

## Mapping Students' Learning Styles as the Basis For Designing Differentiated Learning in High Schools

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### ABSTRACT

The purpose of this study is to adapt the teaching and learning process according to the characteristics of each student, including their learning styles. This study is a descriptive quantitative study. The sample in this study consisted of 24 tenth-grade students at Senior High School. The research instruments used included a learning style questionnaire based on the VARK (Visual, Auditory, Kinesthetic) model to identify students' learning style preferences. The results showed that visual (58.33%) and auditory (41.67%) learning styles dominated, while kinesthetic learning styles were not detected. These findings provide important insights for designing process-based differentiated learning strategies according to students' needs or learning styles, thereby increasing student engagement and learning potential. By understanding students' learning preferences, teachers can design more appropriate strategies, materials, and learning environments, thereby optimally increasing student engagement, understanding, and learning outcomes

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## INTRODUCTION

Education plays a role in producing quality human resources who are able to face global challenges and contribute to national development. Saputri & Mardiaty (2022) revealed that education is an important aspect for improving the quality of human resources in a country. Furthermore, according to Hasibuan et al. (2021: 81), education plays a vital role in human life because through education, a person can acquire various knowledge and skills and experience positive changes in attitude. Sembiring et al. (2021: 1) reveal that education is an important factor in improving human quality.

Sitepu et al. (2024) add that education is a process of developing human potential through guidance, teaching, and training that is beneficial for the future. In an effort to improve the quality of education, the Indonesian government continues to innovate, one of which is through the implementation of the independent curriculum. According to Widyastuti (2022: 6), the independent curriculum is an educational curriculum in Indonesia that takes into account the abilities and uniqueness of individual students. This curriculum is designed to give teachers and schools the flexibility to manage learning that is more suited to the needs, abilities, interests, and learning styles of students. The independent curriculum emphasizes a more flexible, student-centered, and differentiation-based approach, which allows students to develop according to their respective potentials.

According to Sitepu et al. (2022: 134), as educators, teachers need to have effective teaching strategies so that students can learn smoothly without encountering difficulties and can answer questions correctly without making mistakes. According to Suwandi (2023: 63), in the independent curriculum, teachers can use teaching strategies that focus on students' talents and interests, with differentiated learning as a way to create independent learning classes. However, Wirevenska et al. (2022: 101) explain that in the learning process at various school levels, from elementary school (SD) to high school (SMA), it is generally still evident that classroom learning activities tend to focus entirely on the role of the teacher as the center of learning (*teacher-centered*). Therefore, it is necessary to disseminate information about the use of differentiated learning based on students' learning styles.

According to Purnawanto (2023: 34), differentiated learning is an effective approach that is in line with the ideal needs in the teaching and learning process. According to Kristiani et al. (2021: 18), in differentiated learning, teachers need to understand and realize that there is no single way, method, or strategy that can be used to learn every subject. Teachers must design lesson materials, activities, and daily assignments, both in class and at home, that are tailored to the students' level of readiness, interests or preferences in learning, as well as learning styles or delivery methods that suit each student's learning profile.

Danuri, et al., (2023: 5) differentiated learning has a number of significant advantages. This type of learning is flexible, allowing students to learn with peers who have similar or different abilities according to their strengths and interests. Teachers give assignments that are tailored to students' interests and readiness, while still referring to the learning objectives. The learning process is based on student assessment and learning needs, making it more relevant. Students learn with the same curriculum objectives but use varying success criteria and are given the freedom to determine their own learning methods. Structured learning activities provide clear direction, increasing the effectiveness and learning experience of students.

To design process-based differentiated learning, teachers are expected to first identify differences in students' learning styles. Mardiaty et al. (2021: 142) reveal that learning styles are the unique ways that each student chooses to understand and process information mentally in the cognitive domain. According to Porter in Suci (2020: 10), students' learning styles are divided into three types, namely visual, auditory, and kinesthetic. Visual learning styles refer to students who find it easier to understand material through pictures, diagrams, or writing. Auditory styles indicate students who tend to absorb information through hearing, such as listening to explanations or discussions. Meanwhile, kinesthetic styles refer to students who learn more effectively through physical activities or direct experiences, such as practice or games.

Through an understanding of these different learning styles, the learning process can be tailored to the needs of students, resulting in more effective and responsive process-based differentiated learning. This is in line with what Purba, et al. (2021: 4) stated that in process-based differentiated learning, teachers can teach material by considering students' learning styles, so that teachers can meet the needs of each student individually according to their respective learning styles.

However, in the implementation of the independent curriculum at Senior High School Private High School, especially in grade X, teachers face challenges in creating effective process-based differentiated learning. Based on initial observations and discussions with mathematics teachers at the school, it was found that the learning approach of " " that was applied was not fully in line with the individual learning styles of students. This led to a number of problems, such as low student engagement in learning, a lack of in-depth understanding of the material, and significant differences in learning outcomes among students.

One of the main causes of these problems is the teachers' lack of understanding of their students' learning styles. Teachers often rely on uniform teaching methods, without considering that each student has a unique way of learning, such as visual, auditory, or kinesthetic learning styles. The use of this uniform approach makes it difficult for some students to follow and understand the material, preventing them from reaching their full learning potential.

In addition, in the process of adapting the Merdeka Curriculum, some teachers find it difficult to design process-based differentiated learning because they do not yet have a strong foundation regarding student learning style profiles. In other words, teachers have not conducted research or identified student learning styles. The mismatch between teaching methods and student learning styles results in a learning process that is ineffective and tends to be monotonous for students. This has the potential to affect student motivation to learn and have a negative impact on their learning outcomes.

The results of research by Nofitasari, et al. (2023: 19) show that grouping students' learning styles allows for the application of these groups in differentiated learning, where teachers can adjust teaching methods to students' needs. Learning that accommodates students' learning needs aims to prevent students from feeling bored or overwhelmed during the learning process. This approach is one way to implement a new learning paradigm in the independent curriculum. Furthermore, the results of Latifah's (2023: 68) research show that with the implementation of differentiated learning, students will receive support in their learning process through varied learning activities that suit their individual learning styles.

This study will provide concrete solutions by highlighting and analyzing the grouping of students' learning styles at Senior High School Private High School, so that teachers can design process-based differentiated learning that is more relevant and interesting for students. This study will focus on the challenges faced by teachers at the school, who have not clearly identified students' learning styles in the context of the independent curriculum. Thus, this study is expected to assist teachers in implementing a more effective approach, thereby increasing student engagement, motivation, and learning outcomes.

Based on the above issues, this research is important to identify and analyze the learning styles of 10th grade students at Senior High School Private High School. With a better understanding of students' learning style profiles, teachers are expected to be able to design process-based differentiated learning that is more suited to the needs of each student, so that the implementation of the independent curriculum can run more optimally and have a positive impact on the achievement of student learning outcomes.

## METHODOLOGY

This study adopts a quantitative descriptive approach. Alfatih (2022: 1) explains that quantitative descriptive research is research that utilizes quantitative methods and descriptive analysis. The sample for this study consisted of 24 tenth-grade students at Senior High School Private High School.

Data collection was carried out using a research instrument. According to Sugiyono (in Syafira et al., 2022: 25), research instruments are used to measure research variables. This research instrument was a questionnaire. Putry (2022: 11) explains that a questionnaire is a research instrument used to measure student responses and has undergone prior validity testing. Safitri et al. (2024: 34) explain that the use of the questionnaire aims to enable students to provide direct answers based on their actual experiences. This research questionnaire focuses on students' learning styles. Data from the questionnaire regarding students' learning styles were analyzed using descriptive statistical techniques.

## RESULTS AND DISCUSSION

### Auditory Learning Style

This section describes the tendency of students who are more comfortable learning through hearing, such as listening to teacher explanations or verbal discussions. This learning style involves the ability to hear and process information verbally.

Table 1. Data on Auditory Learning Styles

| Auditory Learning Style | Percentage (%) of Responses |       |                |                   |          |
|-------------------------|-----------------------------|-------|----------------|-------------------|----------|
|                         | Strongly Agree              | Agree | Somewhat Agree | Somewhat Disagree | Disagree |
| 1                       | 20,83                       | 20,83 | 29,17          | 29,17             | 0,00     |
| 2                       | 12,50                       | 16,67 | 33,33          | 37,50             | 0,00     |
| 3                       | 4,17                        | 20,83 | 58,33          | 12,50             | 4,17     |
| 4                       | 0,00                        | 20,83 | 50,00          | 20,83             | 8,33     |
| 5                       | 12,50                       | 16,67 | 25,00          | 45,83             | 0,00     |
| 6                       | 16,67                       | 16,67 | 37,50          | 29,17             | 0,00     |
| 7                       | 25,00                       | 25,00 | 29,17          | 20,83             | 0,00     |
| 8                       | 16,67                       | 20,83 | 25,00          | 37,50             | 0,00     |
| 9                       | 25,00                       | 12,50 | 29,17          | 33,33             | 0,00     |
| 10                      | 25,00                       | 4,17  | 37,50          | 33,33             | 0,00     |
| 11                      | 12,50                       | 16,67 | 20,83          | 45,83             | 4,17     |
| 12                      | 29,17                       | 29,17 | 8,33           | 25,00             | 8,33     |

Table 1 shows the data from the questionnaire regarding students' auditory learning styles. This questionnaire measures students' preferences in learning through listening and verbal activities. From the table, it can be seen that

the majority of students tend to choose the answers agree and somewhat agree for statements that indicate an auditory learning style. For example, for the statement "I find it easier to understand lessons by listening to the teacher's explanations," 29.17% of students chose agree and 29.17% chose somewhat agree, with only 20.83% choosing strongly agree. Similarly, for the statement "I often talk to myself when doing something," 25% of students chose strongly agree and 25% agreed. These results show that students with an auditory learning style tend to be more comfortable with learning methods that involve listening and verbal interaction.

### Visual Learning Style

This section will discuss the preferences of students who prefer to learn through their sense of sight, such as using pictures, diagrams, or videos to understand the material. The visual learning style utilizes visual media as the primary means of absorbing information.

Table 2. Visual Learning Style Data

| Statement Number      | Percentage (%) of Responses |       |                |                   |          |
|-----------------------|-----------------------------|-------|----------------|-------------------|----------|
| Visual Learning Style | Strongly Agree              | Agree | Somewhat Agree | Somewhat Disagree | Disagree |
| 13                    | 29,17                       | 20,83 | 37,50          | 12,50             | 0,00     |
| 14                    | 25,00                       | 25,00 | 45,83          | 4,17              | 0,00     |
| 15                    | 37,50                       | 12,50 | 50,00          | 0,00              | 0,00     |
| 16                    | 37,50                       | 20,83 | 41,67          | 0,00              | 0,00     |
| 17                    | 25,00                       | 33,33 | 41,67          | 0,00              | 0,00     |
| 18                    | 33,33                       | 33,33 | 29,17          | 4,17              | 0,00     |
| 19                    | 41,67                       | 20,83 | 37,50          | 0,00              | 0,00     |
| 20                    | 79,17                       | 12,50 | 8,33           | 0,00              | 0,00     |
| 21                    | 29,17                       | 16,67 | 54,17          | 0,00              | 0,00     |
| 22                    | 29,17                       | 20,83 | 50,00          | 0,00              | 0,00     |

Table 2 presents data from a questionnaire regarding students' visual learning styles. This table reveals students' preferences for learning through visual senses, such as the use of images, videos, or other visual media. For the statement "I understand lessons better by seeing visualizations," 79.17% of students strongly agreed and 12.50% agreed, indicating a dominance of visual preferences in the learning process. Other statements, such as "I prefer reading books to listening to explanations," also showed high numbers, with 37.50% of students agreeing and 50% somewhat agreeing. Overall, the data shows that students with visual learning styles tend to be more comfortable with learning methods that involve the use of visual media.

### Kinesthetic Learning Style

This subsection describes students who tend to learn through physical activities or direct experiences. The kinesthetic learning style involves body movements, experiments, or practice as the main methods for understanding material.

Table 3. Kinesthetic Learning Style Data

| Statement<br>Number<br>Visual<br>Learning<br>Style | Percentage (%) of Responses |       |                   |                      |          |
|----------------------------------------------------|-----------------------------|-------|-------------------|----------------------|----------|
|                                                    | Strongly<br>Agree           | Agree | Somewhat<br>Agree | Somewhat<br>Disagree | Disagree |
| 23                                                 | 8,33                        | 16,67 | 33,33             | 41,67                | 0,00     |
| 24                                                 | 4,17                        | 25,00 | 50,00             | 16,67                | 4,17     |
| 25                                                 | 4,17                        | 20,83 | 29,17             | 33,33                | 12,50    |
| 26                                                 | 4,17                        | 8,33  | 29,17             | 50,00                | 8,33     |
| 27                                                 | 4,17                        | 20,83 | 16,67             | 54,17                | 4,17     |
| 28                                                 | 8,33                        | 16,67 | 20,83             | 54,17                | 0,00     |
| 29                                                 | 8,33                        | 20,83 | 20,83             | 41,67                | 8,33     |
| 30                                                 | 8,33                        | 25,00 | 16,67             | 45,83                | 4,17     |
| 31                                                 | 16,67                       | 12,50 | 45,83             | 25,00                | 0,00     |
| 32                                                 | 20,83                       | 12,50 | 41,67             | 25,00                | 0,00     |

Table 3 shows the results of a questionnaire regarding students' kinesthetic learning styles. This questionnaire measures students' preferences for learning through physical activity, movement, and direct experience. For the statement "I often move around or walk around when memorizing something," 54.17% of students chose "disagree" and 33.33% chose "somewhat agree," indicating that this kinesthetic learning style is less dominant among most students. The statement "I understand lessons better by trying them out than just hearing or seeing them" shows that 54.17% of students chose to disagree, indicating that this learning style is less effective for most students in the context of learning. Overall, the data shows that students with a kinesthetic learning style are fewer in number than those with visual and auditory learning styles.

### Data Analysis

This section presents an in-depth analysis of the data collected from the student learning style questionnaire. The analysis was conducted to identify the main learning style trends of students in grade X at Senior High School Private High School for the 2024/2025 academic year, in the auditory, visual, and kinesthetic categories. The analysis process included processing raw data into structured and meaningful information, which was then interpreted to answer the research questions. The findings from the data analysis will be explained in detail to provide a clear picture of students' learning style preferences and their

implications for differentiated learning. The data from the student learning style questionnaire can be seen in the following table:

Table 4. Data from the Distribution of Student Learning Style Questionnaires

| Sampel Code | $\sum$ Score<br>Auditory | $\sum$ Score<br>Visual | $\sum$ Score<br>Kinesthetic | Type<br>Style<br>Learning |
|-------------|--------------------------|------------------------|-----------------------------|---------------------------|
| S001        | 31                       | 39                     | 29                          | Visual                    |
| S002        | 37                       | 39                     | 27                          | Visual                    |
| S003        | 50                       | 43                     | 36                          | Auditori                  |
| S004        | 53                       | 46                     | 44                          | Auditori                  |
| S005        | 28                       | 35                     | 20                          | Visual                    |
| S006        | 38                       | 36                     | 27                          | Auditori                  |
| S007        | 50                       | 40                     | 36                          | Auditori                  |
| S008        | 52                       | 45                     | 33                          | Auditori                  |
| S009        | 34                       | 42                     | 23                          | Visual                    |
| S010        | 27                       | 34                     | 27                          | Visual                    |
| S011        | 28                       | 34                     | 22                          | Visual                    |
| S012        | 35                       | 41                     | 34                          | Visual                    |
| S013        | 36                       | 34                     | 28                          | Auditori                  |
| S014        | 46                       | 40                     | 32                          | Auditori                  |
| S015        | 54                       | 47                     | 34                          | Auditori                  |
| S016        | 30                       | 38                     | 24                          | Visual                    |
| S017        | 33                       | 36                     | 30                          | Visual                    |
| S018        | 32                       | 37                     | 23                          | Visual                    |
| S019        | 39                       | 40                     | 27                          | Visual                    |
| S020        | 46                       | 44                     | 30                          | Auditori                  |
| S021        | 35                       | 33                     | 26                          | Auditori                  |
| S022        | 35                       | 36                     | 28                          | Visual                    |
| S023        | 30                       | 40                     | 24                          | Visual                    |
| S024        | 33                       | 44                     | 28                          | Visual                    |

The results of the questionnaire distribution show variations in the learning styles of students in grade X at Senior High School Private High School. Analysis of student learning styles based on Table 4.4 can be seen in the following calculations:

**Percentage of Auditory Learners:**

$$P = \frac{f}{n} \times 100\%$$

$$P = \frac{01024}{100} \times 100\%$$

$$P = 41.67\%$$

**Percentage of Visual Learners:**

$$P = fn \times 100\%$$

$$P = 1424 \times 100\%$$

$$P = 58.33\%$$

**Percentage of Kinesthetic Learners:**

$$P = fn \times 100\%$$

$$P = 024 \times 100\%$$

$$P = 0\%$$

Based on the above calculations, a bar chart can be used to illustrate the distribution of students' learning styles. This information is important for understanding how students tend to absorb and process learning material. By knowing the proportion of students who learn through auditory, visual, or kinesthetic means, teachers can design more effective approaches that are tailored to students' needs. Visual learning style data, namely:

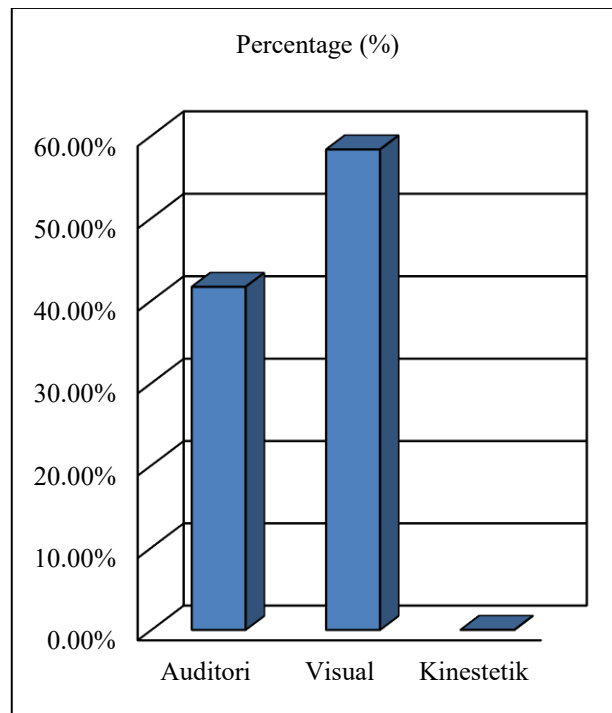


Figure 1. Percentage of Student Learning Styles

Based on the bar chart, it can be seen that the majority of students have a visual learning style with a percentage of 58.33%. This indicates that most students tend to understand material more effectively through visual media, such as pictures, diagrams, and videos. On the other hand, auditory learners account for 41.67%, which indicates that a small percentage of students learn better through listening, such as through lectures and discussions. Students with a kinesthetic learning style were not detected in the sample, with a percentage of 0%, indicating that this learning style is less dominant among students. This bar

chart provides a clear picture of how students' learning style preferences can influence the most appropriate learning methods.

Then, based on the calculation results, the distribution of learning styles of students in grade X at Senior High School Private High School for the 2024/2025 academic year shows the dominance of visual learning styles. Of the total 24 students, 58.33% of students (14 students) have a tendency towards visual learning styles. Students with this style tend to understand information better through visual media, such as pictures, diagrams, or graphs.

A total of 41.67% of students (10 students) have a tendency towards auditory learning styles. They prefer learning through listening, such as listening to teacher explanations, group discussions, or audio materials. No students showed a dominant kinesthetic learning style, with a percentage of 0%. This indicates that learning styles involving physical activity or hands-on practice are less of a primary choice in this class. This data provides an important picture of the dominance of visual and auditory learning styles among students, which can be used as a reference in designing effective learning methods that suit the preferences of the majority of students.

### **Discussion**

This section focuses on analyzing the findings of the study related to the learning styles of 10th grade students at Senior High School Private High School. Based on the analysis of the data, it was found that visual and auditory learning styles dominate among students, with percentages of 58.33% and 41.67%, respectively. No students showed a preference for kinesthetic learning. These results provide deep insight into how tenth-grade students process information and learn effectively. These findings are an important basis for designing differentiated learning strategies that are in line with students' learning styles.

The visual learning style, which is the preference of the majority of students, describes their tendency to understand and process information through what they see. According to Suci et al. (2020: 10), students with a visual learning style find it easier to learn through media such as images, diagrams, graphs, or videos. They tend to connect more with information presented in visual formats than text or speech. Therefore, learning strategies for visual learners can include the use of concept maps, infographics, slide-based presentations, or interactive media designed to facilitate understanding of the material.

Conversely, students with an auditory learning style, although fewer in number, have unique needs. Suci et al. (2020) also explain that auditory learners tend to learn by listening and have the ability to remember information they hear better than what they read or see. In learning, this means that teachers need to pay more attention to verbal delivery, such as detailed explanations of material,

group discussions, or interactive question and answer sessions. In addition, the use of audio recordings, educational podcasts, or oral presentation activities can be effective strategies. Although the kinesthetic learning style is not dominant in this study, the kinesthetic approach is still relevant for creating variety in learning methods. Kristiani et al. (2021: 39) state that differentiated learning needs to accommodate all learning styles, including kinesthetic, by presenting physical activities or direct experiences in the learning process. Teachers can integrate kinesthetic activities such as simulations, hands-on experiments, or educational games to create a dynamic and engaging learning environment.

These findings support the importance of implementing process-based differentiated learning. Kristiani et al. (2021: 39) explain that process differentiation is carried out by adjusting learning based on students' learning styles, such as visual, auditory, and kinesthetic. The differentiation process can be applied at various stages of learning, from introductory activities to core activities, by presenting visual, audio, or interactive activities that are appropriate to the characteristics of the material being taught. In this case, teachers can design learning activities that focus on grouping students based on their learning styles, so that each student receives the approach that best suits their learning preferences.

Teachers' strategic steps in designing learning can be tailored to students' learning styles through a process-based differentiated learning approach. This approach aims to accommodate various student learning styles, making learning more effective and tailored to individual needs. For students with visual learning styles, there are several steps that teachers can implement in the context of process-based differentiated learning.

First, teachers can utilize visual media such as educational videos, illustrative images, or diagrams to describe concepts more concretely. Educational videos help visual learners understand information in a more interesting and easy-to-understand way, because they can see and observe relevant visual examples. Illustrative images and diagrams can also clarify the relationship between ideas and facilitate understanding of abstract information. These media greatly support process-based differentiated learning, where visual learners are given the opportunity to process information through media that suits their learning style.

Second, teachers can give visually oriented assignments, such as concept maps or flowcharts, to organize information and help students understand the content in a structured way. Concept maps make it easier for students to visualize the relationships between concepts, so they can better understand and remember the information. In process-based differentiated learning, activities such as these

provide space for visual learners to demonstrate their understanding in the most effective way according to their learning style.

Third, teachers can provide learning materials in print or digital formats that are rich in visual elements, such as graphics, infographics, or presentation slides. These materials help visual learners understand information in a more engaging and easily digestible way. In process-based differentiated learning, visual learners are given the freedom to choose the media that best suits their needs, allowing them to learn more independently and effectively.

Meanwhile, for students with an auditory learning style, a process-based differentiated learning approach is also very important to support their needs. First, teachers can use lectures, group discussions, or interactive question and answer sessions to help students who learn better through listening. In this method, auditory learners will be more active in listening to explanations from teachers, group discussions, or verbal interactions that help them understand and clarify the concepts presented. Process-based differentiated learning ensures that auditory learners are given space to engage in oral communication-based learning, which suits their learning style.

Second, teachers can utilize audio recordings or podcasts as additional learning resources. Podcasts provide auditory learners with flexible access to listen to explanations repeatedly, allowing them to deepen their understanding through listening. In process-based differentiated learning, auditory learners can easily access audio recordings while they are doing activities, thereby enriching the learning process in a way that suits their learning style.

Third, teachers can encourage auditory learners to take verbal notes or record explanations from the teacher so that they can listen back to the information that has been conveyed. In process-based differentiated learning, this process provides auditory learners with the opportunity to organize information verbally, which helps them understand and organize concepts in a way that suits their learning style.

In the context of process-based differentiated learning, it is important for teachers to recognize students' learning style needs and adapt appropriate learning methods and media. This approach aims to increase students' motivation, engagement, and understanding of the subject matter, making learning more inclusive and positively impacting their learning outcomes. In addition to process-based differentiation, Kristiani et al. (2021) highlight the importance of other aspects in differentiated learning, namely content, product, and learning environment differentiation. In content differentiation, teachers can provide a variety of materials tailored to students' abilities. For example, students with visual learning styles can be given image-based learning materials, while auditory learners can listen to recorded explanations. Product differentiation

allows students to produce learning outcomes that suit their interests and needs, such as making videos, written reports, or creative posters. In terms of the learning environment, teachers can create an atmosphere that supports student comfort, such as flexible seating arrangements or interactive learning spaces.

The results of this study confirm that understanding students' learning styles is an important element in designing effective learning. By accommodating students' learning preferences through differentiated learning, teachers can create a more personalized, relevant, and meaningful learning experience. This approach also supports the goal of inclusive education, where every student is given the opportunity to learn according to their learning style and achieve optimal learning outcomes.

Overall, this study makes an important contribution to understanding how student learning styles can be used as a basis for designing effective learning strategies. By applying differentiation in learning, teachers can not only increase student engagement but also support the development of their full potential. In addition, understanding students' learning styles can also help teachers identify individual needs, so that learning can be more personalized and relevant to students' characteristics. Thus, students have a greater chance of achieving optimal learning outcomes.

## CONCLUSION

Based on the results of the research conducted, it can be concluded that the visual learning style is the most dominant learning style among students in grade X at Senior High School Private High School in the 2024/2025 academic year, with a percentage of 58.33%. This shows that students are more likely to understand and process information through visual media such as images, diagrams, and videos. Meanwhile, the auditory learning style follows with a percentage of 41.67%, which shows that some students find it easier to understand information through hearing and verbal communication. The kinesthetic learning style was not detected in this study, which means that students do not have a primary preference for this learning style. These findings provide important insights into how 10th grade students process information and learn, which can be used as a basis for designing more effective differentiated learning strategies that are tailored to the individual needs of students.

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