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Comparison of HOTS Learning Outcomes Based on Kolb's Learning Styles in Globalization Material for Junior High School Social Studies

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Abstract: This study compares students' learning outcomes in solving HOTS problems based on Diverger, Assimilator, Converger, and Accommodator learning styles on globalization material in junior high school. Using a quantitative, descriptive-comparative approach, the study involved 381 ninth-grade students from SMPN in Bone-Bone District, North Luwu Regency. Kolb's Learning Style Inventory (LSI) identified learning styles, while a test assessed students' HOTS abilities. Data were analyzed using descriptive statistics, normality tests, homogeneity tests, and ANOVA. Results showed varying HOTS averages: Diverger scored highest at 110.35, followed by Assimilator (98.35), Accommodator (91.41), and Converger (82.93). The Diverger group demonstrated better HOTS performance, whereas Converger scored lowest. These findings suggest that teachers can enhance critical and creative thinking by applying diverse strategies like group discussions, problem-based learning, and tasks fostering idea exploration to accommodate different learning styles effectively.

Keywords: learning outcomes, HOTS, learning styles, social studies.

INTRODUCTION

Education is critical in preparing students to face the challenges of an increasingly globalized world. Beyond providing foundational knowledge, it aims to equip students with essential skills for adapting to a constantly changing environment. One of the most relevant topics in this context is globalization, which teaches students about significant changes in social, economic, and cultural aspects of life. Understanding globalization is crucial for helping students recognize the interconnectedness of nations and grasp the impact of global changes on their daily lives. Teaching globalization in junior high schools fosters critical thinking and analytical skills to address global issues (Anggraeni et al., 2022; Utami et al., 2022; Wibawa & Agustina, 2019). Moreover, this subject encourages the development of higher-order thinking skills (HOTS) necessary for

solving complex problems, particularly those involving diverse social and economic factors (Ilham & Hardiyanti, 2020; Kuntari, 2019). By understanding globalization, students can comprehend how global phenomena influence their lives and prepare for the challenges posed by these changes.

As part of a broader curriculum, fostering HOTS is key to junior high school education, particularly on topics requiring deep understanding, such as globalization. HOTS focuses on advanced cognitive skills involving analysis, evaluation, and critical application of knowledge (Nouri et al., 2020; Santoso et al., 2021; Wang & Abdullah, 2024). Through HOTS, students are trained not merely to memorize facts but to process information, construct arguments, and find solutions to more complex problems (Sani, 2019). This approach is particularly relevant in globalization topics involving multidimensional issues, such as social, economic, and cultural changes on a global scale. Integrating HOTS into globalization education enables students not only to identify global phenomena but also to critique their impacts on local and international scales. By leveraging HOTS, students can evaluate factors driving globalization and propose solutions based on deep, structured thinking. These skills not only enhance understanding of abstract concepts like globalization but also prepare students to think critically and adapt amidst the complexities of the modern world.

HOTS questions require students to remember information and analyze, evaluate, and apply knowledge in more complex situations. This difficulty indicates that some students have not fully developed high-level thinking skills, which may be caused by a learning approach that does not always match individual needs. Each student has a different learning style, some find it easier to understand material through direct experience, while others prefer conceptual or logical thinking. The mismatch between students' learning styles and the approaches used in learning can cause difficulties in understanding more abstract material and in solving questions that require in-depth analysis. The different learning styles approaches among students are important factors that influence their ability to solve HOTS questions. For example, students with a Diverger learning style are more likely to think creatively and see many possibilities, while students with a Converger learning style focus more on practical and immediate solutions. When teaching methods do not consider these learning style variations, students may struggle to process information and solve HOTS problems effectively. Therefore, educators need to recognize students' learning styles and adapt teaching strategies that can support their analytical abilities. With a more inclusive and diverse approach, it is hoped that students will be able to understand more complex concepts more easily and develop the higher-order thinking skills needed to solve HOTS problems effectively.

Kolb's learning styles highlight these differences: Divergers are more creative and explore multiple possibilities, while Convergers focus on practical, straightforward solutions. When teaching methods fail to consider such diversity, students may struggle to process information and tackle HOTS problems effectively. Recognizing students' learning styles and adapting teaching strategies to support analytical skills is vital. With a more inclusive and varied approach, students can better understand complex concepts and develop the higher-order thinking skills needed to solve HOTS problems effectively.

Most existing studies focus on general analyses of learning styles and HOTS development without linking them to specific contexts like globalization. Deeper investigations into how different learning styles, such as Diverger, Assimilator,

Converger, and Accommodator, influence students' abilities to tackle HOTS problems in complex topics like globalization are rare. Understanding these differences can shed light on how students process and solve tasks requiring advanced thinking skills. Kolb's learning styles, which emphasize experience and reflection-based approaches, have significant potential to impact how students comprehend and apply globalization concepts in HOTS problems. Therefore, further research exploring the influence of Kolb's learning styles on solving HOTS problems in the context of globalization education in junior high schools is essential. Such research can inform curriculum development and teaching strategies that are more effective and tailored to students' diverse learning styles.

This study aims to analyze the comparison of students' learning outcomes in solving HOTS problems based on Diverger, Assimilator, Converger, and Accommodator learning styles on globalization topics in junior high schools. It examines how each learning style influences students' ability to solve problems requiring higher order thinking skills, including analysis, evaluation, and application of knowledge in a global context. By exploring the relationship between Kolb's learning styles and HOTS, this research seeks to provide new insights for designing effective and student-centered teaching strategies that optimize HOTS achievement in schools. The findings are expected to enrich educational theory on applying learning styles in HOTS teaching and offer practical contributions to curriculum and teaching method development at the junior high school level. These insights can help educators understand students' diverse learning styles and design more inclusive learning activities, enhancing instructional effectiveness and students' comprehension of complex topics like globalization.

RESEARCH METHODS

This research uses a quantitative design with a comparative descriptive approach. The quantitative method with a comparative descriptive approach allows for collecting objective data (Creswell & Creswell, 2017). This is important for evaluating the extent of the influence of Kolb's learning styles on students' learning outcomes in the material of globalization. The results serve as a reference for developing a better curriculum in Junior High Schools. The population of this study consists of all students in grade IX at public Junior High Schools in Bone-Bone Subdistrict, North Luwu Regency, South Sulawesi Province, totaling 377 students, with the following breakdown:

Table 1. Distribution of the Research Population for Grade IX Students at Public Junior High Schools in Bone-Bone Subdistrict for the 2024/2025 Academic Year.

No	Name of School	Total
1	SMPN 1 Bone-Bone	190 students
2	SMPN 2 Bone-Bone	80 students
3	SMPN 3 Bone-Bone	28 students
4	SMPN 4 Bone-Bone	34 students
5	SMPN 6 Bone-Bone	45 students
Total		**377** students

In accordance with the quantitative approach, the sample taken is a part of the population that shares the same characteristics (Sugiyono, 2016). Based on calculations using the Slovin formula, the required sample size is 194 individuals.

$$n = \frac{377}{1 + 377\ (0{,}05)^2} = 194$$

The sampling was conducted using the proportionate random sampling method, where the sample is randomly selected while considering the proportion of students in each school, using the following Equation 1.

$$P = \frac{nD}{nT} \times s \qquad (1)$$

Explanation:

P : proportion of samples from each school
nD : number of students in each school
nT : total population
s : number of samples taken

The sample sizes for each school were determined using this formula, as shown in Table 2.

Table 2. Distribution of Research Samples for Grade VIII Students at Public Junior High Schools in Bone-Bone Subdistrict for the 2024/2025 Academic Year.

No	Name of School	Total
1	SMPN 1 Bone-Bone	98 students
2	SMPN 2 Bone-Bone	41 students
3	SMPN 3 Bone-Bone	14 students
4	SMPN 4 Bone-Bone	18 students
5	SMPN 6 Bone-Bone	23 students
	Total	194 students

A questionnaire based on the learning style theory proposed by David Kolb is used as the primary instrument to identify students' learning styles. This theory divides learning styles into four main categories: Diverger, Assimilator, Converger, and Accommodator, each representing a unique approach to processing information and learning experiences. The identification process utilizes the Learning Style Inventory (LSI), an instrument designed to measure students' learning preferences (Villanueva, 2020). The questionnaire consists of a series of questions that encourage students to reflect on how they think, process information, and interact with learning experiences. The responses are then analyzed to reveal the students' dominant tendencies toward the four learning style categories. Meanwhile, to measure students' HOTS (Higher Order Thinking Skills), a test technique is used to assess analysis, evaluation, and creation skills related to the material of globalization. The collected data is then analyzed using descriptive analysis techniques, normality tests, homogeneity tests, and analysis of variance (ANOVA) to determine differences among the learning style groups.

RESULTS AND DISCUSSIONS

The data analysis results indicate that the most dominant learning style among the respondents is the Assimilator type, identified in 62 individuals, or 32% of the total 194 respondents. This learning style is followed by the Diverger type, which includes 58 individuals, or 29.9%. Next, the Converger type ranks third, with 41 individuals, or 21.1%. Finally, the Accommodator learning style has the smallest proportion, with 33 individuals, or 17%. Thus, this distribution of learning styles provides a diverse picture,

where many respondents tend to prefer analytical and conceptual learning styles such as Assimilator. In contrast, learning styles involving practical actions and direct experience are relatively fewer.

Table 3. Frequency Description of Students' Learning Styles

Learning Styles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CONVERGER	41	21.1	21.1	21.1
	ASSIMILATOR	62	32.0	32.0	53.1
	DIVERGER	58	29.9	29.9	83.0
	ACCOMULATOR	33	17.0	17.0	100.0
	Total	194	100.0	100.0	

The data analysis results show that the distribution of Higher Order Thinking Skills (HOTS) among the 194 respondents exhibits a variety of scores. Many respondents scored in the medium to high range. The highest score was achieved by 16 respondents who obtained a score of 88 (8.2%), followed by 14 respondents with a score of 84 (7.2%), and 12 respondents each scoring 80, 85, and 90 (6.2%). The groups with scores of 78 and 79 were represented by 11 respondents each (5.7%). Other scores, such as 83, 86, and 89, were each represented by 10 respondents (5.2%), while scores of 77 and 87 were each represented by 9 respondents (4.6%). Lower scores, such as 70, were only achieved by 1 respondent (0.5%), while scores of 72 and 73 were achieved by 3 and 2 respondents, respectively. Cumulatively, these scores show a relatively even distribution of thinking skills, with the majority falling in the medium to high category, providing a positive overview of the respondents' higher-order thinking abilities.

Table 4. Normality Test

Tests of Normality

	GAYA BELAJAR	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
HOTS	CONVERGER	.099	41	.200*	.955	41	.106
	ASSIMILATOR	.070	62	.200*	.978	62	.326
	DIVERGER	.109	58	.086	.956	58	.033
	ACCOMULATOR	.097	33	.200*	.963	33	.322

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

The normality test results on the learning style data based on HOTS scores indicate that most groups have a distribution that is close to normal. According to the Kolmogorov-Smirnov test, the significance values for all learning style categories are greater than 0.05, namely Converger (0.200), Assimilator (0.200), Diverger (0.086), and Accommodator (0.200). This suggests that the data does not significantly differ from a normal distribution. Similar results were observed in the Shapiro-Wilk test, where the significance values for the Converger (0.106), Assimilator (0.326), and Accommodator (0.322) groups were all greater than 0.05, indicating that the data in these groups follow a normal distribution. However, the significance value of 0.033 for the Diverger group indicates that the data significantly differs from a normal distribution, meaning that the data for this group is not normally distributed. The normality test suggests that the learning style data largely meets the normality assumption, except for the Diverger

group in the Shapiro-Wilk test.

Table 5. Test of Homogeneity of Variances

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
HOTS	Based on Mean	.880	3	190	.453
	Based on Median	.828	3	190	.480
	Based on Median and with adjusted df	.828	3	187.450	.480
	Based on trimmed mean	.873	3	190	.456

The variance homogeneity test results indicate that the HOTS data variances across the learning style groups are homogeneous. According to the Levene's test, the significance values for all methods used are greater than 0.05. For the approach based on the mean, the significance value is 0.453, while the significance value based on the median is 0.480. The adjusted median approach also yields the same result, with a significance value of 0.480, while the significance value for the trimmed mean is 0.456. Therefore, since all the significance values are above the 0.05 threshold, it can be concluded that the variances across the learning style groups do not differ significantly, thus fulfilling the assumption of variance homogeneity for the HOTS data.

The results of the ANOVA analysis indicate a difference in HOTS scores among the learning style groups, but this difference is not statistically significant. The F value obtained is 2.449 with a significance of 0.065, which is greater than the threshold of 0.05. The total variation in the HOTS data consists of between-group variation of 211.583 with 3 degrees of freedom (df) and within-group variation of 5471.139 with 190 df. The mean square value for between-group variation is 70.528, while the mean square value for within-group variation is 28.795. Based on these results, it can be concluded that there is no significant difference in HOTS scores among the learning style groups studied

Table 6. Test of ANOVA

ANOVA

HOTS

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	211.583	3	70.528	2.449	.065
Within Groups	5471.139	190	28.795		
Total	5682.722	193			

The post-hoc analysis results using the Tukey HSD method show no significant differences in HOTS scores among the pairs of learning style groups. The significance values for all comparisons are greater than 0.05, indicating that none of the pairs show a statistically meaningful difference. The mean difference between the Converger and Assimilator groups is -1.672 with a significance value of 0.411. Between the Converger and Diverger groups, the mean difference is -2.783 with a significance value of 0.057, which is close to significant but still above the 0.05 threshold. The difference between the Converger and Accommodator groups is -0.681 with a significance of 0.948. When comparing the Assimilator group with the Diverger group, the mean difference is -1.111 with a significance value of 0.670, while the difference with the Accommodator group is 0.991 with a significance of 0.827. For the Diverger and Accommodator comparison, the mean difference is 2.102 with a significance of 0.278. Thus, although there is variation in the mean differences between groups, the analysis indicates that these differences are

not statistically significant at the 95% confidence level.

Table 7. Test of Multiple Comparisons

Dependent Variable: HOTS

Tukey HSD

LEARNING STYLE (I)	LEARNING STYLE (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Converger	Assimilator	-1.672	1.080	.411	-4.47	1.13
	Diverger	-2.783	1.095	.057	-5.62	.06
	Accomulator	-.681	1.255	.948	-3.93	2.57
Assimilator	Converger	1.672	1.080	.411	-1.13	4.47
	Diverger	-1.111	.980	.670	-3.65	1.43
	Accomulator	.991	1.156	.827	-2.01	3.99
Diverger	Converger	2.783	1.095	.057	-.06	5.62
	Assimilator	1.111	.980	.670	-1.43	3.65
	Accomulator	2.102	1.170	.278	-.93	5.13
Accomulator	Converger	.681	1.255	.948	-2.57	3.93
	Assimilator	-.991	1.156	.827	-3.99	2.01
	Diverger	-2.102	1.170	.278	-5.13	.93

The ranking results for the HOTS variable show a different distribution of average scores across the learning style groups. The Diverger group has the highest average rank with a score of 110.35, followed by the Accommodator group with an average rank of 91.41. The Assimilator group has an average rank of 98.35, while the Converger group has the lowest average rank of 82.93. These rankings suggest that the Diverger group has higher HOTS scores than the other groups, while the Converger group has lower scores.

Table 8. Ranking of HOTS Learning Outcomes Based on Learning Styles

	Ranks		
	LEARNING STYLE	N	Mean Rank
HOTS	CONVERGER	41	82.93
	ASSIMILATOR	62	98.35
	DIVERGER	58	110.35
	ACCOMULATOR	33	91.41
	Total	194	

DISCUSSION

Comparison of Learning Outcomes Based on Learning Styles

Based on the average rank table (Mean Rank) of Higher-Order Thinking Skills (HOTS) problem-solving outcomes according to students' learning styles, there is a noticeable difference in the quality of learning outcomes among the different learning styles. The Diverger learning style ranks the highest with an average rank of 110.35, indicating that students with this style have the best ability in solving HOTS problems. Meanwhile, students with the Assimilator learning style are in second place with an average rank of 98.35, followed by the Accommodator group with 91.41, and the Converger group ranks lowest at 82.93. The Diverger group tends to excel due to their ability to observe situations from various perspectives, reflect deeply, and analyze

situations creatively. This result aligns with the nature of HOTS questions, which require critical analysis, evaluation, and the ability to consider multiple possibilities before concluding. This emphasizes that the Diverger style is highly suitable for high order thinking learning, especially on topics such as globalization in Social Studies.

Although the Assimilator learning style ranks second, it also performs well in solving HOTS questions. This style excels in understanding abstract concepts and integrating information systematically. Students with this style tend to perform well on tasks that require data analysis or concluding available information. On the other hand, the Converger learning style ranks the lowest. This may be due to its focus on practical application and concrete solutions, which may not be optimal for more abstract and complex HOTS questions. However, this style remains useful in learning contexts that emphasize practical solutions. The Accommodator group falls in the middle with an average rank of 91.41, Students with this style typically learn through direct experience and are more adaptable to new situations. Although they tend to be weaker in deep analysis, they perform well on tasks involving simulations or real-life globalization-related cases. From this analysis, it can be concluded that Diverger is the best learning style in HOTS problems, especially on topics requiring deep analysis and idea exploration. Teachers are advised to pay special attention to developing critical thinking skills for students with other learning styles, particularly Converger, to help them address the challenges of abstract and complex HOTS problems. An exploration-based, reflective discussion and case study approach could optimize students' learning outcomes.

Comparison with Previous Research

In his theory of learning styles, David Kolb (Sari, 2020) states that individuals with the Diverger learning style have superior ability to observe situations from various perspectives and analyse information reflectively. According to Kolb, this style emphasizes concrete experiences followed by deep reflection, enabling individuals to understand situations holistically and constructively. This strongly supports the finding that Divergers are particularly suited for HOTS tasks, which require students to think critically, explore new ideas, and generate creative solutions based not only on theoretical applications but also on deep understanding and thorough analysis of the problems at hand. With the ability to see various possibilities and consider multiple factors, students with the Diverger learning style excel at solving HOTS problems that require analytical and exploratory thinking. The study by Azrai et al. (2018) further strengthens this statement by showing that students with a Diverger learning style perform better in cognitive tasks that require creativity and divergent thinking. The Diverger learning style excels in this research due to its characteristics, enabling students to view situations or problems from various perspectives. Students with a diverse learning style tend to excel in biology because of their ability to process and analyze information from different viewpoints. This allows them to provide a more comprehensive understanding of the subject matter. With a reflective approach and the ability to consider various aspects, Diverger students can uncover more insights when studying complex concepts in Biology. The strength of Divergers in creativity and divergent problem-solving makes them highly effective in tackling HOTS questions that require students to think critically and reflectively and generate unconventional solutions.

Furthermore, the research findings by Priana et al. (2023) show that students with

a Diverger learning style tend to have an advantage over other learning styles, especially because many of them possess good translation abilities. Meanwhile, students with an Assimilator learning style also demonstrate decent translation skills, though most students with this style are not as proficient as those with the Diverger style. On the other hand, students with Accommodator and Converger learning styles generally take longer to complete tasks related to translation skills, and overall, their translation abilities tend to be lower than those of Diverger and Assimilator students. Additionally, the study by Soraya et al. (2020) reveals that the Diverger learning style, a blend of Concrete Experience (CE) and Reflective Observation (RO), has a primary characteristic of viewing concrete situations from various perspectives and integrating them into a coherent whole. Learners with this style tend to observe more than act and excel at generating diverse ideas and gathering a wide range of information. However, they are also more prone to boredom when faced with tasks that require extended time to complete or understand. In Biology learning, the Diverger learning style may be reflected in students' habits of observing and taking notes more than engaging in active interaction. Although expository methods are used in Biology education, many students with a Diverger learning style find the material boring and difficult to understand, which negatively impacts their learning outcomes.

To enhance learning effectiveness, teachers need to align their methods with the Diverger learning style, such as by connecting the material to everyday life issues to spark students' curiosity and motivation. A group project-based approach, discussions, and lectures can be more effective in responding to the characteristics of the Diverger learning style while keeping students motivated and preventing boredom, thus helping them remain actively engaged in the learning process. HOTS often requires synthesis, evaluation, and integration of scattered information, which are key characteristics of the Diverger learning style. In this context, Divergers' ability to consider various perspectives and integrate different pieces of information to create more comprehensive solutions makes them more prepared for HOTS questions that often involve abstract problems and require deeper and more thorough thinking than other learning styles.

Meiska (2018) also supports these findings. Students with divergent learning styles tend to prefer learning in groups, prioritize observation rather than direct action when learning, enjoy gathering information through observations in the surrounding environment, and are interested in new things they encounter in learning experiences in the field, which were initially unfamiliar in class, where divergent learning styles have a stronger interaction with discussion methods because this style tends to excel in observing situations from various perspectives, preferring and relating to their ideas, which are suitable for discussions that require participants to share perspectives and ideas in depth, so that in applying the discussion method, divergent students can put forward various ideas, ask why, and see various aspects of a problem that makes them more involved and think critically, which allows them to develop high-level thinking skills (HOTS), which are very important in understanding complex material such as globalization, so that Diverger's superiority in the context of HOTS questions is not only driven by the ability to think critically, but also by their desire and ability to adapt well to various complex and dynamic situations.

The Assimilator learning style excels in situations focusing on abstract information analysis and theory. (Sari, 2020) states that students with this learning style tend to better understand theoretical concepts and organise information systematically. In the

context of HOTS (Higher-Order Thinking Skills) questions, the Assimilator learning style often performs well on questions requiring an understanding of data or abstract theory. However, this style is less optimal for questions that demand creativity, idea exploration, or more divergent thinking. This differs from findings suggesting that the Diverger style is superior in HOTS questions overall, particularly due to Divergers' ability to develop new ideas and see various perspectives, which is more relevant to complex and open-ended types of questions. In contrast, the Converger learning style is more focused on practical application and solving structured problems. Research by Azrai et al. (2018) shows that students with the Converger style excel at solving questions requiring practical solutions and the direct application of concepts that have been taught. However, in more abstract HOTS questions that demand critical analysis, Convergers are often less effective. This indicates that although Convergers excel at solving problems requiring the application of concrete ideas, they do not have the same advantage in questions requiring the exploration of new ideas and deeper evaluation. Therefore, Divergers remain superior in HOTS questions, which demand open and analytical thinking.

The Accommodator learning style, according to David Kolb's model (Azrai et al., 2018), combines two important elements in learning: Concrete Experience and Active Experimentation. Students with this learning style tend to focus more on direct experience and prefer engaging in challenging or new activities. In the learning process, they rely more on intuition and immediate responses to situations rather than theoretical or in-depth analytical approaches. For example, Accommodator students feel more comfortable in activities that allow them to learn by "diving directly" into new activities or environments. They prefer solving problems through practical approaches, directly experimenting, and testing hypotheses in the field. The Accommodator learning style is well-suited for experiential learning and simulations, where they can directly implement the concepts being taught and gain understanding through real-world experience. The characteristics of Accommodator students indicate that they are open to others' opinions and can adapt to their situations. Therefore, teaching methods that allow them the freedom to act in simulations, projects, or roles requiring practical decisions will strongly support their learning style. This method enhances the effectiveness of Accommodator students' learning and sharpens their ability to face challenges in environments that require direct involvement and adjustment over time.

However, when confronted with HOTS questions requiring reflective thinking and in-depth analysis, this style is less competitive than the Diverger style, which excels in critical and deep thinking. Although Accommodators are excellent in practical learning environments, they do not have the same advantage in HOTS questions requiring idea exploration and information synthesis. Additionally, the variation in types of learning materials also affects the effectiveness of learning styles. Some theories, like those proposed by (Sari, 2020), suggest that different learning styles may be more effective depending on the material being taught. For instance, the Converger or Assimilator styles may be more effective in science or technology-based subjects, focusing more on understanding concepts and practical applications. However, the Diverger style excels in materials requiring idea exploration or deeper understanding, such as globalization. This indicates that success in HOTS questions greatly depends on the type of task and the learning context, with the Diverger style remaining prominent in situations that demand creativity, deep reflection, and the ability to integrate multiple perspectives.

From the existing literature, it can be concluded that the Diverger learning style

consistently demonstrates superiority in HOTS (Higher-Order Thinking Skills) questions that require deep analysis, idea exploration, and critical thinking. This is related to the ability of students with the Diverger style to view situations from multiple perspectives, engage in deep reflection, and adapt to abstract and complex situations. This style enables students to develop creative solutions and produce more open-minded thinking, essential skills for answering HOTS questions. The theories proposed by Kolb (2014) and other research support this finding, showing that Diverger students are more effective in handling tasks that require synthesising and evaluating more complex information. However, despite Diverger's consistent advantage in HOTS questions, other studies also reveal that different learning styles, such as Assimilator, Converger, and Accommodator, each have their strengths in specific situations or types of tasks. For example, the Assimilator style excels in theoretical analysis and understanding abstract concepts, making it more effective in questions that require a deep understanding of theory. Meanwhile, the Converger style is more effective in practical questions that require the application of concrete ideas in real-world situations. On the other hand, the Accommodator style is more effective in experiential learning and simulations, although it is not as strong as Diverger in questions requiring in-depth analysis. These differences show that the effectiveness of a learning style heavily depends on the learning context and the characteristics of the tasks being faced. Therefore, although Diverger is superior in HOTS questions overall, it is important to consider the variation in learning styles when designing learning strategies that can accommodate the needs of all students.

CONCLUSION

Based on the data analysis, it can be concluded that the learning styles of the students in class IX of Junior High School show diversity, with the Assimilator style being the most dominant (32%), followed by Diverger (29.9%), Converger (21.1%), and Accommodator (17%). Most students have high-level thinking skills (HOTS) within the medium to high range, with evenly distributed scores. The results of the normality test show that most learning style groups are close to a normal distribution, except for the Diverger group, which does not follow a normal distribution. The homogeneity of variance test indicates that the variances between the HOTS learning style groups are homogeneous. The ANOVA test results show no significant differences regarding HOTS scores between the learning style groups. However, there is variation in the average ranks between the groups. Based on the average ranks, Diverger has the highest HOTS scores, followed by Assimilator, Accommodator, and Converger. This suggests that the Diverger learning style is more effective in solving HOTS problems that require in-depth analysis and idea exploration. Each learning style has its strengths and weaknesses, so it is recommended that teachers adapt teaching methods according to students' learning styles. To optimize critical and creative thinking skills, teachers can use a variety of approaches, such as group discussions, problem-based learning, and tasks that encourage idea exploration. Teachers should also provide additional support for students with Converger and Accommodator learning styles, who may need more structured strategies to improve their ability to solve HOTS problems.

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