

## **Identifying senior high school students' learning styles at a diagnostic assessment**

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### **Abstract**

Learning style can be interpreted as the process of appreciation, behavior, and tendencies of a student in acquiring knowledge. One of the keys to student success in the learning process is that it is influenced by a learning style that suits the students. This research aims to identify the learning styles of class XI students at SMA Negeri 4 Yogyakarta. This research is a type of survey research. The research population was all class XI students at SMA Negeri 4 Yogyakarta. The sample was taken from 72 students from class XI F3, F5, and F6 of SMA Negeri 4 Yogyakarta, which was determined using *purposive sampling*. Data analysis was carried out descriptively presenting the results obtained from closed questionnaires. The overall results obtained in this study show a kinesthetic learning style with a percentage of 36.1%. Class F3 tends to be kinesthetic and F5 and F6 tend to be visual.

**Keywords:** auditory, kinesthetic, learning styles, visual

**How to cite:** Sofhiya, E. S., Ivo, D. P. A., Febrianti, N., & Altawil, A. N. (2023). Identifying senior high school students' learning styles at a diagnostic assessment. *International Journal on Education Insight*, 4(2), 57-64. DOI: 10.12928/ije.v4i2.10296

### **Article history:**

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## **INTRODUCTION**

Education can be said to be an effort to realize a cultural inheritance from generation to generation. Education is simply an effort made by humans to develop the potential they already have (Rahman et al., 2022). Learning is a process of changing behavior that occurs directly within a person to get something new. Learning is said to be important because it can change someone for the better. Learning can change a person's behavior, abilities, skills, and character and increase knowledge (Herawati, 2018).

Learning style can be interpreted as the process of appreciation, behavior, and tendencies of a student in acquiring knowledge (Shoimatul, 2013). One of the keys to student success in the learning process is that it is influenced by a learning style that suits the student. Good learning is meaningful learning, namely learning that is not forced by other people but is the desire of the students themselves (Wahyuni, 2017).

Learning styles are divided into three types, namely visual, auditory, and kinesthetic learning styles (Deporter & Hernacki, 2000). Visual learners are students who learn through things they see such as pictures and instructions. After seeing or reading, students who have a visual learning style find it easier and faster to digest and process new information (Murfi & Rosidah, 2016). Auditory students are students who learn by hearing. Students who have an

auditory type learning style will find it easier to digest and process information by listening directly and conveying information orally (Lestari & Widda Djuhan, 2021). Kinesthetic students are students who learn by moving, working, and touching. Students who have a kinesthetic learning style will find it difficult to sit for too long during class. Participants with a kinesthetic learning style will be more interested when learning involves physical activities. Participants with the ability to learn kinesthetically will find it easy to coordinate a team and be able to control body movements (Susano et al., 2020). All students can learn with these three types of learning styles, but there will be one of the three learning styles that is more dominant.

The research that will be carried out is survey research. This research can be applied to large-scale and small-scale populations. The data studied in this research is data from a predetermined sample so that the relative occurrence, distribution, and relationship between sociological and psychological variables can be known (Rahi et al., 2019). Survey research is research with samples from a population who are then given a questionnaire which functions as a tool for collecting data (Rohmatunisa et al., 2020).

SMA Negeri 4 Yogyakarta has two types of classes, namely regular classes and sports classes (KKO). There are 7 regular classes and 1 sports class with each class containing 36 students. The number of class 11 students at SMA Negeri 4 Yogyakarta is 288 with 127 male students and 161 female students. Student learning activities at SMA Negeri 4 Yogyakarta consist of two types, namely learning activities in the classroom and laboratory which require students to be able to use their learning styles optimally to obtain satisfactory results. Based on initial observations made by researchers, class XI students do not yet know the learning style that suits them so their learning is not optimal. Many students experience difficulty absorbing Biology learning. Students who experience difficulties often ask their classmates again after the teacher has finished explaining or ask the teacher to re-explain the material that has been presented. Based on the problems described above, the researcher is interested in conducting a simple research entitled Identification of Learning Styles of Class XI Students at SMA Negeri 4 Yogyakarta.

## **RESEARCH METHOD**

This research is a type of survey research. The research population was all 11th-grade students at SMA Negeri 4 Yogyakarta. According to Arikunto, (2017) if the population is more than 100, then the sample taken is 10% -25% of the total population. Based on this theory, the number of samples taken was 72 from students in class XI F3, F5, and F6 of SMA Negeri 4 Yogyakarta, which was determined using *purposive sampling*.

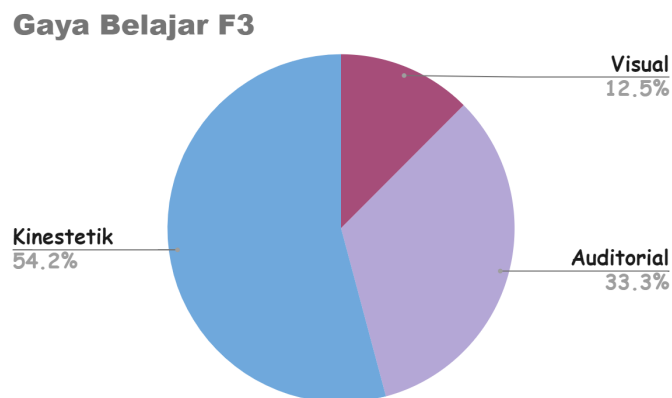
Data collection uses a closed questionnaire instrument which is distributed directly. The questionnaire contains questions to measure three learning styles of students, namely auditory, visual, and kinesthetic which will be analyzed descriptively and qualitatively.

## **RESULTS AND DISCUSSION**

### **Result**

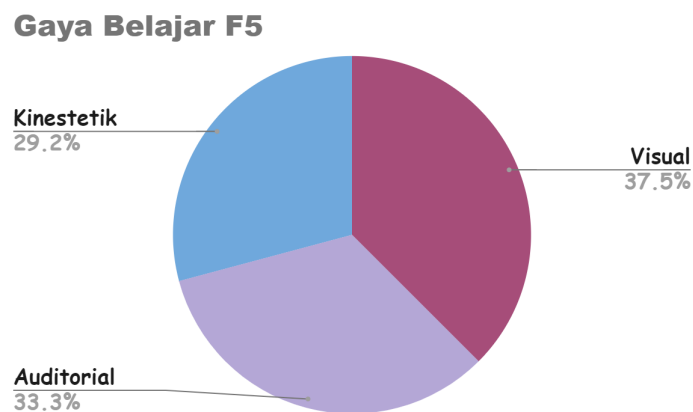
The research results based on the learning styles of class XI students at SMA Negeri 4 Yogyakarta were grouped into learning styles per class. The data used comes from the answers of class XI F3, F5, and F6 students at SMA Negeri 4 Yogyakarta in the form of questions related to learning styles. The results

obtained are presented scientifically in the form of a pie chart. Following are the research results:



**Figure 1.** Learning style diagram for class XI F3

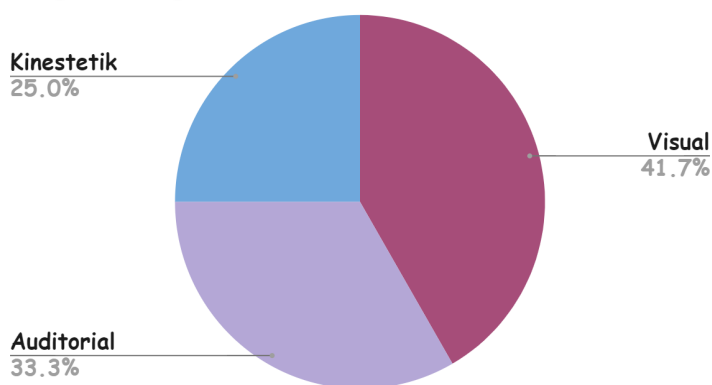
These results indicate that of the three learning styles, class F3 respondents tend to have a kinesthetic learning style. The percentage of Visual learning styles is 12.5%, Auditory 33.3%, and Kinesthetic 54.2%. Respondents prefer a kinesthetic learning style.



**Figure 2.** Learning style diagram for class XI F5

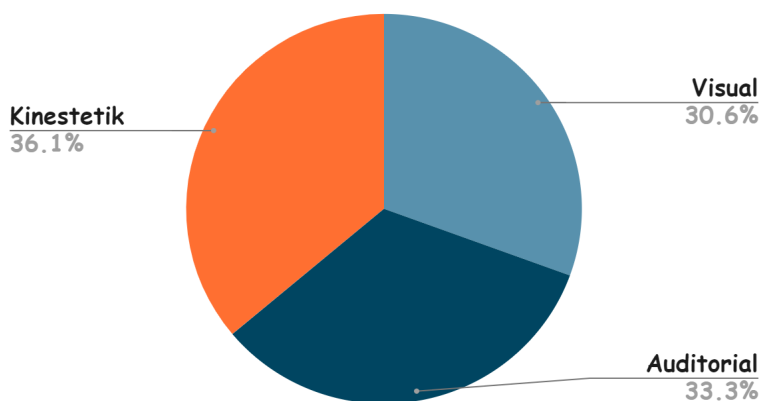
These results indicate that 37.5% of F5 respondents predominantly prefer a visual learning style. Apart from that, 29.2% liked the kinesthetic learning style and 33.3% liked the auditory learning style.

### Gaya Belajar F6



**Figure 3.** Learning style diagram for class XI F6

These results indicate that of the three learning styles, respondent F6 tends to have a visual learning style. The percentage of Visual learning styles is 41.7%, Auditorial 33.3%, and Kinesthetic 25%. Respondents prefer a visual learning style.



**Figure 4.** Class XI learning style diagram

These results indicate that the 72 students from classes F3, F5, and F6 who were used as respondents tend to have a kinesthetic learning style. The percentage of learning styles shows that there is not much difference between each learning style where the Visual learning style is 30.6%, Auditorial 33.3%, and Kinesthetic 36.1%. Respondents prefer a kinesthetic learning style.

### Discussion

Class F3 students at SMA N 4 Yogyakarta tend to have a kinesthetic learning style with a percentage of 54.2%. This percentage shows a significant difference between the visual learning style with a percentage of 12.5% and auditory with a percentage of 33.3%. Based on observations while teaching students in class F3, students prefer learning by carrying out activities such as practicums. Students tend to be active in learning, for example, asking the teacher and answering questions given by the teacher. According to (Mohd et al., 2019), the characteristics of students who have a kinesthetic learning style can be seen in the behavior of students who enjoy doing practical activities either in the

laboratory or outside the laboratory. According to Wassahua (2016), some learning style characteristics are certainly not shared by every student. Students who have a kinesthetic learning style tend to remember things by touching or doing something that can provide information. Students who have a kinesthetic learning style always use their hands to receive information so that it is easy to remember. Students also tend not to be able to sit in their desks for long while listening to the teacher's explanation, however, students with this learning style have advantages in leading a team.

Kinesthetic types prefer to learn through experience and participate in various learning process activities. According to Winkel (2016), individuals who have a kinesthetic learning style learn by doing practical activities, memorizing while walking and looking. Assignments in the form of projects are very popular with individuals with a kinesthetic learning style. Frequently touching other people, standing close together, moving when interacting with other people, pointing at writing while reading, demonstrating concepts while allowing students to learn them in stages, and using learning media to arouse curiosity are behavioral characteristics of individuals who have a learning style kinesthetic (Suryanda et al., 2018).

Based on the results of the questionnaire given to class F5 students, the visual learning style was 37.5%, but this did not show a significant difference in percentages for each learning style, where the auditory learning style was 33.3% and the kinesthetic learning style was 29.2%. Class F5 students themselves have diverse characteristics in learning. Some students cannot sit comfortably in their chairs, but there are also students who just silently pay attention to the teacher's explanation, besides that there are also students who always ask the teacher to show several illustrations, charts, diagrams, and videos. According to (Rambe & Yarni, 2019), the visual learning style is a learning style that places more emphasis on how students can more easily learn subject matter by looking at or observing the learning object, such as watching videos during learning. According to (Handican et al, 2022), students with a visual learning style will tend to get information through the eyes, namely by looking at pictures, maps, diagrams, graphs, and posters as well as other visual media.

Class F6 has a visual learning style. This is based on the percentage dominance of the visual learning style compared to other learning styles. The percentage of visual learning style is 41.7%, then the percentage of kinesthetic learning style is 25% and the percentage of auditory learning style is 33.3%. Based on observations made when teaching class F6, some students tend to just be quiet and pay attention when the teacher explains in front of them, apart from that some students cannot sit still in their chairs and always invite their friends to chat, but the class is dominated by female students who tend to always be coherent in processing the information to be written in his book. According to (Nurul Hidayati, 2020), the eyes have an important role in students who have a visual learning style.

Students in classes F5 and F6 have a visual learning style, whereas students in classes F5 and F6 tend to like learning by looking, observing, and using strong visual associations so they can be said to have a visual learning style in this class. The visual learning style likes to utilize the sense of sight when learning. According to (Sari, 2014), the visual learning style utilizes vision when understanding learning. Visual methods are divided into two, namely: visual-verbal and visual-verbal. Children who have a visual learning style are more likely to have better visual intelligence compared to other intelligences.

Visual intelligence includes interrelated abilities, including visual discrimination, visual recognition, projection, mental imagery, spatial judgment, image manipulation, or external images. The behavioral characteristics of individuals with visual learning style characteristics according to (Sanjaya & Viena, 2013), namely accurately recognizing body language and facial expressions, being able to imagine things in their minds, being good at taking notes in the form of text, and doodles, understanding visual information such as charts, graphs, and diagrams, remembers displays easily, appreciates pictures and illustrations in books, and enjoys learning from video presentations.

Overall, class XI students do not have a significant difference in the percentage of learning styles, but the highest percentage is kinesthetic. The 72 students who were respondents and filled out the questionnaire given by the researchers showed that the percentage of visual learning styles was 30.6%, the percentage of auditory learning styles was 33.3% and the percentage of kinesthetic learning styles was 36.1%. According to (Chania et al, 2016), every student has three learning styles, namely kinesthetic, auditory, and visual, but there will always be a tendency towards one learning style compared to another. This tendency will become a student's learning style.

## CONCLUSION

Based on the results and discussion, it can be concluded that the learning style of class Class F3 tends to have a kinesthetic learning style and classes F5 and F6 tend to have a visual learning style. Knowing students' learning styles is an important step so that the learning process can run smoothly and more efficiently.

## ACKNOWLEDGEMENT

We would like to express our sincere thanks to: Mr. Jaka Tumuruna, M.Pd. and the students of class XI F3 SMA N 4 Yogyakarta.

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