Alimorad (2019) [3], since English is the main lingua franca all over the world, learning how to read texts written in English seems to be one of the prominent objectives, especially for university students who want to keep up with the latest developments in their areas of expertise. In teaching Vocational students, mostly, English teachers use English for Academic Purposes (EAP). EAP is concerned

with those communication skills in English which are required for study purposes in formal education system (Jordan, 1997) [8]. More specific, Richards and Schmidt (2002) [12] explain that EAP is the role of English in a language course or programme of instruction in which the content and aims of the course are fixed by the specific needs of a particular group of learners.

Many chemistry vocational students, whose mother tongue is not English have difficulty in understanding the texts, procedures, and other chemistry materials which are written in English. They have difficulty in reading comprehension. Therefore, the English teacher must be able to measure the students' skill standard before teaching. Aragon *et al.* (2005) [11] in their study state that skill standards define the work to be performed, how well the work must be done, and the level of knowledge and skill required. Meanwhile, according to Richards and Schmidt (2002) [12] skill is an acquired ability to perform an activity well, usually one that is made up of a number of co-ordinated processes and actions. Many aspects of language learning are traditionally regarded as the learning of skills, such as learning to speak, or to read fluently. Therefore, there must be appropriate and effective method to improve students' reading comprehension skill. Reading grammar translation method has been used for a long time in teaching English for vocational students. However, the method is still widely used by the teachers in teaching reading to vocational students nowadays. Meanwhile, communicative method is another method used by English teacher to develop students' competency in speaking and reading.

The aim of this study is to find out the effective method between two methods: Communicative Language Teaching and Reading Grammar Translation that can develop chemistry vocational students' reading comprehension skill. The English materials are designed based on EAP, so that all of materials delivered to the students focus on chemistry field.

2. Literature review

2.1. Method

Teaching method is the technique that is used by teachers to transfer the materials to the students. Richards & Rodgers (2002) ^[13] state that an approach or method refers to a theoretically consistent set of teaching procedures that define best practice in language teaching. Particular approaches and methods, if followed precisely, will lead to more effective levels of language learning than alternative ways of teaching. Moreover, they state that the quality of language teaching will improve if teachers use the best available approaches and methods.

2.2. Reading comprehension

Barredo (2019) ^[6] states that reading is one of the most critical skills in English that an individual must need to master. It is a toll subject for it is prerequisite of all learning areas. It serves as a gateway to every student to learn the different subject because students have difficulty in reading; he may also encounter difficulties in all subject areas. Alyousef (2006) ^[4] argues that reading can be seen as interactive process between a reader and a text which leads to automatically or reading fluency. In this process, the reader interacts dynamically, with the text as she/he tries to elicit the meaning and where various kinds of knowledge are being used: linguistic or systemic (through bottom-up processing) as well as schematic knowledge (through top-down processing). Meanwhile Duke (2003 as cited in Sabouri, 2016: 229) ^[15] stated that comprehension is a process in which readers make meaning by interacting with text through the combination of prior knowledge and previous experience, information in the text, and the views of readers related to the text. Another linguist, Rayner (2001 as cited in Agussalim, 2016:471) ^[2] explained that reading is defined as the level of understanding of a text/message. This understanding comes from the interaction between the words that are written and how they trigger knowledge outside the text/message.

2.3. Reading Grammar Translation (RGT) Method

Kaharudin (2018) ^[9] in his paper states that the Grammar Translation Method (GTM) is an old method which was originally used to teach dead languages. Actually, dead languages in the definition refer to Latin and Greek which were learnt to uncover information and to get access into the history of ancient civilizations. Moreover, Kaharudin (2018) ^[9] explains that there are two major reasons for some language teachers still using the Grammar Translation Method i.e. reasons related to pedagogical process (practical reason) and the assessment process (procedural reason). From the assessment process point of view, as cited in Kaharuddin (2018:234), Brown (1994) ^[7] states that this method is still common in many countries – even popular due to two main reasons i.e. The first Grammar rules and Translation Tests are easy to construct and can be objectively scored. The second, many standardized tests of

foreign language still do not attempt to test communicative abilities, so students have little motivation to go beyond grammar analogies, translation and other written exercises. Richards and Rodgers (2002) ^[13] explain that in a typical Grammar-Translation text, the grammar rules are presented and illustrated, a list of vocabulary items is presented with their translation equivalents, and translation exercises are prescribed. Meanwhile, according to Stern (1983) ^[16], the first language is maintained as the reference system in the acquisition of the second language. It means that the way of an individual acquires foreign language is at the same system when he acquired the first language. In this case, the Grammar Translation method can be used as a way to learn a language as it approaches the language through grammar rule analysis. Discussing the grammar translation, Medina and Temporal (2019) ^[11] argue that the language curriculum needs to provide opportunities for students to explore the language, one time-tested exercise on this, is the value of translation. It is the aim of translation activities to investigate on the meaningful use and structure of the language, taking account of two important concepts: the lexis (vocabulary) and the grammar.

2.4. Communicative language teaching (CLT) method

van Ek and Alexander (1980) ^[17] explain that in 1971, a group of experts began to investigate the possibility of developing language courses on a unit-credit system, a system in which learning tasks are broken down into “portions or units, each of which corresponds to a component of a learner’s needs and is systematically related to all the other portions”. Thus, the teacher has to focus on the learner’s needs. In reading comprehension, the chemistry vocational students need to understand the content of procedures and other chemistry books in English. However, students mostly get difficulty to understand the meaning of a text, especially for those whose native language is not English. According to Ruegg and Naganuma (2019) ^[14], apart from being able to decode the word forms, learners also need to know the meaning of the words they read in order to understand the text. When there are a large number of unknown words in a text, learners try to construct the meaning of the text from the few words they do know, which invariably leads to an inaccurate understanding of the text. Another linguist, Littlewood (1981) ^[10] states that one of the most characteristic features of communicative language teaching is that it pays systematic attention to functional as well as structural aspects of language.

3. Methodology

3.1. Subjects of Research

Banerjee and Chaudhury (2010) ^[5] state that Research studies are usually carried out on sample of subjects rather than whole populations. The most challenging aspect of fieldwork is drawing a random sample from the target population to which the results of the study would be generalized. Furthermore, Banerjee and Chaudhury (2010) ^[5] explain that to fulfill the statistical criteria for a random sample, a systematic sample should be drawn from subjects who are randomly ordered. The starting point for selection should be randomly chosen. If every fifth person from a register is being chosen, then a random procedure must be used to determine whether the first, second, third, fourth, or fifth person should be chosen as the first member of the sample. The samples that the researcher took in this research

were the second level students of chemistry vocational school in Politeknik AKA Bogor, located in Bogor, West Java, Indonesia. This research needed two classes, in which each class consisted of 30 students so that there were 60 chemistry vocational students involved in the research. There were actually 60-65 students in one class at Politeknik AKA Bogor. The researcher chose 60 students in two classes under the following reasons:

1. The students had the pre-test result at the range of 45-80.
2. The students did not have any problem with their attendance as long as the researcher did the experiment and made observation in the class.
3. The numbers of male and female students should be proportional.

3.2. Research design

The researcher decided to have 2 classes involved in this research in which it would be taken 30 students from each class to be the subjects of the reasearch. Thus, in this case, there were 60 students involved in this research. Then, the researcher decided that one class, class 1, was for 30 students who were treated by using Communicative Language Teaching (CLT) method and another class, class 2, was for 30 students who had treatment of Reading Grammar Translation (RGT) method.

3.2.1. CLT Method in class 1

The students at class 1 had the material by using CLT method. The researcher did experiment and made observation in this class to know the scale of the students' achievement before and after having the treatment. The researcher used pre test and post test as instruments. The English material given to the students was about Material Safety Data Sheet (MSDS). In this case, the students had to understand the whole content of the passage by making communication and brainstorming with their friends to get the points. Thus, the students in class 1 with CLC method tried to understand the passage by using communicative approach. The students worked in a group that consisted of 5 persons. Firstly, they stayed in their own group trying to understand the content of MSDS text. Secondly, they came to other groups to exchange the information and solved their problems. Finally, the students of each group presented what they had got from discussion with their own group and the students from other groups.

3.2.2. RGT method in class 2

The students at class 2 had the material by using RGT method. The researcher also used pre test and post test as instruments to do this research and calculated statistically. In this treatment, the researcher gave material of MSDS which was the same material for the students of CLT class. The students did individually and tried to understand the passage by analyzing the grammar and translating the context. Thus, in class 2 with RGT method, the students made analysis on the grammar and translated the sentences to understand the whole passage. In this case, the students used dictionary to understand particular words and tried to understand the text based on their own perception.

3.3 Statistical method

The pre test and post test data were analyzed statistically by using F test to know

the variance value and T test to know the mean value. The data were calculated by using Minitab application. If the hypothesis states H_0 , it means there is no any significant difference between 2 methods. On the other hands, if the hypothesis states H_1 , it indicates there is significant difference between 2 methods. Statistically they were written as follows:

Variance Value	Mean Value
F test	T test
$H_0 : \sigma_1^2 = \sigma_2^2$	$H_0 : \mu_1 = \mu_2$
$H_1 : \sigma_1^2 \neq \sigma_2^2$	$H_1 : \mu_1 \neq \mu_2$
Significant level α 0.05	Significant level α 0.05

4. Result and Discussion

4.1. Statistical description

Based on the explanation in the method section, it was known that the numbers of subjects used in this research were 30 students for class 1 (CLT method) and 30 students for class 2 (RGT method). Then after making data analysis statistically, it was derived that the total amount score of pre test of class 1 (CLT) was 1905, class 2 (RGT) was 1985; and the total mean score of class 1 was 63.50, class 2 was at 66.17. Meanwhile, data of post test showed that the total amount score of class 1 (CLT) was 2380, class 2 (RGT) was 2205; and the total mean score of class 1 was 79.33, and class 2 was 73.50.

4.2. Significant test

4.2.1. Pre Test of F- test

F test was used to calculate the variance value of pretest of class 1 (CLT) and class 2 (RGT). The data were calculated by using minitab application and it was derived the following result

Statistics				
Variable	N	StDev	CI for	
Pretest1	30	10.184		
Pretest2	30	9.348		
			CI for	
			StDev	Variance
Method		Ratio		Ratio
Levene	(0.719;	1.877)	(0.518;	3.524)
Tests				
Method	DF1	DF2	Statistic	P-Value
Levene	1	58	0.36	0.551

The data showed that the deviation standard of pretest 1 (CLT) was 10.184 and pretest 2 (RGT) was at 9.348. Then the data showed further that P-Value = 0.551 > α 0.05 which indicated that there was no any significant difference in variance between class 1 with CLT method and class 2 with RGT method.

4.2.2. Pre Test of T- Test

Table Two-sample T for Pretest1 vs Pretest2

	N	Mean	St Dev
Pretest1	30	63.5	10.2
Pretest2	30	66.17	9.35

Difference = μ (Pretest1) - μ (Pretest2) Estimate for difference: - 2.67 95% CI for difference: (-7.72; 2.39) T-Test of difference = 0 (vs \neq): T-Value = -1, 06 P-Value = 0.295 DF = 58 Both use Pooled StDev = 9.7748

T-test showed that mean of pretest 1 (CLT class) was 63.5 and pretest 2 (RGT class) was 66.17. After calculating the data, it was derived P-Value 0.295 which was bigger than α 0.05 (P-Value 0.295 > α 0.05) It indicated that there was no any significant difference in students' competency in class 1 (CLT) and class 2 (RGT). Thus, their English proficiency was at the same level before having treatment.

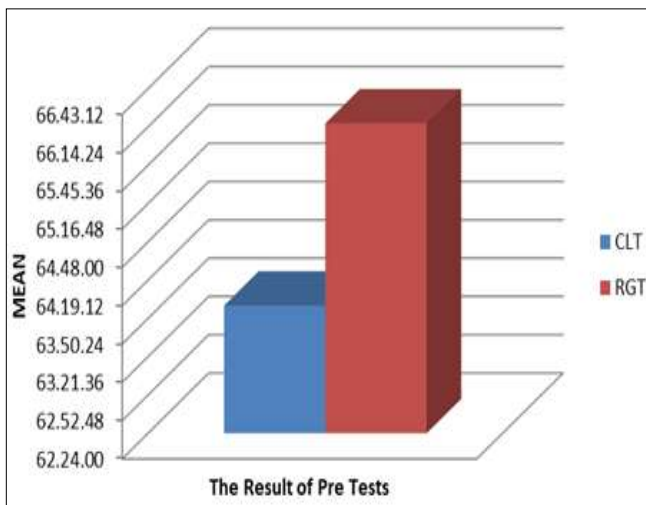


Fig 1: The Total Mean Score of Pre-Test of Class 1 (CLT) and Class 2 (RGT)

4.2.3. Post Test of F-Test

Statistics				
Variable	N	StDev		
Pretest1	30	10.184		
Pretest2	30	9.348		
CI for				
	CI for	StDev	Variance	
Method	Ratio	Ratio	Ratio	
Levene	(0.719; 1.877)	(0.518; 3.524)		
Tests				
Method	DF1	DF2	Statistic	P-Value
Levene	1	58	0.36	0.551

F test showed that the variance of post test of class 1 using CLT method was 52.989 with deviation standard was at 7.279. Meanwhile, the variance of post test of class 2 using RGT method was 46.810 with deviation standard was at 6.842. In this case, F test was used to know the variance of scores that students had in those classes. The data showed P-Value was at 0.893 which was more bigger than α 0.05 (P-

Value 0.893 > α 0.05). Thus, it indicated that there was no any significant difference in variance. It indicated that the students almost had the same variance value in both classes, class 1 using CLT method and class 2 using RGT. Thus, the data analysis of pre test and post test using F test showed that there was not any significant difference in variance between class 1 (CLT method) and class 2 (RGT method). It can be said that after and before having the treatment, the variance values between class 1 in which the students had CLT method and class 2 in which the students had RGT method were equal or at the same level.

4.2.4. Post Test of T-Test

Table 1: Two-sample T for Posttest1 vs Posttest2

	N	Mean	St Dev
Posttest1	30	79.33	7.28
Posttest2	30	73.50	6.84

Difference = μ (Posttest1) - μ (Posttest2) Estimate for difference: 5.83 95% CI for difference: (2.18; 9.48) T-Test of difference = 0 (vs \neq): T-Value = 3. 20 P-Value = 0.002 DF = 58

The calculation data of post test by using T- Test showed that the mean score of class 1 (CLT) was 79.33 and the deviation standard was at 7.28. Meanwhile, the mean score of class 2 (RGT) was at 73.50 and the deviation standard was at 6.84. It was derived that P-Value was 0.002 which was less than α 0.05 (P-Value 0.002 < α 0.05). It indicated that there was significant difference after having treatment between class 1 (CLT) and class 2 (RGT). Thus, the data showed that the result of class 1 after having treatment with CLT method was better than the result of class 2 with RGT method.

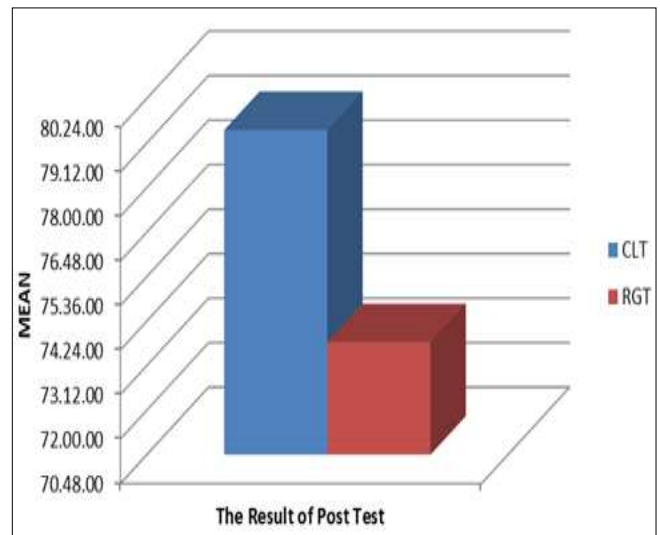


Fig 2: The Total Mean Score of Post-Test of Class 1 (CLT) and Class 2 (RGT)

5. Conclusion

Based on the data of post test, the result showed that P-Value was 0.002 which was less than α 0.05 (P-Value 0.002 < α 0.05) in which it indicated that there was significant difference between CLT and RGT methods.

The class with CLT method

The Mean of Pre test: 64.00
The Mean of Post test: 79.33

The additional score of the class: 15.33

The class with RGT method

The Mean of Pre test: 66.17

The Mean of Post test: 73.50

The additional score of the class: 7.33

Based on the statistical calculation, it was derived that the result of the class with CLT method is better than the result of the class with RGT method. Thus, it can be concluded that Communicative Language Teaching Method is more effective than Reading Grammar Translation Method being applied to chemistry vocational students at Politeknik AKA Bogor, Indonesia.

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