The effectiveness of visualization, auditory, kinesthetic and guided inquiry learning models on students writing skills

(Efektivitas model *visualization, auditory, kinesthetic* dan *guide inquiry learning* terhadap keterampilan menulis peserta didik)

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Abstract: This study focuses on the problem of low writing skills in junior high school students' explanatory texts caused by low reading interest, limited vocabulary, and ineffective Learning models. Therefore, a study is needed to compare the effectiveness of Visualization, Auditory, Kinesthetic (VAK.), and Guide Inquiry Learning (GIL.) Learning models in improving students' writing skills on the topic of actual problems. A quasi-experimental design was used with a pretest-posttest nonequivalent control group design involving Santu Petrus Catholic Junior High School students in the academic year 2023/2024 in Pontianak as the population. The sample of this study included 105 students who were selected using the cluster random sampling method. The data obtained were from students' explanation text writing test results, which were then analyzed using One-Way ANOVA and Scheffe tests. The results showed that the VAK model significantly and more effectively influenced students' explanation text-writing skills than the GIL and DL (conventional) models. Applying the VAK model can be an effective strategy for improving students' writing skills. In addition, the findings guide educators and curriculum developers to design learning that is more responsive and appropriate to students' learning styles. The VAK model allows students to utilize their learning preferences, such as visual, auditory, and kinesthetic, thus creating a more creative and enjoyable learning environment.

| Keywords | Junior high school, Explanation text, Visual audio kinesthetic, Guide inquiry learning, Writing skills |

Abstrak: Penelitian ini berfokus pada masalah rendahnya keterampilan menulis teks eksplanasi siswa SMP yang disebabkan oleh minat baca yang rendah, keterbatasan kosakata, dan model pembelajaran yang kurang efektif. Oleh karena itu, diperlukan penelitian untuk membandingkan efektivitas model pembelajaran *Visualization, Auditory, Kinesthetic* (VAK) dan *Guide Inquiry Learning* (GIL) dalam meningkatkan keterampilan menulis siswa pada topik permasalahan aktual. Penelitian ini menggunakan metode kuasi eksperimen dengan *pretest-posttest nonequivalent control group design* yang melibatkan siswa SMP Katolik Santu Petrus tahun ajaran 2023/2024 di Pontianak sebagai populasi. Sampel penelitian ini terdiri dari 105 siswa yang dipilih dengan metode *cluster random sampling*. Data yang diperoleh berasal dari hasil tes menulis teks eksplanasi siswa, yang kemudian dianalisis dengan menggunakan *One-Way ANOVA* dan uji *Scheffe*. Hasil penelitian menunjukkan bahwa model VAK secara signifikan dan lebih efektif mempengaruhi keterampilan menulis teks eksplanasi siswa daripada model GIL dan DL (konvensional). Menerapkan model VAK dapat menjadi strategi yang efektif untuk meningkatkan keterampilan menulis siswa. Selain itu, temuan ini memandu para pendidik dan pengembang kurikulum untuk merancang pembelajaran yang lebih responsif dan sesuai dengan gaya belajar siswa. Model VAK memungkinkan siswa untuk memanfaatkan preferensi belajar mereka, seperti visual, auditori, dan kinestetik, sehingga menciptakan lingkungan belajar yang lebih kreatif dan menyenangkan.

| Kata Kunci | Sekolah menengah pertama, Teks eksplanasi, Visual audio kinestetik, *Guide inquiry learning*, Keterampilan menulis |

INTRODUCTION

Writing is the most advanced language skill that leads to brain growth and language engagement (Puranik et al., 2018). It could be rewritten as "Writing involves presenting information from listening, reading, and speaking". Writing activities can represent the knowledge of the writers, especially their academic abilities (Wang & Matsumura, 2019). The ability to write is more challenging than other language skills because it requires mastery of various linguistic and non-linguistic factors that will compose composition (Sa'diyah, 2022). Because different sorts of texts employ language in different ways, there are many distinct kinds of text-writing abilities. Students acquire informal language styles in their writing as a result of severe daily disputes at school, which makes the argumentative genre less scientific than the explanation genre (Figueroa et al., 2018). On the other hand, the emphasis on abstraction and accuracy in conveying information of the explanation genre can motivate students to produce more significant linguistic effort.

An explanation text is a text that contains facts and information related to the process of certain phenomena (Rahmawati et al., 2020). Explanation text can assess students' cognitive abilities because it requires language skills and problem-solving sensitivity. According to Cahyono et al., (2019), explanation writing seeks to elucidate a variety of processes relating to nature, social life, study, culture, and other phenomena. In short, interpretation often begins with why and how natural or social phenomena occur. In terms of definition, structure is the most critical factor determining the quality of an explanation writing product because it reflects students' ability to connect cause and effect (Hastings et al., 2018).

Curriculum revisions are conducted regularly in Indonesia. This curriculum adjustment is intended to advance education and improve education in the past (Indriyani et al., 2019). Currently implementing the independent learning curriculum, especially the content of the explanation text in stage D, students should be able to generate entrepreneurial ideas, interpret the language of the explanation, and pay great attention to the explanation text in the speech. Students should also analyze the explanation components on the poster, gain knowledge from the explanation text, and watch the cause-and-effect explanation video. After that, students use explanation language in presentations and advertising graphics. In order to do all these, students must first master the ability to write explanation texts.

Based on observations and interviews with two Indonesian language instructors at Santu Petrus Catholic Junior High School in Pontianak, it is known that ninth graders still have a hard time learning specific abilities, such as how to write explanation text. The fact that pupils' writing abilities, on average, fall short of the KKM (minimum completion criterion) norm of 75 (71.23), demonstrates this. There are as many as 69% of students who have not met the KKM, which translates to 26 out of 37 students who are unable to create proper explanation texts. Explanation texts in particular need assistance for students who struggle with sentence construction and idea explanation owing to a lack of vocabulary. The lack of enthusiasm for reading among Indonesian pupils has to be addressed and rectified. This is corroborated by 2018 reading performance statistics from the Program for International Student Assessment (PISA), which reveal that Indonesia ranks dead last (OECD, 2018). Students' low reading interest is a factor in their lack of vocabulary mastery, even though vocabulary is essential in all language skills, including writing skills (Uccelli et al., 2015). Academic background, interest in writing, psychological phenomena, and cognitive abilities are difficulties experienced by students in applying writing skills (Al-Jarrah et al., 2019). In addition, untrained teachers and ineffective teaching models are the difficulties students experience in applying writing skills (Jayanti & Rosita, 2019). According to Fareed et al., (2016), some factors negatively impact the development of students' writing skills. Errors in linguistic aspects occur frequently and systematically due to students' lack of understanding of the target language (Sa'diyah, 2022).

For teachers, fun and effective learning is essential. However, the reality on the ground shows that there are still many gaps between the teaching approaches used and the needs and expectations of learners in Indonesia (Susandi & Rachman, 2019). The difficulty arises when there is a disconnect between the skills that employers value and what students really need to succeed in the profession;

teachers who are tasked with managing learning are also required to be able to meet competency standards and their professionalism towards students and learning to write in the classroom (Mujianto, 2016). The requirement for instructors to fulfill competence standards and increase their expertise in teaching writing skills in the classroom, together with the mismatch between student capabilities and field realities, are contributing factors to the issue. If researchers want to reduce the number of issues that crop up when writing, they should look into possible alternatives. A teacher's problem-solving abilities include conceptual understanding, knowledge of procedures and conditions, general problem-solving approaches, and self-coordination in the areas of student work tracking, organization, and assessment (Buchwald et al., 2017).

There needs to be greater investigation on how students learn to solve writing-related problems in the classroom, particularly as it pertains to writing explanations. Environment, social circumstances, and cultural variety were the real-life problem-topics that ninth graders in junior high school were asked to write an explanation paper about. The learning model is required to solve specific issues and explain the subject matter in written language using the processes of the explanation genre. Hence, a learning model is necessary for the activity of writing explanations in order to improve problem-solving skills. This can be implemented by using the Visualization, Auditory, Kinesthetic (VAK), and Guide Inquiry Learning (GIL) models, which are expected to be a choice in addition to the conventional model of direct learning (DL) that teachers usually use in class.

There are three different ways that people learn, and the VAK model incorporates all three: visually, aurally, and kinesthetically. By incorporating these three elements, students can improve their learning skills (Siregar, 2018). Success in learning, according to the VAK model, depends on tailoring instruction to each student's unique preferences and abilities. The objective of learning is to provide students with an engaging and personalized experience that suits their preferred learning style, whether that's visual, auditory, or kinesthetic (Hardiana & Suyata, 2015; Ramadian et al., 2020). According to the study, the VAK model is a good way to help students improve their writing abilities as it gives them the opportunity to express themselves creatively via the creation of an explanation text based on their everyday lives.

The VAK model has shown promise as a learning tool in a number of prior investigations. Research by Siregar (2018) provides evidence that the VAK approach of instruction prioritizes student experience and shortens the learning curve. By fostering an optimistic outlook on the target language, the VAK model has the potential to enhance student learning results (Gilakjani, 2012). Then Ramadian et al., (2020) shown that the VAK model outperformed the traditional model due to the fact that its central activities encouraged students to actively participate in the learning process via the use of their bodies and group dynamics. In addition, research conducted by Kusumawarti et al., (2020) was mentioned as an additional internal variable impacting writing abilities that VAK model learning speeds up the development of. Until they master the material and can put it into writing, students are allowed to choose whatever learning technique they prefer: visual, audio, kinesthetic, or a combination of the three.

The GIL model, according to Rodriguez et al., (2020), is a teaching model that allows students to go through the following steps: problem identification, hypothesis generation, problem formulation, data collecting, result verification, and conclusion generalization. The GIL approach encourages pupils to actively seek for information rather than passively reciting teacher-given facts and figures. It teaches them to methodically look at things that might be a problem while trying to confirm a phenomenon (Margunayasa et al., 2019). The instructor responds to students' thoughts and guides them to a productive route of inquiry via orally led instruction, which places the classroom as a tool for learning groups in this approach. The GIL model of instruction seeks to provide a classroom setting that can accommodate an innovative strategy for instructing students and evaluating their development in key areas (Constantinou et al., 2018).

Research conducted by Palupi et al., (2020) has used the GIL model to improve students' explanation writing skills with a post-test result of 71.14. However, researchers say it still has yet to reach the maximum score. The difference with this study is that the models compared are GIL and

PBL, while this study uses three models to compare: the VAK, GIL, and DL (conventional) models. Research on the effectiveness of the GIL model has also been conducted even though it only focuses on science learning (Margunayasa et al., 2019) and the field of science to enhance pupils' capacity for analytical reasoning (Sutiani et al., 2021). Some studies discuss the GIL model for science coverage, such as physics (Al Amin et al., 2017).

Writing is a critical talent that all students should be able to master, and learning models are crucial for this. Scientific processing abilities and information gain may have benefited from prior studies. But it hasn't tackled language acquisition head-on yet, especially when it comes to building writing abilities within the framework of environmental, social, and cultural diversity-related basic concerns as they pertain to explanation texts. This research compares the DL (traditional) approach to teaching students to write explanation texts with two other learning models: Visualization, Auditory, Kinesthetic (VAK) and Guided Inquiry Learning (GIL). The novelty of this research lies in the direct comparison between Visualization, Auditory, Kinesthetic (VAK), and Guided Inquiry Learning (GIL) models in the context of improving explanation text writing skills, a study that has yet to be widely explored. Focusing on learners' writing skills related to issues such as the environment, social conditions, and cultural diversity provides a new contribution to the educational literature relevant to the challenges of the 21st century. In addition, this research contributes to adapting both models in the Indonesian educational context, which has unique local characteristics, thus generating practical insights for teachers in choosing appropriate learning approaches. Novelty also arises from the development of evaluation instruments specifically designed to assess the effectiveness of both models in producing explanation texts, emphasizing aspects of learning styles, inquiry processes, and students' analytical skills. Thus, this research strengthens theoretical studies and provides significant practical guidance for learning in the modern era.

In addition, this study is expected to make a theoretical contribution by integrating sensory-based learning theory with a more cognitive inquiry approach. The findings of this study not only enrich academic discussions in the field of education but also identify further areas of research, such as the long-term effects of implementing both learning models. As such, this study impacts educational practice and strengthens the theoretical foundation underlying the implementation of more effective learning models responsive to students' needs. To date, relevant research has yet to compare the two learning models in the context of ninth-grade junior high school students' explanation writing skills. This research focuses explicitly on issues such as the environment, social conditions, and cultural diversity because, through explanation texts, students can explore, understand, and explain complex problems logically and factually. Explanation texts allow students to develop broader insights into these issues and present in-depth, data-driven explanations, taking into account their participation in the development of metacognitive knowledge. The link between actual issues and explanation texts is very close, as these texts convey information in a structured and easy-to-understand manner, helping students understand the context and the impact of problems in their environment. In addition, explanation texts also allow students to develop critical and analytical thinking skills in presenting data-based explanations, thus deepening their understanding of society's complex issues.

METHOD
Research Design and Participants

The current study employed a quasi-experimental approach, specifically using a pretest-posttest non-equivalent control group design, as Cohen et al., (2017) described. Even though participants were not randomly allocated to experimental or control groups, this design allowed for comparisons between the two. The study's dependent variable was the explanation writing skill, whereas the independent variables were the learning models (VAK, GIL, and DL). Students were split into an experimental group using the VAK and GIL models and a control group using DL to facilitate comparisons between the three learning models. Eight separate 80-minute treatments were administered in each class. Students from Santu Petrus Catholic Junior High School in Pontianak ninth grade made up the population. Additionally, 105 ninth graders chosen randomly using cluster

sampling (Creswell, 2017) made up the sample with 35 students each in the experimental and control classes.

Instrument

A syllabus, lesson plans, student worksheets, and essay tests on writing explanations were developed for data collection. The explanation writing activity package consisted of an essay test, and the student's answers were assessed through a scoring rubric. Two distinguished professors with extensive backgrounds in language teaching and evaluation developed the tool by administering an evaluation exam. A pilot test was carried out to assess the study's findings empirically and guarantee the reliability and validity of the instruments used. Cronbach's alpha was used for the reliability test, and Pearson product-moment was used to assess the validity of the instrument (Creswell, 2017). The calculation was carried out using SPSS 25. The test has been confirmed with valid ($r = 0.969$; $p < 0.05$) and reliable ($0.878 > 0.700$) results. The data collection technique used was an explanation text writing test given before (pretest) and after (posttest) learning intervention using VAK, GIL, and DL models. This test aims to see the changes and improvement of students' writing skills after participating in learning. This indicator will assess the expression of ideas, main ideas and explanation ideas, the suitability of the content with the characteristics and structure of the summarized material, text outline, paragraph development, own vocabulary that is easy to understand, effective sentences, use of punctuation, writing capital letters, and the use of conjunctions (Modified from Benzer et al., 2016; Brown & Abeywickrama, 2019). Listed in Table 1 below are the evaluation criteria for the writing exam of explanation texts.

Table 1
Pretest and Posttest Assessment Indicators for Writing Explanation Texts

Indicator	Assessment Description
Idea Disclosure	- Main ideas and explanations are clearly and logically expressed. - Ideas are interesting and relevant to the chosen topic.
Main Idea and Explanation Ideas	- The main idea is reflected throughout the text. - Explanation ideas support the main idea with precise details.
Content Conformity with the Characteristics and Structure of Explanation Texts	- The writing is structured with an introductory statement, many body paragraphs, and an appropriate conclusion. - All the hallmarks of an explanation text are present here: a logical and sequential presentation of an occurrence or process.
Text Framework (Logical and Cohesive Structure)	- The text has a clear flow; each section has a logical relationship with each other. - Each paragraph follows a logical sequence that leads the reader to the conclusion.
Paragraph Development	- Paragraphs are well developed, containing explanations and examples that support the main idea. - Each paragraph is clear and focused on one main idea, not wandering into other topics.
Vocabulary Usage	- Using own vocabulary that is easy to understand and appropriate to the context. - Avoiding unnecessary repetition of words.
Effective Sentence	- Each sentence has a good structure, is clear and efficient in conveying information. - Sentences are not too long or too short, and do not contain ambiguity.
Use of Punctuation and Capitalization	-Use of punctuation marks in accordance with the rules, such as periods, commas, question marks, exclamation marks, etc. -There are no errors in the placement of punctuation marks. -Capital letters are used correctly, according to the writing rules (e.g., beginning of sentences, names of people, places, etc.). -There are no errors in the use of capital letters.
Conjunction Usage	-Use conjunctions appropriately to connect ideas within sentences or between paragraphs (e.g., because, but, so). -Conjunctions are used to form a clear and logical train of thought.

Procedure

This research took place in the second half of the 2023–2024 academic year in an Indonesian language class that used explanation writing as its teaching material. The experimental group was evaluated to determine the efficacy of using the VAK and GIL models for explanation writing tasks. However, the DL model's efficacy was evaluated by comparing it to the control group. Both groups received therapy within two months after receiving the same lecture on real-world issues (environmental, socioeconomic, and cultural diversity). The two experimental classes applied the adaptation of the VAK model from Russel (2011) and the GIL model from Palupi et al. (2020). Table 2 describes the differences in the procedures of the two learning models.

Table 2
Treatment Procedure of VAK and GIL Models

Step		Visualization, Auditory, Kinesthetic (VAK) Model	Guided Inquiry Learning (GIL) Model
1	Preparation	The teacher motivates learning and prepares to deliver the material with the help of powerpoint.	The teacher asks questions about the explanation text and engages students in inquiry.
2	Submission and training	By the VAK learning style, the teacher directs students to play an active role in learning independently in fun activities and maximizing their senses.	Through problem formulation, student groups explore and discuss with peers.
3	*Visual*	Providing visual material in the form of images to students is followed by illustrating ideas by students according to the images.	Together, the class and instructor use the list of questions to go further into the subject at hand.
4	*Auditory*	The teacher shows a recording related to the explanation text material and summarizes the material's content.	The goal of forming groups of experts and novices is to find issues.
5		The teacher demonstrates the material and invites students to learn while walking around the picture in front of the class.	In order to solve problems and answer questions, novice students work in small groups with more experienced peers.
6	*Kinesthetic*	The writing of essential things is followed by developing the material obtained as an explanation text.	Students at the upper level use the PEEL to collaborate on conceptual maps and teach groups of students at the lower level (an organizational scaffold- Point, Evidence, Explanation, Link) method.
7	Appearance Results	Submission of writing results in front of the class by students, questions and answers, and providing guidance and material conclusions about student work by the teacher.	Submission of writing results in front of the class by students and giving conclusions about the results of student work by the teacher.

First, in the control group (DL), students listen attentively while the instructor presents the information; second, the teacher facilitates a Q&A session; third, the teacher encourages class debates; and finally, the lesson ends with the teacher delivering the final remarks. The instructor assigned homework at the conclusion of class that built on what will be covered in the next session.

Data Analysis

A one-way analysis of variance (ANOVA) and a scheffe test were used to examine the research data. The data was checked for normality and homogeneity. The Kolmogorov-Smirnov test was used to determine normality, and the Levene test with Sig more than 0.05 (5%) was used to determine homogeneity. Results are typical and consistent if the value is more than 0.05 (5%). We used one-way analysis of variance (ANOVA) to examine the experimental and control groups' explanation writing activities using the VAK, GIL, and DL models. A significant difference between the two sets of data is present when the Sig value falls below the significance level of 0.05 (5%). We used the Scheffe test to compare the three models VAK, GIL, and DL and find out which one was more successful. Data was analyzed using SPSS version 25.

RESULTS AND DISCUSSION

This study focuses on the ability to write explanation texts of ninth-grade junior high school students as a reflection of the information structure focused on actual problems (environment, social conditions, and cultural diversity). The writing process includes a variety of skills, as well as the transformation phase of knowledge utilization and control procedures (Kellogg, 2008; Trapman et al., 2018). In the learning process of writing explanations, Visualization, Auditory, Kinesthetic (VAK), Guide Inquiry Learning (GIL), and Direct Learning (DL) models are used to determine which model can provide a more practical approach to the learning process.

A writing assessment tool was used to determine the writing scores for explanation texts. The evaluation was done both before and after the explanation text writing lesson. The data collected included pre-test and post-test scores for both groups. After data collection, the analysis conducted revealed a number of important findings. The first result to be explained is the distribution of the data of the explanation writing skill scores based on each learning model, as shown in Table 3.

Table 3
Explanation Writing Skill Score Data Distribution Based on Learning Model

Statistical Description	Group					
	VAK		GIL		DL	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Mean	68.03	87.06	68.37	80.34	65.57	70.03
Median	68.00	88.00	68.00	80.00	66.00	70.00
Std. Deviation	5.742	5.965	6.088	6.602	6.427	5.828
Variance	32.970	35.585	37.064	43.585	41.311	33.970
Minimum	58	73	57	68	56	59
Maximum	80	97	80	91	80	81

Based on the data presented in Table 3, each learning model can produce different scores and can effectively improve students' explanation writing activities. This is proven by the results of students' pre-test and post-test scores. Before therapy, students in the control group averaged 65.57 on DL-based explanation writing assignments; after treatment, that number jumped to 70.03. The average score before treatment with the GIL model was 68.37, and after treatment became 80.34. The average score on the VAK model before treatment was 68.03, and after treatment became 87.06.

We conducted the essential analyses before proceeding to inferential statistical analysis. The prerequisite tests are normalcy and homogeneity tests. The Kolmogorov-Smirnov normalcy test revealed that all three groups (VAK, GIL, and DL) had Sig values on both the pre- and post-test scores that were more than 0.05 (Sig = 0.200). Furthermore, the significant results indicated that all groups' explanation writing skill scores were from normally distributed populations. Therefore, it continued to the homogeneity test stage, with the results of the Levene statistics showing that all the significance values of each group were more significant than 0.05, which means that the variants for the three groups were the same. Writing abilities Sig were worth 0.563 on the pretest and 0.554 on the posttest. We will presume that the data about the ability to write explanation texts is consistent.

After conducting normality and homogeneity tests, it was found that the data before and after the treatment were normally distributed and homogeneous. Then, a parametric test was conducted as a hypothesis test. The parametric tests used were the T-test (Paired Sample t-test), the one-way ANOVA test, and the Scheffe test, which obtained the following analysis results.

Table 4
Comparison of Mean Scores of Pre-Tests and Post-Test of Experimental Group and Control Group

		Mean	N	Std. Deviation	t-Value	df	Sig (2-tailed)
Experimental (VAK)	Pre-test	68.03	35	5.742	-17.715	34	.000
	Post-test	87.06	35	5.965			
Experimental (GIL)	Pre-test	68.37	35	6.088	-10.527	34	.000
	Post-test	80.34	35	6.602			
Control (DL)	Pre-test	65.57	35	6.427	-10.350	34	.000
	Post-test	70.03	35	5.828			

According to Table 4, the p-value is less than 0.05. Hence, there is a statistically significant difference between the scores obtained before and after the exam. This means that after completing each session utilizing the VAK, GIL, and DL models, students' capacity to write explanation essays improved. Thus, the one-way ANOVA test may be used to examine the efficacy of the VAK, GIL, and DL models, and test the first research question using the first hypothesis. The findings of the tests are summarized in Table 5.

Table 5
One-way ANOVA Test Results

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	5150.114	2	2575.057	68.280	.000
Within Groups	3846.743	102	37.713		
Total	8996.857	104			

F=68.280, according to the findings of the one-way ANOVA test. Then, with degrees of freedom (df) numerator = 2 and df denominator = 102, the F table value is 3.09 at the 0.05 significance level. Compared to the F table, the estimated F value is greater (68.280 > 3.09) with a significance level of 0.000 (p < 0.05). What this indicates is that when it comes to enhancing students' explanation writing abilities, the VAK, GIL, and DL models all have different effects. Following this, in order to address the second study question, we used the findings of the second, third, and fourth hypotheses to run the Scheffe test and find out which model may enhance the capacity to write explanations. The findings of the tests are summarized in Table 6.

Table 6
Scheffe Test Results
Scheffe
Dependent Variable: Explanation Writing Skills

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig	95% Confidence Interval	
					Lower Bound	Upper Bound
VAK	GIL	6.714*	1.468	.000	3.07	10.36
	DL	17.029*	1.468	.000	13.38	20.68
GIL	VAK	-6.714*	1.468	.000	-10.36	-3.07
	DL	10.314*	1.468	.000	6.67	13.96
DL	VAK	-17.029*	1.468	.000	-20.68	-13.38
	GIL	-10.314*	1.468	.000	-13.96	-6.67

Based on the results of the hypothesis testing that was carried out, the study's Scheffe test results showed that the VAK model outperformed GIL and DL regarding student learning to write explanation texts. Second hypothesis using the Scheffe test in both the VAK and GIL experimental groups, informed the choice to test the research hypothesis. The groups achieved a mean difference score of 6.714* and Sig 0.000 (p < 0.05). When it comes to writing explanations, the VAK model outperforms the GIL model, according to the Scheffe test. The Scheffe test was used to test the third hypothesis on the VAK experimental group and the DL control group. The results showed a

significant difference of 17.029* and a Sig 0.000 (p < 0.05). Scheffe results show that when it comes to writing explanations, the VAK model is superior than the DL approach. The results were significant with Sig 0.002 (p < 0.05) and a mean difference score of 10.314*, confirming the fourth hypothesis, which was verified using the Scheffe test on both the GIL experimental group and the DL control group. When it came to writing explanations, the GIL model fared better than the DL model, according to the results of the Scheffe test.

The final result of this study makes VAK the superior model and clarifies that the VAK model is the most effective model to use because it is in line with the visual-auditory-kinesthetic (VAK) paradigm, which integrates three different learning modalities (Gilakjani, 2012; Shoemaker et al., 2015; Siregar, 2018). The first stage is preparation, which involves introducing materials and learning strategies. This is followed by delivery and training, which finally ends with a demonstration of the learners' results (Hardiana & Suyata, 2015; Shoimin, 2014). This research lends credence to the claim made by Ramadian et al., (2020) that using the VAK model and paying attention to the steps will increase the effect of writing skills in language learning. When teachers formulate questions about actual problems (environment, social conditions, and cultural diversity), students can propose explanations and produce textual interpretations. In contrast, the GIL model can inspire students to make brief explanations because it allows them to think during the teacher's provided materials in the writing process (FitzGerald & Garrison, 2016). On the other hand, it depends on students' language capacity (Al Amin et al., 2017), especially for students with an impulsive learning style (Margunayasa et al., 2019).

The initial steps taken by the teacher in the preparation stage in the VAK model are managing learning, which includes organizing learning materials, conditioning the class, and encouraging students to feel confident and excited about the teaching and learning process. In order for pupils to learn as much as possible, teachers need to foster an environment that encourages and supports learning (Bakkenes et al., 2010). Teachers may create a more interesting learning environment for their students by including PowerPoint material such as theoretical texts, graphics, and videos. How dependent students are on learning to generate optimal learning outcomes is what we mean when we talk about student motivation in the context of designing a learning environment (Paolini, 2015; Saeed & Zyngier, 2012). Teachers should keep in mind that student motivation is one of the five most important elements influencing their students' performance, and they should aim to improve their students classroom learning by concentrating on this component (Panisoara et al., 2015; Pedota, 2015; Sieberer-Nagler, 2015). Meanwhile, Rodriguez et al., (2020) stated that GIL can provide a cyclical framework as a learning model involving exploration, concept discovery, and application of generated ideas. In other words, students still need guidance in understanding the actual problem by referring to the teacher's explanation before concluding and deciding on the solution.

In the delivery and training stage of the VAK model, teachers provide apperception, attract students' interest, deliver the material, and encourage students to seek information using their preferred learning style. The teacher assists students in learning and finding meaningful academic activities in this process. The teacher conducts feedback based on natural and social phenomena and explores students' prior knowledge about explanation essays. Material delivery is based on which learning style students are interested in. The different designs of GIL and its problem formulation treatment will guide students in describing scientific experiences based on their natural and social phenomena. Therefore, the GIL model can improve students reasoning skills in discovering scientific concepts, problem-solving skills, and ability to communicate their ideas through the explanation text they will write (Borg, 2017; Rodriguez et al., 2020; Stender et al., 2018).

To begin educating students with visual learning styles in the VAK model classroom, the instructor would use PowerPoint to present the material. Consequently, the incorporation of improved PowerPoint instruction into the lesson prompted students to actively engage in the tasks at hand, created a more engaging classroom environment, and aided students' comprehension of the textual material and enthusiasm for classroom activities (Sehati & Khodabandehlou, 2017). Photos, pictures, and graphics help those who learn best visually recall more of what they've learned.

According to Rosyidah et al., (2017), this implies that students with varying learning styles may benefit from the visual learning approach. Lectures and other spoken forms of information are more effective for auditory learners. Students are expected to actively participate in class discussions, articulate their understanding of the content, and use verbal expressions to solve issues. Images, visuals, videos, and classroom activities may all be used together to assist students better comprehend new content (Gilakjani, 2012). It also plays a vital role for auditory learners. Besides displaying images and videos, learning also produces sound. This is consistent with the findings of Kayalar & Kayalar (2017), who revealed that learning by listening, reading, or writing is the most successful way for children with auditory learning styles. Everything points to the fact that listening and writing go hand in hand. As part of the lesson, the instructor gave the pupils opportunities to show what they had learned by relating personal stories to the material. Drama and role play are great for kinesthetic learners because they encourage active engagement. For these kids, the greatest way to learn is to get their hands dirty and participate actively in class. Leasa et al., (2017) discovered that children with a kinesthetic learning style be a greater possibility to acquire emotional intelligence, probably because they learn best through hands-on experiences. One kind of learning known as kinesthetic learning involves moving some or all of one's limbs while practicing what one has learnt (Leasa et al., 2017). Finally, this learning activity will allow students to communicate their experiences through their explanation writing.

Teachers assist students in incorporating and acquiring new information and skills through group discussion exercises, group presentations, and other approaches that suit the VAK learning style through seeing, hearing, and moving. When students participate in discussion activities, they can arrange and retain freshly acquired knowledge in their permanent memory, encouraging them to learn more about the material. Hsu et al., (2018) argues that discussion activities are a great way to get students thinking about and discussing topics that interest them. In addition, speaking up will aid students in seeing issues from other perspectives, drawing connections between seemingly unrelated topics, developing their critical thinking abilities, honing their practical application skills, and shaping their overall worldview (Bakkenes et al., 2010). At this point, students are to research the topic the instructor has provided and attempt to document their findings in brief explanation essays. General assertions, causal sequences, and interpretations make up an explanation text's outline, which students are often asked to examine. Auditory students are more interested in this process as they enjoy discussion, debate, and oral communication activities.

Instead, FitzGerald & Garrison (2016) stated that students who receive treatment with the GIL model get guidance from teachers during the learning process in class and the application of the GIL learning model, and can improve critical thinking skills and student achievement (Sutiani et al., 2021). This research confirms that students can use the GIL model to summarize briefly at each learning level while providing space for reflection. They are able to organize relevant variables, look for patterns in various datasets, communicate their results well in writing, and assess the validity of assumptions made in response to hypotheses. Students may learn more about the topic of explanation writing, develop their reasoning skills by analyzing and presenting data-based arguments, and arrive at logical conclusions. However, in the process, the GIL model can only have a rapid effect if the mentality and motivation of students in the classroom are high and they quickly adapt to it (Lumentut et al., 2017).

The last step in VAK and GIL modes of instruction is for students to communicate their findings from either group discussions or text writing. Results from student work and course materials are the focal point of the teacher's emphasis. Furthermore, prior to concluding the class, the instructor gives students background on what will be covered in the next section. DL model learning is quite different from VAK and GIL models. Because their exclusive emphasis is on imparting information, instructors in traditional DL classrooms have not been successful in helping their pupils acquire the ability to write explanation essays. When instructors only hand out facts and resources to their pupils without getting them involved in the learning process, they are engaging in knowledge transfer. In addition, the teacher's questions do not guide students in comprehending the structure of writing explanations in accordance with it: general statement, causal sequence, and interpretation.

Students' poor performance in almost every area of explanation writing demonstrates the insignificance of the DL model's learning from the VAK and GIL models. In the DL model, learning relies solely on textbooks and question-and-answer methods, which produce passivity in students so that students only write down information the teacher conveys. As a result, their writing skills and scientific thinking process cannot be developed. According to the interview findings, teachers' primary source of learning is only using textbooks. Students also mentioned that they only get information from the teacher and learn by memorizing learning materials. This finding is corroborated by research by Hacieminoglu (2016), which showed that memorization can negatively impact student achievement and attitude. Students' dependence on textbooks can decrease their scientific attitudes (Weng et al., 2018) and writing skills (Sopandi, 2020). Therefore, implementing the VAK model in Indonesian language classrooms is highly recommended, significantly improving the skill of writing explanations. Statistically, the VAK model was significantly different from GIL and DL. The mean post-test score of the VAK model showed the highest improvement compared to the other learning models.

CONCLUSION

The research found that compared to the GIL and DL learning models, the VAK learning model significantly improved students' ability to write explanation texts. The VAK model was found to be more effective than GIL and DL in improving students' writing skills. Attention to visual, aural, and kinesthetic learning methods may boost language intelligence, which is backed by this logical reasoning. This lends credence to the idea that the VAK approach is best for helping students become better explanation writers. Additionally, this research aims to assess and contrast the efficacy of VAK, GIL, and DL models in enhancing students' writing abilities, as indicated in the goals. The results demonstrated that out of the three models, the VAK model produced the most significant findings. The major goal of this research, which was to determine the best learning model for explanation text production, has therefore been accomplished.

It may be concluded from the data that the VAK model is more effective based on the post-test findings. The average score for students using the VAK model was 87.06, while for students in the GIL class it was 80.34 and for students in the DL class it was 65.57. Results from the Scheffe test corroborated these findings; they demonstrated statistically significant differences among the three groups of students, lending credence to the idea that the VAK model was the most effective in improving their writing.

Educators and other professionals in the field should seriously consider implementing the VAK model into their language instruction practices in light of the study's explicit recommendations. Students' writing abilities may be honed more quickly using this approach as it lets them study in the way that works best for them. It is not possible to extrapolate the findings of this research beyond the sample of pupils at the local level. That is why it's crucial for researchers to use larger samples that reflect society's demographics and geographic diversity in future studies. It would be beneficial for future studies to investigate how the VAK model works with a wider variety of texts and language abilities in order to bolster the credibility and validity of the results. The efficiency of the VAK model in language acquisition, particularly in the context of education in Indonesia, is anticipated to be better understood in future studies that use a more diversified set of samples and resources.

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