

# Scientific Approach in Teaching English Language at Twelfth-Grade Students

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**Abstract**— The objective of the research aimed to improve students' achievement in learning English. The research design of this research used to be a Classroom Action Research. The research conducted from July 31st up to August 28th, 2019. The researcher described the research process, such as planning, implementing the actions, observing, and reflecting. It also elaborated on data obtained from students' scores and observation results. The cycle of this research divided into four meetings. Based on the two cycles' results, the data showed that optimizing of five stages, a scientific approach to teaching English. It can be the impact that students could improve students' achievement. It could be seen from the quantitative data by proving the students' scores got better than the pre-test. In the post-test, it indicated from 44,83% (13 students) increase to 93,10% (27 students) gained. So, they succeeded in to achieve the goal of the minimum standard of KKM. Meanwhile, the qualitative data that showed the students have been more active and exciting in the learning process.

**Keywords**— *Scientific approach, teaching english language, CAR*

## 1 Introduction

The 2013 curriculum has two forms of objectives (1) core competence which deals with moral, character education, psychomotor, affective and cognitive aspects, and (2) basic competence which focuses upon the contents of the knowledge and skill of each subject [1]. Besides, the 2013 Curriculum has its style that deals with the teaching-learning process in the 2013 curriculum. The formula of new curriculum such as learning by doing, integrated learning (knowledge, skill, and attitude), learning with scientific approach, adjusting the context of learning with the surrounding environment at school/home, textbook and teacher are not the main learning source, asking students to conclude the concept discussed (discovery learning), emphasizing on higher-order thinking skill, skill can be concrete (things, abstract, and action), project-based learning and collaborative learning. One formula in the 2013 curriculum is learning with a scientific approach. A Scientific approach is an approach that helps students in recognizing the problem, formulate problems, find the solution, test answers while the investigation, (collecting facts), and ultimately draw conclusions and present it orally and in writing. A Scientific approach is using for all subjects, especially English subjects. Scientific approach which has meaning natural based on human characteristic, broadly speaking the

process of learning (includes, observing and repeating the action actively involving all the senses), asking and questioning new things encountered, trying to do the action independently, comparing with other sources are the ways and strategies used by students to be creatively, performing the new action that have learned and implement in the real as social function of English itself [2]. A Scientific approach model has been modified for the 2013 curriculum so that it can be applied to each course and not necessarily limited to natural science courses such as biology, physics, or chemistry. The model has five activities that should develop in the learning-teaching process, and they are not the syntax of a teaching or learning model. There are five stages of implementing a scientific approach, such as observing, questioning, experimenting, associating, and communicating [3].

#### *A. Observing*

Observing is the first stage that students will observe and describe the phenomenon of life. In this stage, the local content of the learning material used students in the classroom. In English subjects, the materials formed based on students' environment or real-life in Tarakan. It can be the effect of students' knowledge, critical thinking, and specific social function. It also supported by the activities and applied learning media in the classroom. Some activities can gain students' understanding, for instance, are watching the video, investigating the real object, learning the local culture, and socializing of the society. Therefore, the observing stage becomes the first step to go to the next stage.

#### *B. Questioning*

Questioning also has the crucial impact of the 2013 curriculum. Questioning's stage made constructing a concept, procedure, theory, and students' confidence by spoken or written skills. It also has benefits impact exploring more information, solve the problems, and comprehending the material and case. The question also must proper criteria: (1) compact and precise, (2) inspiring, (3) focus on a particular subject, (4) probing and divergent, (5) valid and reinforced question, (6) increasing cognitive level, and (7) promoting interaction [4].

#### *C. Experimenting*

Experimenting as the third stage, students achieved new knowledge by experiment. In this stage, students get new experiences by doing learn something through experiments. Based on the Regulation of Indonesia Ministry of Education and Culture No. 81/2013, experimenting, the students were able to find different sources and acquire more information. The activities have appropriate for visiting new places, attempt new things, searching for information through various sources [5]. The teacher provides teaching and learning sources, students' worksheets, and teaching and learning media. Therefore, the teacher's role in this stage is as facilitator and controller who plans and manages the activity process of collecting the data, and its situation is the students-centred process [3]. The teacher might also provide feedback and give confirmation during the teaching and learning process to handle the different results.

#### *D. Associating*

In associating stage, students and teachers have each role in engaging in getting to know learning materials, such as the text of classifying, categorizing, and analyzing. Get the facts that have gathered from the experimenting stages, have to analyze to conclude. Moreover, students will recognize the information from the teachers. The teachers are able to conclude out of that information. Based on the Policy of Indonesia Ministry of Education and Culture No. 81a/2013, associating procedure should through: (1) to process got new information that has been collected and analyzed from the result of experimenting and observing stages and, (2) to process the data gathered to find out the solutions or solve the problems from variety of sources that have distinctive opinions and thought to the contrary. Meanwhile, students should be related to the result of gaining knowledge with the fact that they find.

### *E. Communicating/Networking*

The fifth stage is networking. In the networking stage, the students expected to be able to act of giving opinions, ideas, assumption and showing their capability as a form of collaborative learning in which they face. In the collaborative process, the students make interaction with empathy expression, mutual respect condition, and conscious with each other, respectively, in order to create social communication to achieve meaningful learning. The teacher's roles give feedback, confirmation, suggestions, or more information related to students' activities. There are interactions between teacher and students and among the students or learning materials. This stage, the teacher holds a role that offers correct facts and reciprocal scaffolding [3]. It can be given through communication and dialogue between the teachers with the students. [6], [7], [8].

Related to English subjects in SMA Negeri 3 Tarakan as one of the essential components in the 2013 curriculum, it has an objective to develop the student's ability to communicate in a foreign language, with communication skills and English components that include the ability to speak, write, read, listen, vocabulary, pronunciation, grammar, so forth. Based on the interview by the teacher, she said occasion curriculum is different from the previous curriculum that had been implemented in SMA Negeri 3 Tarakan. The number of hours of learning English in class is limited times rather than the previous curriculum. It brings a crucial problem for teachers and students to work harder in achieving the learning objective. Moreover, the researcher found that students centred achieved yet. To overcome that problem, the teacher should be aware of creative teaching when implements a scientific approach in the classroom with learning models such as discussion, problem based-learning, discovery learning, project-based learning, collaborative learning, contextual learning, and cooperative learning [9]. The teacher will be better at using various media in catching the students' attention and also must create active learners through observing, experimenting, asking, and networking. The success of teachers in learning is not inseparable from a design that will guide in the implementation of activities. Inline, based on the result of previous research showed that problems in implementing Scientific Approach were 69% of steps in the Scientific Approach implemented by the English teacher, maintaining students' focus, maintaining student-centeredness, engaging students' participation, and applying the five stages of Scientific Approach [3], [10], [11], [12].

## **2 Method**

The research design of this research was a Classroom Action Research (CAR). Classroom Action Research was chosen because the problem comes from the teaching and learning process in the classroom. [13] Defined action research as the process through which practitioners study their practice to solve their real problems. Besides, the action research is deliberate, a solution-oriented investigation that is a group or personally owned and conducted. It was characterized through spiraling cycles of problem identification, systematic data collection, reflection, analysis, data-driven action taken, and finally, problem redefinition [14]. Data collected through to take the test and monitoring on the observation sheet. The result of the test was compared with the criteria of success to know students got improvement. The observation sheets filled by the teacher collaborator to give the assessment, while the researcher taught in the classroom. There were 20 items includes pre-activity, main activity, and post-activity. The data analysis method, the researcher used descriptive analysis and percentages. Percentages were used to analyze the observation sheet and students' answers to the test.



Fig. 1. The Procedure of Classroom Action Research

Based on the procedure, as shown in Figure 1 above, action research has some steps. The first step was planned to solve the problem and prepared the action made. The second step did the action based on the planning and the preparation which have made. The observation was done at the same time as the action being done. It also has done by the collaborator teacher who acts as the observer. Based on the observation, the researcher makes reflection to know what happens and evaluates the result of the action. Then, the researcher decided that it needs to revise to improve the action in the next cycle based on the reflection researcher made. A criterion of success was set to determine whether the learning activity in the research was successful or not. The criteria required were: (1) the students can improve their English score either individually or group, (2) the target of success is 80%, it means that 80% of the student's total of the research get English score more than 80 as the minimum standard of KKM (*Kriteria Ketuntasan Minimal*).

### 3 Results and discussion

The research conducted from July 31<sup>st</sup> up to August 28<sup>th</sup>, 2019, of 8 (eight meetings). The researcher described the research process, such as planning, implementing the actions, observing, and reflecting. It also elaborated on data obtained from students' scores. The first cycle of this research divided into four meetings. The first meeting, including the pre-test that purposed to measure the students' achievement before treatment. This cycle was conducted starting from July 31<sup>st</sup>, August 3<sup>rd</sup>, 7<sup>th</sup>, and 10<sup>th</sup>, 2019. Cycle one and two had done in four meetings for every cycle the details were below:

#### F. Planning

The plan arranged before the researcher conducting the research. In the first and second meetings, the researcher and the collaborator teacher planned to apply a scientific approach and teaching media. The researcher made some lesson plans based on the syllabus, media, and student worksheet. They also planned the material about "...so...that...furthermore, ...such...that..." by using cardboard. In the third meeting, they also prepared to give the students with new material about "preposition" by using paper art and coloured paper. In the fourth meeting, the researcher and the collaborator planned to apply a new text entitled "a finite

and non-finite clause.” The planning at the second cycle was almost the same as the first cycle. The second cycle conducted on August 14th, 21st, 24th, and 28th, 2019. This cycle was revised from cycle one because, in the last cycle, the researcher had found a weakness, which made 34,48% of students score under 75. So, it was needed to do the second cycle. The researcher discusses together with the collaborator teacher to overcome students’ problems. They also planned to apply new material such as second conditional sentences.

#### *G. Implementing*

The implementing consists of four meetings on Wednesday, July 31st, 2019, at 11.35 AM – 12.55 PM (1st meeting). The researcher acts as the teacher, she came to class then greeted the students when she entered the classroom and introduced herself in English, and the students were responses. Then, the teacher checked the students’ attendance list. The teacher began the lesson with ice breaking to activate the students’ brains about the topic. The teacher asked the students to observe cause and effective sentences (observing phase); then, the teacher explained the material that they have and would be discussed (questioning phase). The teacher also gave more examples of the material which the teacher explained. The students filled the blank and identified cause and effect sentences (experimenting phase). The students also arranged cause and effect sentences of “...so...that...furthermore, ...such...that...” patterns (associating phase). In the communicating phase, the students worked in pairs to identify correct sentences related to the topic. The teacher and students concluded the material to know how far the students understand the material. The second meeting was held on Saturday, August 3rd, 2019, at 11.35 AM – 12.55 PM. In this meeting, the teacher supported the students by giving ice breaking to make them felt the spirit and always struggle to do the lesson and what they were facing. In this part, the lesson plan that had arranged was implemented well in the classroom. The teacher asked the students to observe countable and uncountable nouns (observing phase). The students gave questions to the teacher (questioning phase). The students identified exclamation sentences (experimenting phase). The students used determiner and article sentences correctly. The students determined determiner and article sentences (associating phase). The students discussed in a group to discuss the materials (communicating phase). The third meeting was held on Wednesday, August 7th, 2019, at 11.35 AM – 12.55 PM. The students did ice breaking. The teacher asked students to observe prepositions in the text (observing phase). The students gave some questions (questioning phase). The students identified and analyzed sentences that contain prepositions (experimenting phase). The students also determined preposition in the sentences (associating phase). Moreover, in a group, students demonstrated the position of things (communicating phase). The fourth meeting was held on Saturday, August 10th, 2019, at 11.35 AM – 12.55 PM. In the opening activity, the teacher always gives ice breaking to gain students’ motivation in every meeting. The students observed finite and non-finite clauses in a sentence (observing phase). The students also gave questions to the teacher about material that has given (questioning phase). The students identified a finite and non-finite clause in a sentence (experimenting phase). The students distinguish the using of a finite and non-finite clause in a sentence (associating phase). In a group, students translated a finite and non-finite sentence (communicating phase).

The researcher did classroom action research in cycle two on August 14th, 21st, 24th, and 28th, 2019, at 11.35 AM – 12.55 PM. In the first meeting in this cycle, the researcher reviewed for material a finite and non-finite clause in a sentence. The teacher gave brainstorm activities by asking and answering questions. The teacher showed a clause to re-explain. The activities were still the same as the previous meeting, but the teaching-learning model had changed. Next meeting, for second to fourth meetings, the teacher explained the same necessary competences. It was about second conditional sentences. The teacher asked the students to observe

conditional sentences (observing phase); then, the teacher explained the material that would be discussed (questioning phase). The teacher also gave the other examples of the material which the teacher explained. The students made second conditional sentences (experimenting phase). The students also arranged subordinate and main clauses (associating phase). The students worked in a group to make second conditional sentences by spoken test (communicating phase).

#### H. Observing

The observation had done while implementing was running. This cycle, while the researcher implemented the actions, the collaborator's teacher took the observation sheet on the back of the class to observe the teaching and learning process. Actually, the students enjoyed the duration of teaching and learning activities. However, some of them did not pay interest to what the researcher said. Furthermore, there had been two students who were just silent. In addition, they ought to take the material well.

#### I. Reflecting

After the researcher applied to action and observation in cycle 1, the researcher made reflections such as the students were still confused, and they felt difficult what they must to do in the task. Based on the result of reflecting, the researcher gave more attention, and the teacher changed the teaching model/strategy/technique. It showed the students are more active and interested in learning. So, the teaching and learning process could run well because the researcher acts as the English teacher that had been able to solve some obstacles. The data of students' test shows an improvement of the result. The comparison of the students' scores is illustrating in the Table below.

**Table 1** The Students' Scores

	Score Level	Number of Students		Category
		Pre-test	Post-test	
1	0-49	0	0	Very Poor
2	50-69	2	1	Poor
3	70-79	14	1	Fair
4	80-89	8	9	Good
5	90-100	5	18	Very Good
<b>Total of Students</b>		<b>29</b>	<b>29</b>	

Based on the data above, the researcher found that there were none students or 0% who got 0-49 with a very poor category. 1 (3,45%) of a student who got 50-69. However, 70-79 with the poor and fair category. On the other hand, there were 9 (31,03) of students who got 80-89 with a good category, and there were 18 (62,07%) of students' total got 90-100 with a very good category. In the pre-test, there were 13 students passed in the test, 44,83%, while in the post-test, students who passed were 27 or 93,10% of students. It meant the students got the improvement of students' achievement. Students were being enthusiastic about learning English by using various learning media. Most students paid attention to the teacher and could accomplish the task well.

## 4 Conclusions

This research belongs to a classroom action research. It is aimed to improve students' achievement in learning English. Based on data analyses showed that applying a scientific approach in teaching English at twelfth-grade, through optimizing five stages a scientific approach to teaching English, it can be the impact of students could improve students' achievement. It could be seen from the quantitative data by proving the students' scores got better than the pre-test. In the post-test, it indicated from 44,83% increase to 93,10% gained. So, they succeeded in to fulfil the target of the minimum standard of KKM. Meanwhile, the qualitative data that showed the students have been more active and exciting in learning.

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