# PROBLEM SOLVING & LEARNING STYLE OF MEMORIZER "AL QURAN" TOWARD UNDERSTANDING OF MATHEMATIC

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**Abstract**: There are several theories about the classification of learning styles as expressed by De Poter & Henacki (visual, auditory and kinesthetic) and Felder & Silverman. This study focuses on analyzing the learning styles of students who have memorized the Koran mutqin toward their understanding about the concept of multiplication. This study used a descriptive quantitative research approach. The total number of participants are 110 students and divided them into two parts; students memorizing the Koran around 5 juz (9-12 years) and 55 students who did not memorize the Koran. Researchers used purposive sampling technique in determining the participants. The determination of the learning style, researcher took from theory (Felder & Silvermen), and the researcher's learning style using a questionnaire in grouping. The results of this study identified that {1} students who have memorized 5 juz tend to use active-reflective learning style and they have a good understanding of the concept of multiplication reach 63.2%, while students who did not memorize the Koran, they have the similar learning style were categorized into sufficient and reach 50.5% {2} Students who memorized the Qur'an 5 juz tend to use the sensing-intuitive learning style had a good understanding into 70.8%. Meanwhile, students who did not memorize the Koran and had the same learning dimensions were indicated into good category reach percentage into 60, 8% {3} Students who memorized the Qur'an 5 juz, they tend to use visual-verbal intervention and had a good understanding to the concept of multiplication reach 73.3%. Meanwhile, children who did not memorize the Koran, they got percentage in 58.9% { 4} There are no students who have memorization of the Qur'an 5 are included in the sequential-global style. Therefore, there is no test but researcher found that students who do not memorize the Koran tend to use sequential-global style included to less category shows percentage in 40.6%.

**Keywords:** *Perspective; Learning Style; Multiplication*

## A. INTRODUCTION

Students who memorize the Quran have a different learning style from the others. They have their own style to memorize the Koran(Khoeron et al., n.d.). Even the instructors have different teaching style when compared to teachers who teach other sciences such as learning mathematics, science, social studies. Based on literature observations, all the methods used by teachers who guide memorizer "AL Quran" generalize the learning style and abilities to their students. The results shown that they were satisfactory and many students are successful in memorization(1-30 juz). (Ali Anwar, 2019)(Wandini et al., 2020)(Alucyana, 2017)(Mamlu'ah, 2019)(Hakim Vera, 2017) Meanwhile, students who do not memorize the Qur'an using the same learning method, sometimes students have difficulty in understanding material. Teachers must prepare kinds of learning methods for just one material, especially in mathematics. One of difficult material in learning mathematic is understanding the concept of multiplication. Many students

memorize multiplication and they can multiply numbers without understand the multiplication process.

Therefore, researchers are interested to investigate how the understanding of students memorizing the Koran to the concept of multiplication whether there is similarities between students memorizing the Qur'an and those who do not. In the study, the participants were divided into 4 groups. Group is determined by using a questionnaire according to Felder & Silvermen. In this case, the questionnaire has been validated before. The questionnaire consists of 50 items and was distributed to participants who memorized the Koran and those who did not memorize the Koran. All participants are given the same problem. The completion of the participant's math problems will be analyzed to see the basic concept of multiplication. The following table will show the types of learning style based on Felder & Silverman.

Table 1. Learning Style

| No | Learning Style | | Interpretation | Questin Items |
|---|---|---|---|---|
| 1 | Active- Reflective | - | Oriented on ownself (exploring, experiment, work alone | 3, 8, 15, 17, 20, 29, 21, 38, 42, 37 - 1, 5, 17, 20, 25, 29, 38, 37, 42 |
| | | - | Oriented on another ( tend to love experiment but cooperative) | |
| 2. | Sensing –Intuitif | - | Learning based on fact, practical, dreamer, concentration and interested to challenges | 30, 10, 26, 18, 22, 26, 2, 32, 41, 31. – 7, 26, 6, 4, 26, 22, 18, 43, 24, 31. |
| 3. | Visual-spoken | - | Love to see and hear. Talkative. | 9, 11, 12, 13, 14, 23, 39, 40 - 23, 27, 39, 45, 12, 14, 23, 39, 40 |
| 4 | Squental-Global | - | Need model or guide in the process of learning and tend to choose free style in learning | 12, 48, 49, 28, 47, 46, 50. – 23, 39, 45, 12, 48, 23 |

After finding of learning style group between students who memorized the Koran and students who did not memorize the Qur'an, then the group was given the same treatment; problem solving {giving math problems} based on learning achievement indicators 1. Observing the problem repeated addition 2. Connecting repeated addition as a form of multiplication 3. Analyzing story questions related to multiplication 4. Solving questions that are connected to students' daily lives, both related to multiplication and division. Then the results were analyzed using the Wilcoxon test with SPSS.

This problem solving implementation was chosen because it can provide experience and knowledge for students in solving problems (Eskin, 2013)(*Design Problem Solving | ScienceDirect*, n.d.)(David C. Brown and B. Chandrasekaran, 1989) (Siswono, 2005) (Yudianto, 2016). Alexei Volkov in his dissertation stated that the reconstruction of the interpretation method about the understanding of mathematical concepts {quadratic equations and geometry} can be implemented through the analysis of mathematical problems(Volkov, 1991). In line with Alexel Volkov, Judit Petervari also argues that problem solving can provide solutions which help students to identify problems in a relevant way and increase students' math skills. In addition, Tapsir, Emamipour and Shams Esfandabat also commented that by combining access to identification of student learning styles it could also be an alternative support in providing understanding to students.
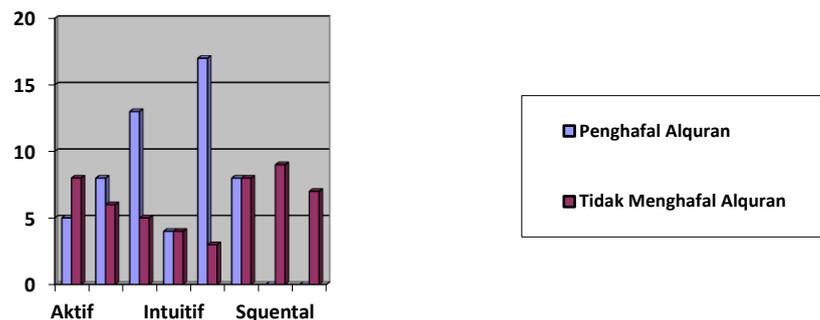
## B. MATERIAL & METHODS

This study used a descriptive quantitative research approach. The total number of participants are 110 students and divided them into two parts; students memorizing the Koran around 5 juz (9-12 years) and 55 students who did not memorize the Koran. Researchers used purposive sampling technique in determining the participants. The determination of the learning style, researcher took from theory (Felder & Silvermen), and the researcher's learning style using a questionnaire in grouping.

## C. RESULT & DISCUSSION

Based on the analysis, researchers found learning style between students who memorized the Koran and those who did not memorize the Koran. It can be seen on the following clarification:
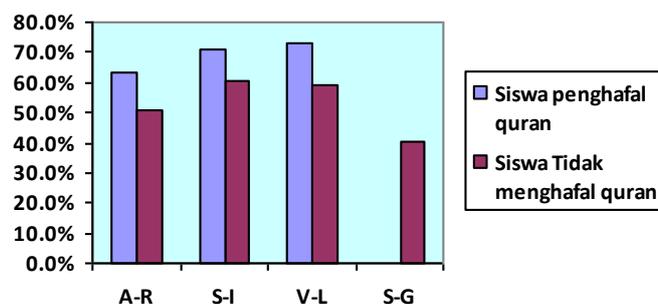
Chart 1 grouping of students " Hafidz Alquran"



From the chart above, it can be seen that the distribution of learning styles is varied from 110 participants who are divided into 2 groups; students who memorize the Koran and students who do not memorize the Koran. Learning style from students who memorize Al-Quran consist of 5 students for active learning styles, 8 students for reflective, 13 students for sensing, 4 students for intuitive, 17 students for visual, 8 students for oral, 0 students for sequential and global. Meanwhile, students who did not memorize the Koran, their learning styles were grouped into active 8 students, reflective 6 students, sensing 5 students, intuitive 4 students, visual 3 students, oral 8 students, sequential 9 students and global 7 students. Based on these results, it can be summarized that most of students who memorize the Koran have sensing and visual learning styles. Meanwhile, students who do not memorize the Koran, most of them belong to students whose learning styles are squantal or prefer to be guided and need examples or modeling.

After obtaining the learning style, then each learning style group was given treatment by using problem solving learning related to understanding the concept of multiplication, and resulted four groups of understanding. They are very understanding of the concept of multiplication, Understanding the concept of multiplication, Enough to understand the concept of multiplication and haven't understand the concept of multiplication. For more details, see the following chart:

Chart 2 Analysis of understanding the concept of multiplication by students who memorized Al Quran and who did not
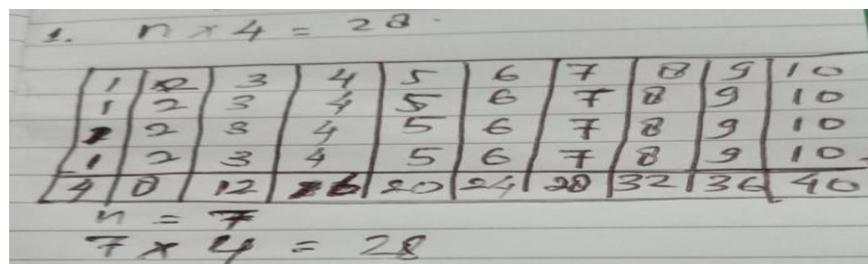
Based on the graph above, it can be seen that students who memorize the Qur'an {5 juz} already understand the concept of multiplication well even though they have different learning styles. More details can be seen below:

1.  Active-reflective style is categorized "GOOD" (63,2%). It's meant that students are able to solve questions such as "n * 4 = 28" with the result n = 28/4 = 7 so, the score of "n" is 7, the complete multiplication problem is as follows 7 * 4 = 28 means number of & should sum in four times such as (7 + 7 + 7 + 7) = 28.}
2.  In the sensing-intuitive learning style is categorized into GOOD (40.8%). It's meant that student understood that "n * 4 = 28 answered 7 * 4 = 28 or 4 + 4 + 4 + 4 + 4 + 4 + 4 = 28 or 7+ 7 + 7 + 7 = 28}
3.  Visual and oral learning style is categorized into GOOD ( 73.3% ). It's meant that the student understood the process of {"n * 4 = 28 )

The following picture is the one of examples from student's process in understanding of mathematic

Figure 1. Students' Sheet



Meanwhile, the squantal-global learning style is not detected in this study. Furthermore, students who do not memorize Al Quran used an active-reflective learning style, they categorized into sufficient in understanding the concept of multiplication and they got percentage of 50.5%.

Sensing-intuitive learning style is in the good category with a percentage of 60.8%, the visual-oral learning style is in the quite good category with a percentage of 58.9% , and the squantal-global learning style is in the category "Fail" because they did not understand the concept of multiplication and the percentage is 46%.

## D. CONCLUSION

Problem solving is a strategy that can be used to analyze students' understanding of mathematics related to the concept of multiplication, especially at the 9-12 year age. Students who memorize Al Quran have a higher level of understanding than students who do not memorize the Al Quran. Grouping student learning styles can be an alternative in giving treatment to students, so that students can easily understand the material.

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