THE CORRELATION BETWEEN COMPLETENESS EQUIPMENTS AND MATERIALS CHEMISTRY LABORATORY WITH PRACTICAL SKILLS AND ACHIEVEMENT OF STUDENTS X CLASS OF EVEN SEMESTER ACADEMIC YEAR 2015/2016 IN SMA NEGERI 1 PLERET

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Abstrak

Penelitian ini bertujuan untuk mengetahui: 1) kategori kelengkapan alat dan bahan laboratorium kimia di SMA Negeri 1 Pleret, Bantul, DIY, 2) kategori keterampilan praktikum kimia peserta didik kelas X semester genap SMA Negeri 1 Pleret, Bantul, DIY, dan 3) hubungan antara kelengkapan alat dan bahan laboratorium dengan keterampilan praktikum kimia dan prestasi peserta didik. Materi praktikum yang dipilih dalam penelitian ini adalah materi larutan elektrolit dan non elektrolit.

Penelitian ini merupakan penelitian deskriptif dengan populasi peserta didik kelas X semester genap di SMA Negeri 1 Pleret, Bantul, DIY, dan sampel peserta didik kelas X-A dan X-B yang diambil dengan teknik *purposive sampling.* Instrumen yang digunakan berupa daftar cek atau *checklist* kelengkapan alat dan bahan laboratorium kimia, lembar observasi keterampilan praktikum, dan lembar angket. Analisis data pada penelitian ini menggunakan analisis deskriptif untuk kategori dan uji korelasi *product moment*.

Hasil dari penelitian ini adalah kelengkapan alat dan bahan laboratorium kimia di SMA Negeri 1 Pleret dikategorikan lengkap dengan nilai 116. Keterampilan praktikum kimia peserta didik kelas X semester genap di SMA Negeri 1 Pleret dikategorikan sangat terampil dengan nilai 65,11. Terdapat hubungan antara kelengkapan alat dan bahan laboratorium dengan keterampilan praktikum peserta didik, tidak terdapat hubungan antara keterampilan praktikum kimia dengan prestasi peserta didik, dan terdapat hubungan antara kelengkapan alat dan bahan laboratorium dengan prestasi peserta didik.

Kata kunci: Alat dan bahan laboratorium, keterampilan, prestasi, praktikum kimia, SMA Negeri 1 Pleret

Abstrack

The study aims to know: 1) the categorises of completeness equipments and materials of this research were chemistry laboratory in SMA Negeri 1 Pleret, Bantul, DIY, 2) the categorises of practical skill of student X class of even semester in SMA Negeri 1 Pleret, Bantul, DIY, and 3) the relationship between the completeness of the equipments and materials chemistry laboratory with laboratory skills and achievement of learners. The experiment matter that choose in this research are electrolyte and non electrolyte solutions.

The research is a descriptive research with a population of learner class is the even semester of X, SMA Negeri 1 Pleret, Bantul, DIY, and the samples of learners were X-A and X-B that taken by *purposive sampling technique*. The instruments that used are the form of a checklist with appropriate equipment and materials of chemistry laboratory, the observation sheets of laboratories skill, and the sheets of questionnare. For the data analysis, in this research used the descriptive for categorises and the correlation of product moment.

The results of this research were: the categorise of the completeness of the equipments and materials of chemistry laboratory in SMA Negeri 1 Pleret is complete, with the score is 116. The chemistry practical skills of the student in the even semester of X class in very good categorise, with the score is 65,11. There was a relationship between the completeness of laboratory equipment and materials with the practical skill, there was no relationship between the practical skill with the achievement of student, and there was relationship between the completeness of laboratory equipment and materials with the achievement of students.

Keyword: Equipments and materials laboratory, skills, achievement, chemistry laboratory, SMA Negeri 1 Pleret

INTRODUCTION

Scientific knowledge can be acquired or discovered by taking a series of specific procedures. Such procedures must be followed carefully so that obtained a correct conclusion. The scientific method can also be regarded as a combination of rationalism and empiricism. Ways of rational and empirical thinking is reflected in the procedures or steps that are in the process of the scientific activities. In chemistry, the scientific method is very closely related to practical activities or experiments. Practical or experimental method is a way of presenting a lesson, which the participants do lessons with experienced and prove them self

something that I learned. In the process of teaching and learning with this experimental method, learners are given the opportunity to experience for them selves or make their own, following a process, observing an object, analyze, demonstrate and draw their own conclusions about an object, situation, or process anything. Thus, students are required to experience for themselves, searching for the truth or trying to find a law or proposition, and draw conclusions or process that happened [1].

Chemistry is an experimental science, and a large majority of knowledge gained from research in the laboratory [2]. As we know, the chemical itself is one of the subjects that are considered difficult by learners. One method that can be used is a practical method. Practical activities to encourage students to make observations and the phenomena or chemical phenomena of a thing.

Practical activities to help students understand abstract concepts. As we know, that laboratory also can practice the skills of learners in the use of tools and materials chemistry lab.
In doing practical, skills learners influence the results from the laboratory. Learners who carry out practical work well, certainly constituted by observing step practicum work well too. Practical emphasis on developing one skills of using tools and materials chemistry laboratory correctly. In addition, provide more opportunities for students to interact directly with the tools and chemicals in the lab as a learning medium. In doing practical, necessary tools and materials that are standards in order to support the practical activities. The tools and materials in accordance with the standards can provide practical maximum results with the possibility of errors as possible, or in other words are valid and reliable. Based on this background, researchers interested in conducting research on the relationship between the completeness of the equipment and materials laboratory to perform the skills of learners in chemical lab. So that researchers formulate a research proposal entitled The Correlation Between Completeness Equipments and Materials Chemistry Laboratory with Practical Skills and Achievement of Students X Class of Even Semester Academic Year 2015/2016 in SMA Negeri 1 Pleret

Implementation of the study objectives to: determine the category of appropriate equipment and materials chemistry laboratories in SMA Negeri 1 Pleret, knowing the skill category chemistry lab the students of class X second semester of SMA Negeri 1 Pleret, determine the relationship between the completeness of the equipment and materials laboratory to a skill chemistry lab learners second

semester class X SMA Negeri 1 Pleret, knowing the relationship between chemical lab skills to learners 'achievements even semester grade X SMA Negeri 1 Pleret, determine the relationship between the completeness of laboratory equipment and materials to the learners' achievements even semester grade X SMA Negeri 1 Pleret. Chemistry learning can not be separated from the notion of learning and understanding of chemistry it self [3], chemistry is the study of the properties of the materials or substances and particles, the composition, the interaction between matter and energy that accompany it. The chemistry has a very important role in this advanced era. The chemistry can explain how the process of forming a new material that makes life more comfortable, convenient, and practical. Chemistry can not be separated from the activities carried out in the laboratory experiments. Through these experiments many concepts and ideas in chemistry emerge and contribute to the advancement of science. Therefore, studying the chemistry is very important and useful. However there many factors that can cause failure in learning. In the laboratory, the learning method that is commonly used is the experimental method.

An experimental method [4], is a method that gives students the chance to undertake a process or trial. Through this method, students are expected to be fully involved in the planning of experiments, gathering facts, control variables, and efforts in the face, the problem is real. Practical skills of learners is an important thing to consider when working in the laboratory. Laboratory is a room designed specifically to conduct observation or experiment. Skills of learners in doing practical useful in maintaining the safety of students when performing laboratory experiments. Safety in the laboratory include the safety of the users of laboratory and safety of the equipment and materials used. To maintain the safety of equipment and materials, so it needed the introduction of forms and names of the tools and how to use it. Meanwhile, to maintain the safety of laboratory users need to be made a rule or order in the laboratory, as well as warnings against hazardous materials. Therefore the practical skills of learners is needed. In the laboratory, students can find several types of tools and materials to support the activities or laboratory experiments.

RESEARCH METHODE

This research uses descriptive method. The population in this study were all students of class X SMA Negeri 1 Pleret. The sample in this research is the students in two classes of the overall grade X SMA Negeri 1 Pleret. Sampling was taken

by purposive sampling, the sampling technique with a certain considerations. In this study, the instrument used in the form of study documentation, checklists appropriate equipment and laboratory materials, sheets observation skills of learners, observation guidelines, and self-assessment questionnaire. The data analyzed in this study is qualitative data in the form of description completeness of information concerning the relationship of laboratory equipment and materials chemistry lab skills to learners. Researchers conducted observations of X-class learners who are doing the second semester classroom. Researchers observed the skills of learners in carrying out practical work. Then the researchers analyzed the appropriate equipment and materials chemistry laboratory in SMA Negeri 1 Pleret. Researchers then connect the appropriate equipment and materials chemistry lab to lab skills and achievements of learners.

For the data analysis, in this research used the criteria for the relationship between the completeness of the equipment and materials chemistry laboratory to laboratory skills of learners, and the relationship between the completeness of laboratory equipment and materials to the learner achievements. Then, for the relationship between chemistry laboratory skills to learners achievements we used the *correlation of product moment.*

RESULT AND DISCUSSION

The relationship between the completeness of equipments and materials of laboratory with the practical skills of students. To find the relationship between the completeness of the equipment and materials chemistry laboratory with laboratory skills of learners performed using established criteria. This is because the analysis correlation of product moment unusable. The values of appropriate equipment and laboratory materials is single or only one, while the value of practical skills of each learner has a different value. Appropriate equipment and materials chemistry lab at SMA Negeri 1 Pleret in the academic year 2015/2016 Complete categorized. While the chemistry laboratory skills of students of class X categorized as highly skilled.

Relationship between the practical of chemistry laboratory skills with achievement of students. To find the relationship between chemistry laboratory skills to learners achievements done by correlation of product moment. In this case the correlation of product moment can be used because there is no single value that is good value practical skills and achievement of learners.

Values r count < r table, so that H_1

rejected, which means there was no correlation between the skills and achievements of students of class X SMA Negeri 1 Pleret. Chemistry laboratory skills of learners do not relate to the academic value of chemistry students. This suggests that whether or not a chemical laboratory skills of learners are not related to students academic achievement. There is a very close of relationship between learning outcomes with metacognitive skills, and both are an integral circuit. Enterprises improve the cognitive abilities of a person, should be supported by an increase in metacognitive skills. In this application in learning or problem-solving, cognitive and metacognitive processes can take place simultaneously or in tandem, mutually supporting each other. As noted in the previous description that metacognitive skills is basically consciousness to think about what is known and what is unknown. Success in learning is influenced by metacognitive abilities. If any learning activities carried out with reference to the indicators of learning how to learn the optimal outcome would have been easy to achieve [6]. The analysis in the first hypothesis above, it is known that there are differences in cognitive learning achievement among students with guided inquiry learning methods and projects, while for psychomotor and affective learning achievement there. Based on the average results of students 'cognitive learning achievement, gained an average achievement of students' cognitive learning with guided inquiry method is better than the students with the methods of the project [5].

The relationship between the completeness equipments and materials of laboratory with the achievement of students. To find the relationship between the completeness of laboratory equipment and materials to the learners achievements done using established criteria. This is because the analysis with correlation of product moment unusable. Practical skills can be associated with the achievement of learners using product moment correlation test. Showed that the chemistry laboratory skills not related to the achievement of learners. Indirectly, appropriate equipment and laboratory materials is not related to the achievement of learners. With appropriate equipment and laboratory materials is good, can’t be ascertained that the achievement of learners well too. If the appropriate equipment and laboratory materials with learners achievements are connected directly by using the criteria, then showed positive results. However, it is not logical because the appropriate equipment and laboratory materials with learners achievements are not directly involved. Thus, negative

results were obtained between the appropriate equipments and materials with learners achievements.

CONCLUSION

Category of completeness of equipments and materials chemistry laboratory at SMA Negeri 1 Pleret was complete with the total value of 116. Categories of chemistry laboratory skills of student of even semester in class X SMA Negeri 1 Pleret was very good with the total value of 65.11. There is a relationship between the completeness of the equipment and materials of chemistry laboratory with the practical skills of students grade X at SMA Negeri 1 Pleret.

The skills of chemistry laboratory, do not relate to the academic value of students. This shows that the chemistry laboratory skills of students who either are not related to students academic achievement. Then, the last there was no relationship between the completeness of equipments and materials laboratory with the students achievements in SMA Negeri 1 Pleret

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