# The Ability Of Contribution Of Student Concept Through Learning Effectiveness Based VAK (Visual Auditory Kinestetic) In Learning Chemical Class XI IPA SMAN 2 Mataram

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***Abstrac:*** *This study aims to determine the effectiveness of learning-based VAK (Visual Auditory Kinestetik) on mastery of students' chemical concepts. On acid acid base material class XI IPA I SMAN 2 Mataram academic year 2016. This research was conducted in the even semester of January 2018. This research is experimental research of Pre-Experiment with design of One Group Pretest-Posttest, by using purposive sampling technique. Data collection is done through Pretest, Posttest. The average learning outcomes of mastering the concepts of learners increased after the implementation of VAK-based learning, an increase in mean score between prettest and posttest, ie from 8.4 to 16.625. After sought Gain ternomalisasinya score, got a score of 0.65 which means Gain score is in the medium category then it is effective to use.*
***Keywords:*** *concept mastery, VAK-based learning effectiveness*

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## I. Introduction

Education has a very important role for individual development and manifestation, especially for the development of nation and state. The world of education is required to prepare competent human resources in order to compete in the international world. Through education, the people of Indonesia can increase their knowledge, ability, creativity to the development of science and technology and reduce backwardness and poverty, because the knowledge and skills acquired can bring someone to be able to overcome the problems of life (Pusporini 20012).

The learning process is an educational component. These activities involve students and teachers. Teachers have an important role during learning. Teacher's duty is not only to transfer knowledge, not to make the students as learning object but subject of learning, so that students are not passive and can develop knowledge according to field of study being studied. Therefore, teachers must understand the material to be presented to the students and can choose the right learning model to deliver a material (Kemendibud, 2013).

Chemistry is an exact science that is all related to reasoning. Basically learning chemistry is a learning concept. The concepts in chemistry become a unified and continuous unity. For that, in the learning process the teacher can convey the concept to the students and how students can understand it. Teaching on chemistry is done by observing the sequence of concepts starting from the simplest. But until now in high school, chemistry is still a problem as the most unpopular subjects. Research shows that learning chemistry is irrelevant in students' views and dislikes students (Osborne and Collin, Sjoberg in Holbrook, 2005). Therefore there are students who become unenthusiastic in the learning process of chemistry, so that students' chemistry learning results tend not to be maximal. This also happened in SMA Negeri 2 Mataram.

During the observation, the pattern of learning, especially on chemistry subjects still use the old pattern means more lecture. With this method of lecturing, students become passive during learning and do not master the concept because students are required to remember or memorize the subject matter. Based on the information obtained from chemistry teacher of SMA Negeri 2 Mataram teaching in class XI semester 1, the average of student learning outcomes in the academic year 2016/2017 is 60 of 40 students where students who reach the Minimum Exhaustiveness Criteria (KKM) 76 ie only 15 people with a value of 65-70. Thus only 37% of students who complete in the learning process. From these data shows that the students' chemical learning outcomes are still relatively low based on Minimum Exhaustiveness Criteria (KKM) established at the school.

Based on the experience of the author in conducting Field Experience Observation in january second semester at SMA Negeri 2 Mataram academic year 2016.

To improve student learning outcomes, proper learning is needed, involving students to be active during the learning process, thus expected student learning outcomes can increase, Students will be actively involved when in the learning process, the teacher can show something related to the material discussed and

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invites students to find evidence through experiments and work together to resolve the issues posed. One of the lessons that can involve students to take an active role is VAK-based learning (Visual Kinesthetic Auditory). VAK-based learning (Visual Kinitetic Auditory) is a learning that emphasizes the provision of direct experience by way of learning, by seeing and remembering (Visual), learning by listening (Auditorial), and learning with motion and emotion (Kinesthetic) (DePorter 2010). From the research application of learning model VAK (Visual Kinitetic Auditory) which will be implemented is expected to improve the effectiveness of students' chemistry learning outcomes.

From the above explanation it can be seen that the low learning result of chemistry of students is influenced by the attitude of students who are less interested in chemical subjects, this is because using the old pattern means more lecture, so students become passive during the learning berlansung, Thus, researchers trying to lift the title "Ability Mastery of Student Concept Through Effectiveness of Learning Based VAK (Visual Auditory Kinestetik) In Chemistry Class XI Science SMAN 2 Mataram Academic Year 2017.

## II.  Methods

This research has been carried out in January 2018 in class XI IPA I SMAN 2 Mataram academic year 2017.

This research is experimental research of Pre-Experiment with design of One Group Pretest-Posttest, by using purposive sampling technique. The population in this study is the students of class XI IPA I SMAN 2 Mataram with the number of students 40 students. This study used preliminary and final tests to obtain students' concept mastery data. Data were analyzed using normalized Gain-score then presented descriptively.

To know the effectiveness of learning devices on mastery of student concepts. Data on mastery of student concepts is measured using pretest and postest. Then the data analysis in this study used the calculation of normalized average gap data (N-gain) developed by Hake (1999) with the following formula:

$$N - gain \ <g> = \frac{Spost - SPre}{Smaks - SPre}$$

Keterangan:
$N - gain$ $\quad$ = N-gain <g>
$S_{Post}$ $\quad$ = Average posttest score
$S_{Pre}$ $\quad$ = The average score is pretest
$S_{maks}$ $\quad$ = Maximum score

**Tabel 3. 3** Kriteria Skor Gain

| Classification of Gain Skore | Category |
|---|---|
| $0,7 < g \leq 1$ | High |
| $0,3 < g \leq 0,7$ | medium |
| $g \leq 0,3$ | Low |

(Hake, 1999)

## III. Results And Discussion

Table Recapitulation of concept mastery test results in treatment class

| CLASS OF XI IPA TREATMENT | N | HASIL BELAJAR PENGUASAAN KONSEP | | | | | |
|---|---|---|---|---|---|---|---|
| | | Average Prettest | Posttest Average | Difference | Gain | Criteria | Information |
| SMAN 2 (IPA I) | 40 | 8,4 | 16,625 | 8,225 | 0,6527 | Sedang | Effective |

Based on the results of data analysis on the calculation of the average prettest score of the experimental class on concept mastery is 8.4 and the experiment class posttest on the concept mastery is 16.625. The results of the data there are differences in the use of learning terahadap test classes where the test results mastery of learners concept has been an increase indicated the average score between prettest with posttest, ie from 8.4 to 16.625. Having searched the normalized Gain score, got a score of 0.65 which means Gain score is in the Medium category.

Mastery of concept in this research is given in the form of multiple choice test as many as 20 numbers, which is used to know the level of effectiveness mastery of the concept of acid bases solution material of learners. The result of posttest value is 8.4 (table 4.7) there are still many unfinished, this is because learners who have not been taught material of acid-base solution, so that still comes from the initial knowledge of learners. The result of posttest value is 16,625 (table 4.7) hence higher posttest value than prettest hence can be said result of concept master test have been happened indicate average score between prettest with posttest, that is from 8,4 (table 4.7) to 16,625 (table 4.7 ). After searching for normalized Gain score, got score 0,65 (table 4.7) which mean Gain score is in medium category and it can be concluded that VAK-based learning is

effectively used for student mastery ability on acid acid base material. VAK-based learning effectively improves the mastery of student concepts where students can learn a concept using their own senses by observing directly the material of acid-base solution in finding and understanding a concept through video observation, physical activity such as demonstration, experiment, observation, and active discussion in learning activities to solve a problem according to learning based on VAK.

## IV. Conclusion

Based on the results of data analysis and discussion on the effectiveness of VAK-based learning, it can be concluded that VAK-based learning is effective on mastery of student's concept of acid-base acid of students of grade XI IPA SMAN 2 Mataram.

## Aknowledgement

## References

[1]. Pusporini, Sri, dkk. (2012). Pembelajaran Kimia Berbasis Problem Solving Menggunakan Laboratorium Riil Dan Virtuil Ditinjau Dari Gaya Belajar Dan Kemampuan Berpikir Kritis Siswa. *Jurnal Inkuiri*, 1 (1), 34-43.
[2]. Permendidbud. 2016. *Peraturan Menteri Pendidikan Indonesia N0 22 Tahun 2013 tentang Standar Proses Pendidikan Nasional Dan Menengah.*
[3]. Holbrook, J. (2005). Making Chemestry Teaching Relevant. *Chemical Education International,* 6 (1), 1-12.
[4]. DePotter, B. and Hernacki, M. (2010). *Quantum Learning Membiasakan Belajar Nyaman dan Menyenangkan..* Kaifa : Bandung.
[5]. Hake, R. 1999. *Analizing Change/Gain Score.* Indiana: Indiana Unniversity.