



Analysis of Writing Patterns of Letters O, D, and Y as Considerations for the Criteria of Developing Indonesian Language Teaching Materials

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ABSTRACT

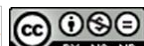
Teaching materials may be considered to be effective if their preparation is adjusted to the level of students' internal potential and cognitive abilities. Therefore, graphology is required to assist in identifying students' inner potential for the results of the graphological analysis to be used as a basis for preparing materials. This research aims to discover students' inner potentials using graphological sciences, which can later be used to consider the criteria for preparing teaching materials. This research used a descriptive qualitative research method since this research produces data in the form of descriptive data (writing). The research's subject is the handwriting of students of X-1 class Bekasi Regency. The stages of this research are handwriting analysis, triangulation through interviews, grouping results. The data used is in the form of student handwriting with an assessment of the characteristics of student writing as a whole in terms of the slope of writing, the direction of the writing line, the size of the writing, the spacing between words, and the spacing between lines. Qualitative research data analysis techniques are carried out with the stages of analysis implementation according to Miles and Huberman with stages: (1) Data reduction, (2) Presentation of data; (3) Drawing conclusions. According to the study's result, it was discovered that the students' inner potentials were very diverse. As a result, the form in which teaching materials are prepared must likewise be varied.



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INTRODUCTION

One of the crucial elements used to support students and educators succeed in accomplishing learning objectives is teaching materials. No matter how excellent the teaching materials are, the learning objectives will be difficult to achieve if they are not customized to students' needs. Students have different levels of cognitive abilities and inner potential. Therefore, educators must be able to prepare and develop teaching materials based on analyzing students' needs and adjusting to the applicable curriculum.

The different levels of ability and potential can lead to gaps in understanding between students. The government has developed the Kurikulum Merdeka (Independent curriculum) to address this gap. This curriculum is designed to provide flexibility to educators and supports their collaboration in producing quality learning according to the needs of students and the conditions of education units (Herdiansyah, 2023). In order to optimize the concept of flexibility in the independent curriculum, the approach that can be applied is Teaching at the Right Level (TaRL). The TaRL approach in the Independent Curriculum provides flexibility in teaching according to the capacity of the students or commonly known as the TaRL approach.



The TaRL (Teaching at The Right Level) approach is a learning approach that is oriented to the student's ability level (Cahyono, 2022). The TaRL approach is implemented according to students' ability levels which consist of low, medium, and high ability levels, not based on class level or age (Ahyyar et al, 2022). Educators teach material according to students' achievement stages (Zamjani et al., 2020). This approach is an implementation of Ki Hajar Dewantara's idea that the principles of children's education involve the nature of nature and the nature of the times (Irawati et al., 2022). Natural nature is related to the nature and form of the environment in which children live, meaning that every child has its own basic characteristics and characteristics that cannot be eliminated (Tarigan et al., 2022). while the nature of the times relates to the potential or basic characteristics of students which can change according to developments over time or the culture of the surrounding community (Irianti & Mufaridah, 2024).

One alternative solution to the problem above is using the Teaching at The Right Level (TaRL) Approach Assisted by Inovasi Materials (Muammar et al., 2023). This learning approach refers to the level of student ability (Banerji & Chavan, 2020).

To implement the Teaching at the Right Level (TaRL) approach in the classroom, educators can perform a cognitive diagnostic assessment on students, which is an assessment to determine the extent of students' basic abilities on current subject topics. After that, based on the assessment results, educators divide students according to similar ability levels (Kemendikbudristek, 2022). The grouping is divided into (1) the top group, which consists of students who have performed exceedingly well on the learning topic (2) the average group, which consists of students who are accustomed to the learning topic, and (3) the lower group, which consists of students who have yet to be able to learn the learning topic.

Before being implemented, learning must be planned in advance by taking into account the student's learning environment. Good learning is determined by good planning. In order to create an understanding of student development. The development that a child experiences begins at conception, occurs through biological, cognitive, and social-emotional processes and lasts a lifetime. Biological processes related to the formation of essential traits (Yulianti et al., 2022).

Learning refers to activities carried out by a person consciously or intentionally. This activity refers to the activity of a person in realizing the spiritual aspects that allow change to occur in him. Therefore, it can also be understood that learning is good if the intensity of one's physical and mental activity is higher (Ikhtiara et al., 2022).

Based on the results of this grouping, teaching materials that are prepared according to students' cognitive abilities and inner potentials are required. Since it is not enough to only look at the cognitive ability in preparing teaching materials, the inner potential, such as optimistic potential, communicative, and other potentials, must also be considered. Because the independent curriculum adheres to differentiated learning, teachers must know the ability standards of each student (Suwartiningsih, 2021; Wahyuningsari et al., 2022). To find out the ability of students can be cognitively or non-cognitively. Vidayanti et al. (2017) explained that cognitive abilities are abilities that can improve students' thinking skills, because the cognitive realm contains behaviors that emphasize intellectual aspects, such as knowledge, and thinking skills.

Therefore, graphology is needed to discover students' inner potential. As a result, the analysis findings using graphology can be used as a basis for teaching materials preparation. Graphology is a scientific discipline that studies handwriting patterns to learn about and understand a person's character (Fikri, 2021). Everyone has distinctive handwriting and has their own characteristics (Fadhilla et al., 2017; Wahidmurni, 2017; Mubarakah, 2022). It is one of the reasons why handwriting can be analyzed to determine a person's basic potential. Thereby, graphology can be used in determining learning styles. The hand is a tool that can hold a pen, while handwriting is the pen of our brain, so handwriting is often referred to as brainwriting (Lestari & Laksono, 2022). In other words, writing or scratching each letter uses the subconscious

mind, not simply physical activities. Therefore, handwriting is a fairly effective measuring tool to determine the students' inner potential since people use their subconscious minds when they write. So, the possibility of being lied to is relatively low unless the students can control the process of the nerve center in their body and their subconscious mind (Ramdani, 2016).

This research is aimed at producing teaching material that is considered effective for use in the level of internal potential and cognitive ability of students. With the use of graphology, eating will help the identification process carried out as a basis for compiling material. Based on the description mentioned above, the writer is interested in determining students' inner potentials using graphology and how it is utilized in the criteria for preparing differentiated teaching materials based on graphological analysis to address the learning gap in schools.

RESEARCH METHOD

The method used in this research is a qualitative research method with a descriptive approach. The function of qualitative research is to obtain in-depth information regarding the characteristics of students' handwriting based on actual data (Mubarokah, 2022). This method is used to answer graphological research problems originating from interviews, observations, and handwriting analysis (Wahidmurni, 2017). The descriptive approach is able to solve practical problems in the development of science, especially for graphology research (Hamdani et al., 2023; Yuliani, 2018). Researchers obtained research data using research instruments testing students' handwriting tests through data collection with observation methods. This research was conducted with purposive sampling techniques by conducting a focus analysis on the characteristics of students' handwriting (Pratiwi et al., 2014). Researchers conducted pre-research, research and post-research stages by conducting data analysis activities on student handwriting results and triangulating data between student handwriting results with interview techniques with teachers and students (Khasanah et al., 2020). The data used is in the form of student handwriting with an assessment of the characteristics of student writing as a whole in terms of the slope of writing, the direction of the writing line, the size of the writing, the spacing between words, and the spacing between lines.

Qualitative research data analysis techniques are carried out with the stages of analysis implementation according to Miles and Huberman (Asrori and Ali, 2014) with stages: (1) Data reduction, (2) Presentation of data; (3) Drawing conclusions. The data is then obtained into valid data in qualitative research used at the analysis stage (Creswell, 2019).

In general, this research only focuses on analyzing handwriting characteristics in terms of the slant of the writing, the direction of the writing line, the size of the writing, the space between words, and the space between lines. Meanwhile, this research analyzes the letters o, d, and y. In graphology, (1) the slant of the writing can show the writer's emotional expression, (2) the direction of the writing line can indicate how the writer achieves his goal, (3) the size of the writing can show how the writer wants to be seen and the writer's concentration level, (4) the space between words can determine the distance between the writer and others, and (5) the space between lines may indicate the writer's desire to distance himself from his feelings. Also, letter analysis shows how the writer keeps his feelings and interacts with others.

The research's subject was the handwriting of students in class X-1 Bekasi Regency, with 33 students participating in this study. There are 7 male students and 26 female students.

RESULTS AND DISCUSSION

Results

According to the results of the graphological analysis in class X-1 Bekasi Regency, the characteristics of students' handwriting are very diverse. This diversity shapes the students' character. Different characters require students to be treated differently. Because this difference

can be the foundation for students to find and develop their talents, allowing them to become outstanding traits that cannot be precisely duplicated by other students (Ramdani, 2016).

Handwriting characteristics are the form of handwriting created by the research's subject. The research's subjects involved 33 people. The data collected is pure because the writer does not realize that their writing will be analyzed using graphology. The data was analyzed based on general and specific observations.

Data were analyzed using general observations, meaning that the student's handwriting is analyzed by examining the overall characteristics of students' writing. The writing characteristics analyzed include the slant of the writing, the direction of the writing line, the size of the writing, the space between words, and the space between lines. The following are the findings of the handwriting analysis in general.

Table 1. General analysis findings

No	Handwriting Characteristics	Types	Total	Subjects
1	The Slant of the Writing	Right	3	DRN, IF, MN
		Left	18	AFN, AAP, Asa, Asi, CN, EASPR, FN, HPH, MMJ, MR, NSAW, NA, RPA, SDN, SR, TS, VRA, WCW
		Vertical	4	AKF, DPN, TF, ZAFT
		Varies	8	AP, DM, IMB, JA, MLP, MMH, RI, SM
2	The Direction of the Writing Line	Ascending	9	DPN, FN, HPH, MMJ, MMH, SDP, VRA, WCW, ZAFT
		Descending	16	AFN, AP, AAP, AS, CN, DM, EASPR, IF, IMB, MN, MLP, NSAW, NA, RPA, TF, TS,
3	The Writing Sizes	Straight	8	AKF, Asa, DRN, JA, MR, RI, SR, SM
		Small	14	AKF, AFN, AAP, ASa, ASi, CN, DM, IF, IMB, MR, NSAW, NA, RPA, VRA,
		Normal	18	AP, DPN, DRN, EASPR, FN, HPH, JA, MMJ, MLP, MMH, RI, SDN, SR, SM, TF, TS, WCW, ZAFT
		Large	1	MN
4	The Space between Words	Narrow	7	MMJ, MMH, MR, NSAW, RI, TF, TS
		Normal	9	AKF, AFN, AAP, EASPR, FN, HPH, MLP, VRA, ZAFT
		Wide	17	AP, ASa, ASi, CN, DM, DPN, DRN, IF, IMB, JA, MN, NA, RPA, SDN, SR, SM, WCW
5	The Space between Lines	Narrow	-	
		Normal	11	EASPR, FN, IF, MMJ, MN, MLP, MR, SDN, SR, SM, ZAFT
		Wide	22	AKF, AFN, AP, AAP, ASa, ASi, CN, DM, DPN, DRN, HPH, IMB, JA, MMH, NSAW, NA, RPA, RI, TF, TS, VRA, WCW

Meanwhile, the data is analyzed using specific observation, meaning that students' handwriting is analyzed by examining the letters in their writing one by one. This research only analyzes three letters: O, D, and Y. The following are the findings of the handwriting analysis in specific.

Table 2. Specific analysis findings

No	Letters	Shapes	Total	Subjects
1	O	Closed (talkative)	19	AFN, AAP, Asa, Asi, CN, DPN, EASPR, FN, HPH, IMB, JA, MN, RI, SDP, SR, TF, VRA, WCW, ZAFT
		Open (reticence)	-	-
		The letter "O" tends to be closed, but some are open	11	AKF, AP, DM, DRN, MLP, MMH, MR, NSAW, NA, RPA, SM,
		The letter "O" tends to be closed, with some having the right knotted	2	IF, MMJ,
2	D	The letter "O" tends to have loop on the right (knotted right). There is also the letter "O" with loops on the right and left (double knotted)	1	TS
		The vertical letter is written first	13	AP, CN, DM, DRN, FN, IF, JA, MLP, RPA, RI, SR, SM, WCW
		The vertical line tends to be re-scratched	5	AKF, AAP, MMH, ZAFT, VRA
		Closed loop on the vertical line	1	MR
		Firm loop on the vertical line	1	SDP
		Plain letter 'D' (plain up)	1	TF
		Oval open on the top and re-scratched	2	Asi, HPH
		Tall vertical line	1	Asa
		Short vertical line and re-scratched	2	AFN, DPN
		Tall vertical line and re-scratched	5	EASPR, MMJ, NA, NSAW, TS
		Carefully Written	2	IMB, MN
3	Y	Knot like the shape of a swing	9	AKF, AFN, AAP, ASi, IF, MMH, MR, NSAW, RPA,
		Without knot	8	AP, CN, DPN, EASPR, FN, HPH, TF, VRA
		Firmly and straightly drawn downward	7	ASa, MN, RI, SDP, SR, SM, ZAFT
		Knot that tends to be unfinished	5	DM, IMB, JA, MMJ, NA,
		Knot that leans to the right	2	TS, WCW
		Short and knotless lower part	1	MLP,
		Firmly and straightly drawn downward and short lower part	1	DRN

Discussion

The data obtained from the research activities were analyzed and discussed according to the triangulation of student handwriting data and interviews conducted by students and teachers. This is discussed related to: 1) characteristics of handwriting in general, 2) characteristics of handwriting in particular, and 3) the use of analysis results as a consideration of criteria for preparing teaching materials. This needs to be discussed because handwriting has a low status and profile in literacy and education in recent years has attracted little attention from teachers, policy makers or researchers to mainstream the education process (Shaturaev, 2019). Discussions related to student handwriting are positioned to focus on emphasising the meaning of students' meanings in written creation. Students are given freedom in writing so that students' language understanding and writing skills are produced by expressing themselves in writing (Masrani et

al., 2018). This is an improvement that previously emphasized neatness and correct letter formation, which of course hindered early composition writers (Mawaddah & Suciati, 2020).

The Characteristics of Handwriting in General

a. The Slant of Writing

1) Left-side slant

Students with handwriting that tilts to the left indicate that is a less responsive person (rather difficult to empathize) who is less emotionally expressive and thinks logically (Widoretno et al., 2013). This characteristic of left italics can be noted in Figure 1. According to research conducted by Pratiwi et al. (2014), the accuracy percentage of test data for recognizing left-handwritten forms reached 12.5% per sub-assessment.

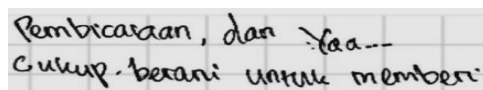


Figure 1. Left-slanted writing

2) Right-side slant

Students with handwriting that tilts to the right illustrates that they have characteristics responsive (easy to move), impulsive, progressive or acts according to their heart's desire with a firm attitude. Usually, A person who writes in this style has excellent social skills and adaptability. However, they lack calm and are often in a hurry.

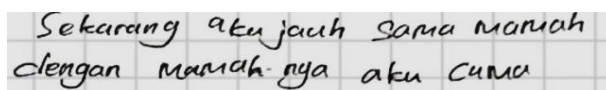


Figure 2. Right-slanted writing

3) Vertical

Students with upright handwriting depict that he is a person who is objective, realistic, open, wise, and peaceful person when dealing with a problem, and has excellent emotional control. However, the writer may feel uneasy if he is too close to others.

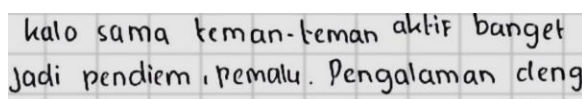


Figure 3. Vertical writing

4) Varies

Students with handwriting that varies in slant illustrates that he is a person who has an unstable emotional response, has unpredictable, unpredictable, and inconsistent habits, often feels anxious and excited, and shows poor judgment.

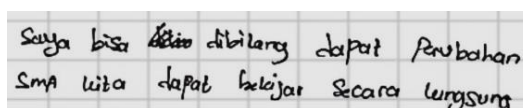


Figure 4. Varied-slanted writing

b. Direction of the Writing Line

1) Ascending

Students with ascending up writing lines indicates that the person is a person who has the author's emotional response less stable, has unpredictable, unpredictable, and inconsistent habits, often feels anxious and excited, and shows poor judgment.

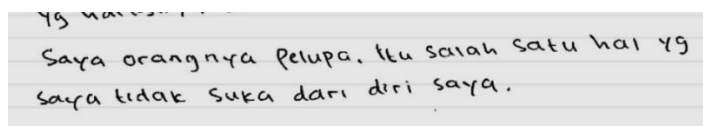


Figure 5. Ascending writing direction

2) Descending

Students with an ascending down writing lines indicates that is a person who feels pessimistic or hopeless needs encouragement or motivation from the closest person to achieve his goals. However, they will always try to cope with the burden they face.

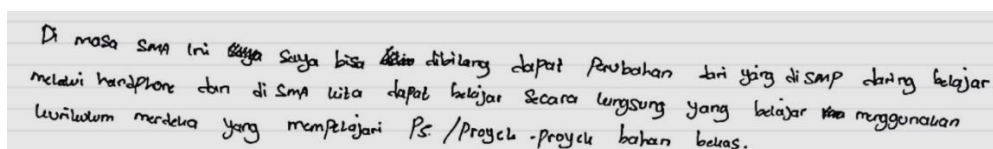


Figure 6. Descending writing direction

3) Straight

Students with straight handwriting describe that he is people who are consistent in achieving his goals, reliable, tends to be organized, and hesitant to try new things.

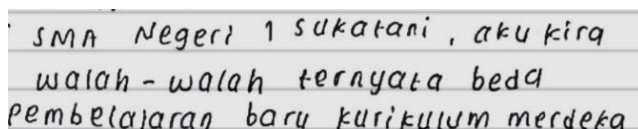


Figure 7. Straight writing direction

c. Writing Sizes

1) Small

Graphologically, the size of handwritten writing is considered small if it is less than 1/8 inch or about 3 mm. Students with small handwriting indicate that they do not like to seek attention, lacks confidence, is conscientious, cautious, introspective, has high concentration, lacks courage to try new things, and prefers to work behind the scenes.

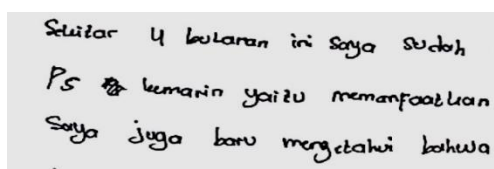


Figure 8. Small-sized writing

2) Normal

Graphologically, the size of handwritten writing is considered normal if it is 1/8 inch or about 3 m. Students with normal handwriting indicate that they can adapt easily to any environment or situation, has moderate concentration, is practical and realistic, has good analytical skills, and has high self-awareness.

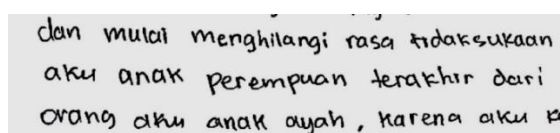


Figure 9. Normal-sized writing



3) Large

Graphologically, the size of handwritten writing is considered large, the size is more than 1/8 inch or about 3 mm. Students with large handwriting indicate that they tend to be confident and wants to be noticed and recognized by others. Someone with this type of writing tends to have a short concentration.

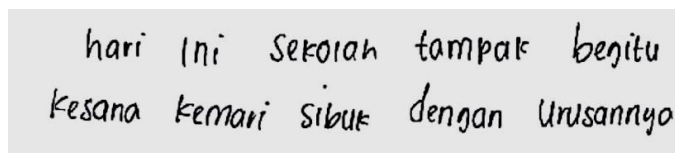


Figure 10. Large-sized writing

d. Space Between Words

1) Narrow

Students with wide word spacing indicate that they a person gets along and has strong relationships with others, often takes action, but they are impatient, and act quickly.

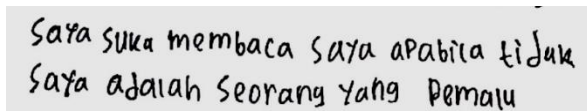


Figure 11. Writing with narrow spacing between words

2) Normal

Students with narrow word spacing indicate that they a person can control their emotions and is balanced, stable, mature, and adapts well to social situations.

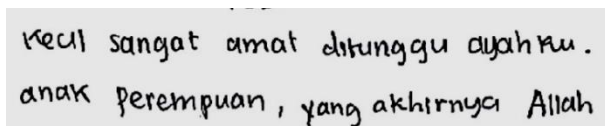


Figure 12. Writing with normal spacing between words

3) Wide

Students with normal word spacing indicate that they a person can control their emotions and is balanced, stable, mature, and adapts well to social situations. The characteristics of writing with normal spacing between words can be noted in figure 13.

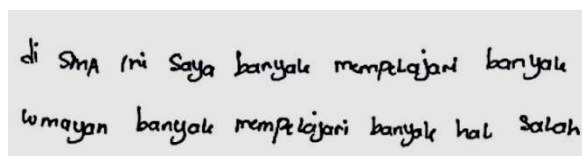


Figure 13. Writing with wide spacing between words

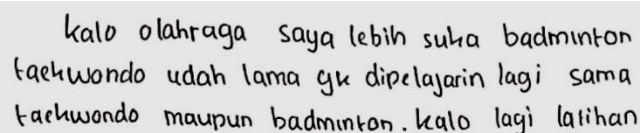
e. Space Between Lines

1) Narrow

Students with narrow line spacing indicate that he is tends to crave close relationships with others, is confused, and lacks clarity in thinking.

2) Normal

Students with normal line spacing indicate that they a person who is psychologically mature, able to think clearly, and able to manage and organize.

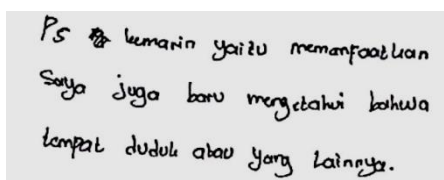


kalo olahraga saya lebih suka badminton
taekwondo udah lama gk dipelajari lagi sama
taekwondo maupun badminton. kalo lagi latihan

Figure 14. Writing with normal line spacing

3) Wide

Students with wide spacing between lines describe that they a person who closes themselves off from their environment either socially or psychologically, or even both. They fear relationships and close connections, often feel restless and unsure of themselves.



Ps k kemarin yaitu memanfaatkan
saya juga baru mengetahui bahwa
tempat duduk atau yang lainnya.

Figure 15. Writing with wide line spacing

The Characteristics of Handwriting in Particular

a. The Letter O

1) Closed (talkative)

Students with the closed handwritten 'O' form indicates a person who is not very communicative, chooses words before speaking and easily hesitates when faced with some things.



Figure 16. The shape of a closed letter 'O'

2) Opened (reticence)

Students with the open handwritten 'O' form indicate a communicative person who easily expresses their ideas, thoughts, and opinions.



Figure 17. The shape of an opened letter 'O'

3) Right-side loop (secretiveness)

Students with the handwritten shape of an 'O' with a right-side loop indicates a person capable of keeping secrets, especially their personal information.

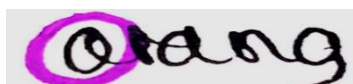


Figure 18. The shape of the letter 'O' with a right-side loop

4) Left and right-side loop (double knotted) (deceitfulness)

Students with the handwritten shape 'O' with left and rightside loops indicate someone who tends to say things that are not in line with reality. Writers with this 'O' shape tend to want things that benefit themselves in many ways while ignoring the interests of others.





Figure 19. The shape of the letter 'O' with left and right-side loops

b. The letter D

1) The vertical letter is written first

Students with the handwritten form 'D' with verticals written first, indicates a moody and potentially self-punishing person.



Figure 20. The shape of the Letter 'D' with the vertical is written first

2) The vertical line tends to be re-scratched

Students with handwritten 'D' shapes with vertical lines tend to scratch backwards, indicating an independent person who is less likely to express hurt feelings.



Figure 21. The shape of the letter 'D' with the vertical line tends to be scratched

3) Closed loop on the vertical line

Students with the handwritten form 'D' with a closed loop on a vertical line indicates a person who has a strong effort to correct and clear his mind, but feels lonely, and introverted.



Figure 22. The shape of the letter 'D' with a closed loop on the vertical line

4) Firm loop on the vertical line

Students with the handwritten shape 'D' with a firm circle on a vertical line indicates someone trying to suppress their emotions. However, sometimes they do display their emotions, especially when they need affection and attention (temporary).



Figure 23. The shape of the letter 'D' with a firm loop on the vertical line

5) Plain letter D (plain up)

Students with the plain handwritten form 'D' indicate people who tend to be musical, but they tend to be individualistic.



Figure 24. A plain letter 'D' shape

6) Oval open on the top

Students with the handwritten shape of the 'D' with an open oval at the top indicates someone who likes to talk and chat.



Figure 25. The shape of the letter 'D' with the oval open on the top

7) Short vertical line

Students with the handwritten shape of the 'D' with short vertical lines indicates a stupid and irregular person who prefers to do things their way.



Figure 26. The letter 'D' shape with a short vertical line

8) Tall vertical line

Students with the handwritten form 'D' with high vertical lines indicates a person who wants to look confident despite feeling insecure and charismatic to leave a good impression on others.

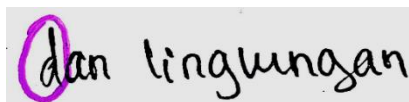


Figure 27. The letter 'D' shape with a tall vertical line

9) Written carefully

Students with the carefully written handwritten form of 'D' indicates a self-disciplined person at a pace that is done manually, but sometimes they like to punish themselves.

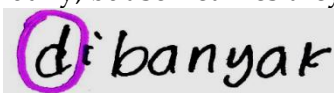


Figure 28. A carefully written letter 'D'

c. The Letter Y

1) A knot is shaped like a swing

Students with the handwritten 'Y' shape with knots has a swing shape, indicating an imaginative person who can create interesting ideas and build plans in their brain based on what they think.



Figure 29. The letter 'Y' with a knot is shaped like a swing

2) Without a knot

Students with the handwritten form 'Y' without knots signifies a practical person with good taste but showing despair.



Figure 30. The letter 'Y' shape without a knot

3) Firmly and straightly drawn downward

Students with the handwritten 'Y' shape with lines drawn strongly and straight down indicates a results-oriented person with great commitment and strong determination.



Figure 31. A 'Y' shape with a line drawn firmly and straight downward

4) Unfinished knot

Students with the handwritten form of 'Y' with unfinished knots indicate someone who tends to be unrealistic, ambitious, and dissatisfied with social expectations.



Figure 32. A 'Y' shape with a knot that tends to be unfinished

5) Knot leaning to the right

Students with the handwritten form of 'Y' with a knot tilted to the right indicates the feelings of a person controlled by hope for the future.



Figure 33. A 'Y' shape with the knot leaning to the right

Utilization of Analysis Results as Considerations for Criteria for Preparing Teaching Materials

Teaching materials refer to any written or unwritten materials educators use to facilitate the learning process and become materials that students must study to meet established competency criteria (Bahtiar, 2015). Educators must pay attention to several criteria in preparing teaching materials. One of the criteria includes the fact that it must be adjusted to the conditions of the students since each student has their background and traits. One way to determine the uniqueness of these students can be seen from the results of graphological analysis.

Educators can use the graphology analysis results as a reference in creating teaching materials that follow the characteristics of students. For instance, students with the open letter 'O' characteristics are more suited for interactive teaching materials since they are communicative and like interacting with others. Interactive teaching materials combine two or more interactive learning media that allow two-way communication between teaching materials and learners (Prastowo & Wijaya, 2013; Wijayanti et al., 2015). One particular form of interactive teaching material is a presentation. In presentations, students can utilize interactive media, such as video or audio, to improve their presentations. With this media, students can play a video and invite their friends to answer questions that may appear or express their thoughts about the video that has been played.

Meanwhile, students with the closed letter 'O' characteristic are more suitable for text-based teaching materials since they are less communicative. As a result of this teaching material, students can learn independently without feeling pressured to participate in intensive class discussions or interactions. One type of text-based teaching material is individualized reading, such as books, articles, handouts, essays, and others. With these teaching materials, students can be challenged to answer questions or express their thoughts in writing. However, if the less communicative student is required to present their learning outcomes like with a presentation,

they could find it challenging. Thus, to overcome this, the teaching materials provided must meet the following criteria:

- a. The teaching materials should contain structured and systematic speaking exercises.
- b. The teaching materials might take the shape of role models since students need to witness real examples of public speaking in order to practice it.

The teaching materials may use technology, such as students making videos or voice recordings to present their learning outcomes. Thus, learners will find it easier to express their ideas.

CONCLUSION

The graphological analysis results conducted in class X-1 Bekasi Regency show that the students' handwriting characteristics in this class vary. The diversity of writing characteristics indicates that each student in this class has a variety of inner potentials. As a result, the teaching materials provided must also be diverse.

However, this research has some areas for improvement, including discrepancies between the analysis results and the interviews with educators and students. Several factors may cause the discrepancies, such as subjective interpretation of graphology, a person's handwriting habits that can change over time which unstable physical and mental conditions can influence, and subjective interview results. Therefore, students might show different characteristics in their writing and during interviews.

The graphological analysis results can be used as a consideration for the criteria for preparing teaching materials. It is important to note that the results of this graphological analysis are not intended to assist educators in preparing teaching materials, but rather, they can be used as an educator's reference in preparing teaching materials to create teaching materials that align with the student's inner potential.

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