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Interactive biology media learning development to the student learning style (audio-visual-kinesthetic) based on *Google Site*

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Abstract
Purpose: This research aims to develop interactive learning media based on Google Sites tailored to students' learning styles, including visual, auditory, and kinesthetic, in order to improve learning outcomes in junior high school biology.
Methods: This study used a Research and Development (R&D) approach with the 4D model (define, design, develop, disseminate). Instruments included expert validation sheets, practicality questionnaires, and pre-test and post-test questions. Data were analyzed using descriptive validation, practicality results, and the N-Gain test to measure effectiveness.
Results: The results showed that media expert validation scored 80%, material expert validation also 80%, and teacher validation 80%, all categorized as valid and requiring no revision. Student responses indicated positive perceptions: 100% found the media easy to understand and 80.9% found it visually attractive. The N-Gain score was 56.29%, categorized as "quite effective," with average student achievement increasing from 70.47 (pre-test) to 87 (post-test), showing significant improvement in learning outcomes.
Conclusion: Google Site-based interactive learning media is valid, practical, and quite effective in supporting biology learning. Its application can increase students' enthusiasm, understanding, and outcomes in the Human Digestive System topic.
Limitation: The research was limited to one school (SMP Insan Scholar Madani BSD), one subject (biology), and one topic (digestive system), so generalizability is limited. Dissemination was also limited to biology teachers at the same school.
Contribution: This study provides a practical model for integrating technology-based interactive media aligned with students' learning styles. It enriches literature on digital learning tools in Indonesian secondary education and offers a reference for teachers and researchers developing similar media.

Keywords: *Google Site, Media Development*

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1. Introduction

Learning is a process that results in changes in behavior, including cognitive, affective, and psychomotor aspects (Mukherjee & Kittur, 2025). Learning activities are interaction activities between students, educators, and learning resources in a learning environment. Therefore, it is very important for a teacher or educator to be able to design learning activities so that changes in the cognitive, affective, and psychomotor behavior of students can be achieved optimally. Learning, according to Muhajirah (2020) is "changes in behavior in individuals due to the interaction between one individual and another individual and between individuals and the environment. Subrata (1995, p. 249) defining

learning is "(1) leads to changes, (2) that the change is basically the obtaining new skills, (3) that the change occurs due to an intentional effort. Changes in both affective, cognitive, and psychomotor behavior are familiar with learning outcomes. Learning outcomes are the abilities obtained by individuals after the learning process takes place, which can provide changes in behavior both in knowledge, understanding, attitudes, and skills of students so that it becomes better than before (Purwanto, 2009, p. 44).

The right to education and teaching is guaranteed by the Indonesian government in Article 5 paragraph 1-5 of the 1945 Constitution: (1) Every citizen has the same right to quality education; In remote and backward areas, remote indigenous people are entitled to receive special service education; (4) citizens who have intellectual potential and special talents are entitled to a special education; and (5) every citizen is entitled to the opportunity to improve their standard of living. education. The logical results of the Preamble to the 1945 Constitution determine that everyone, regardless of physical fitness, religion, race, etc., is entitled to education and guidance for self-development. The right to education and teaching is worthy of the Indonesian government to write in Article 5 paragraph 1-5 of the 1945 Constitution: (1) Every citizen has the same rights to quality education; In remote and backward areas, remote indigenous people are entitled to receive special service education; (4) citizens who have intellectual potential and special talents are entitled to a special education; and (5) every citizen is entitled to the opportunity to improve their standard of life. education. The logical results of the opening of the 1945 Constitution determine that everyone, regardless of physical fitness, religion, race, etc., is entitled to education and guidance for self-development.

Learning outcomes reflect how students understand the material delivered by the teacher. Learning output is a value output in the form of numbers or letters that students receive after receiving learning material through a test or test delivered by the teacher. From the learning outcomes, the teacher can receive information on how far students understand the material being learned. Learning outcomes are a benchmark for students' success in learning the material delivered by the teacher during a certain period. Learning objectives are considered to be achieved if students obtain satisfying learning outcomes. Learning outcomes can be determined after the teacher evaluates student learning outcomes.

Sudjana (2014) states that the assessment of learning outcomes is divided into three domains, namely cognitive domain, affective domain and psychomotor domain. The cognitive domain is the most common domain of teachers in school because it is related to the ability of students to master the contents of the learning material. Learning outcomes can be assessed through daily tests, general tests (UTS and UAS), and final exams. The results of the assessment that has been carried out are used as a high reference for student learning outcomes. Based on the data assessment of learning outcomes in the form of summative grades (PAS), students of SMP Insan Cendekia Madani BSD Biology subjects in class 7, 56% in class 8, 55.3%, and in class 9, 53.7% below KKM (80). A class is said to have completed classical learning if the percentage achieved is at least 65% (Depdikbud, 2001). This proves that student learning outcomes in biology in the Middle School of Scholar Madani Middle School are still relatively low.

Each individual has its own advantages and disadvantages. These advantages and disadvantages are called uniqueness, which distinguishes one individual from another. As explained (Ghufron & Risnawati, 2014, p. 8), individuals are a unity, each with a characteristic; therefore, no individual is the same.

Learning style is the fastest and best way for individuals to accept, absorb, manage, and process the information they receive. According to De Porter and Hernacki (2010), learning styles are generally distinguished into three groups: visual, auditorial, and kinesthetic learning styles. Learning style plays an important role in education, especially in the process of teaching and learning activities. Barbara Prashnig revealed that student learning styles in accordance with the way they do learning activities will have a positive impact, such as being able to improve their learning achievement. Barbara Prashnig also said that the role of the teacher in the student learning process greatly affects student success. In

line with Indah and Sarwanto (2018), which is declared physics learning based on SAVI learning styles (Somatic, Auditory, Visualization, Intellectually) effectively improve student learning outcomes by 80% to KKM. Other studies state that students with auditory learning styles have average learning outcomes that are better than those of visual and kinesthetic learners. Insan Cendekia Madani BSD (ICM BSD) is a school that receives students with all different backgrounds. ICM BSD emphasizes the characteristics of students, where each student has differences, especially in learning style (learning style). Each student was observed according to their learning style, whether visual, kinesthetic, or audio-visual. Therefore, it becomes initial data for teachers to facilitate learning through learning media that can accommodate student learning styles.

Learning media is an important component of the learning process. The media used in the teaching and learning process must be of good quality, even if the media is simple. According to Kustandi and Sutjipto (2016, p. 8) Media is used as a ;ethereforee learning goals, because of it, tmentally studentstained in the medmentallytudents, both in mind or mental or in the form of real activities, so that learning can occur. According to Wiarto (2016) the procedure for selecting media must determine whether the media is designed for learning or instructional teaching aids, as well as establishing whether an affective, cognitive, and psychomotor strategy will be used to encourage these activities.

The utilization of learning media should be a part of the teacher's attention in learning activities. In fact, not all teachers create learning media that can facilitate students' learning styles, including audio, visual, and kinesthetic. The media were limited to facilitating a student learning style, namely, visual. Less varied and non-optimal learning media led to a lack of student interest in learning. This is unfortunate because it is contrary to the aim of learning media, namely, as a learning aid that is useful for making the learning process effective.

Therefore, the researcher is interested in conducting research where researchers want to develop biology learning media on student learning styles (audio, visual, and kinesthetic) to improve the learning outcomes of students of Madani Scholar Middle School.

2. Literature review

2.1 Definition of Learning Outcomes

According to Sudjana (2005, p. 20) The Nature of Learning Outcomes is a change in individual behavior that includes cognitive, affective, and psychomotor aspects. The learning outcomes achieved by students are influenced by two main factors: the factors from within the student and the factors that come from outside the student or environmental factors. Factors of students' ability to influence the learning outcomes achieved. In addition to the ability factors of students, there are also other factors, such as learning motivation, interests and attention, attitudes and learning habits, perseverance, socioeconomic, physical, and psychological factors.

Learning outcomes are generally an ability in the form of new skills and behaviors as a result of training and experience. Learning outcomes can be interpreted as the level of student success in studying the subject matter in school, as stated in the score obtained from the test results, knowing a number of certain subject matter (Susanto, 2013, p. 5).

Learning outcomes are related to learning activities. Learning activities are a process carried out by a student to obtain an understanding or knowledge so that a change in good behavior occurs. This shows that learning outcomes are the achievement of educational goals in students who follow the teaching and learning process (Shaoying, 2025). As explained in Law Number 20 of 2003, National Education aims to develop the potential of students to become human beings who believe and devote to God Almighty, have noble character, are healthy, knowledgeable, creative, independent, and become democratic and responsible citizens'(*Undang - Undang Sistem Pendidikan Nasional No. 20*, 2003).

2.2 Learning Media

Learning media is a means that supports a process of teaching and learning activities, understanding and success of students in accepting what is conveyed by the teacher, all of that starts from the media

used by the teacher himself. Therefore, teachers must utilize learning media as much as possible to encourage students to be more active in learning.

Learning media is a means of communication in the form of print and viewing, including hardware technology and the position of learning media. Therefore, the learning process is a communication process that takes place in one system, and the learning media occupies a position that is quite important as one of the components of the learning system. Without the media, communication will not occur, and the learning process as a communication process will also not be optimal. Learning media is a component of everything that can channel the individual characteristics of students (Ekayani, 2017, p. 3).

Learning media is an important element in the teaching and learning process. The selection of certain learning media will affect the appropriate type of learning media, although there are still various other aspects that must be considered in choosing the media for learning. It is better for educators to choose and use learning media well so that students are more enthusiastic about following the learning that is delivered and increase learning motivation in students.

Making learning media is the obligation of a teacher in managing learning because it is one of the teacher competencies that must be developed by teachers, namely, pedagogical competencies. Mulyasa (2008, p. 103) Stating that pedagogical competence is the ability to manage, student learning include understanding study implementin implementing of learning, evaluating, learn developing and development of studetheir to actualize the ventials they have. Teachers in the learning process are expected to guide and direct the potential of students so that learning runs effectively and achieves the expected results. Teachers' ability in learning management is needed to create a relationship that is familiar with students and can spur their enthusiasm to learn. Students feel more comfortable and enthusiastic if the teacher can manage learning and understand students during learning.

2.3 Learning Style

2.3.1 Definition of Learning Style

Learning style is the way someone feels easy, comfortable, and safe when learning, both from the time side and the senses. Learning style is the style chosen by someone to acquire information or knowledge in a learning process. Some people will find it difficult to process information in an uncomfortable way because everyone has their own learning needs. The learning needs of everyone are always different, and the way of learning and processing information is also different.

(Bobby DePorter, 2009, p. 110) suggests that a person's learning style is a combination of how they absorb, regulate, and process information. Furthermore, Munir(2008, p. 159; Munir, 2008) argues that learning style is a characteristic or method used by someone to obtain or process information or knowledge in a learning process. Samples (2002) also expressed the same thing that learning style is the way we prefer to process experience and information.

2.3.2 Learning Style Concept

Learning style is often defined as the characteristics, preferences, or choices of individuals regarding how to collect, interpret, organize, respond to, and think about information. Learning styles are key to developing performance at work, school, and in interpersonal situations.

Learning orientation is defined as the entire domain that contains goals, intentions, motives, hopes, attitudes, and interests of an individual regarding the learning process. Guidance and Learning Counseling Services Material "Recognizing Three Types of Learning Styles Meanwhile, Dunn and Griggs (1988) view learning styles as innate biological characteristics. This means that the learning style is a gift from God Almighty and is difficult to change according to one's wishes. Several experts have divided learning styles from various perspectives, resulting in various divisions of learning styles. Bobbi DePorter and Hernacki (1992) divides individual learning styles based on the type of display of information given to students into three categories: (1) visual style, which explains that individuals prefer to process information through sight; (2) auditory, which likes information through hearing; and

(3) kinesthetic, which likes information through movement, practice, or touch. Learning styles are key to developing performance at work, school, and in interpersonal situations. When you know your learning style, namely how you absorb and process information, you will be able to make learning and communication more effective and achieve success more easily.

2.4 Framework of Thought

Learning media is a learning component that plays an important role in teaching and learning activities. Good use of learning media is using media that can facilitate students' learning styles, so that students can absorb more material and gain more learning experience. This has been widely supported by several previous studies that have stated that learning media can improve learning outcomes. The development of learning media at the Madani Scholars school is focused on developing learning media that can facilitate students' learning styles, namely Audio, Visual and Kinesthetic.

Based on the problems described in the background, the learning media available at the Madani Scholars school need to be developed to improve learning outcomes by facilitating students' learning styles. The learning media created by the teacher is actually quite good and varied, including: PowerPoint, Canva, Kahoot, etc. This media does not yet facilitate audio, visual, and kinesthetic student learning styles in the learning process.

This research aims to develop learning media currently used so that they can facilitate students' learning styles by testing their effectiveness, practicality, and validity. The details of the conceptual framework for this research are presented in the following chart:

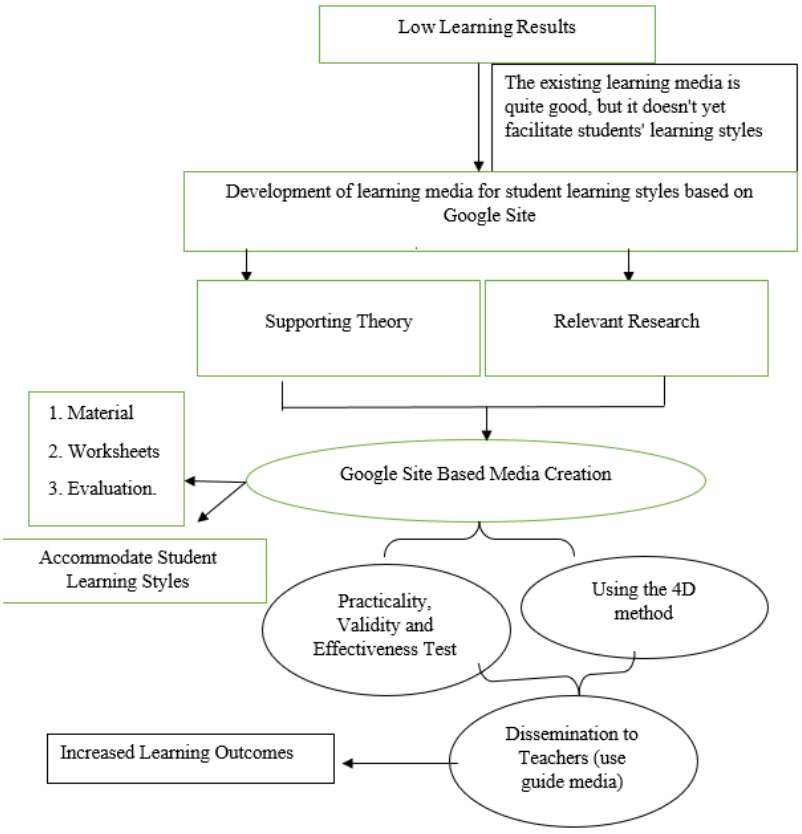

Figure 1. Conceptual Framework Chart

3. Research methodology

3.1 Types of Research

Based on the research title "Development of Biology Learning Media that Accommodates Google Site Based Student Learning Styles" at the BSD Insan Scholar Madani Middle School for the 2023/2024 Academic Year" the approach used in this research is a quantitative approach with the Research and

Development (R&D) method. where R&D is a research method used to produce certain products and test the effectiveness of certain products (Sugiyono, 2013). In carrying out this research, the researchers used the Research and Development (R&D) method, which takes place in the form of a cycle, starting from the initial search stage, product development, testing, and improvement.

3.2 Time and Place of Research

This research will be carried out from October 2023 to December 2023 at SMP Insan Ilmu Madani BSD, Serpong, South Tangerang.

3.3 Research Design

Research and Development (R&D) methods are used to produce certain products and test their effectiveness. Sugiyono (2013) The research design used in this research is a 4-D model development research design (Four D Models) according to Thiagarajani. This includes 4 stages, namely the definition, design, development and dissemination stages which can be explained as follows:

1. Definition stage

The definition stage is useful for determining and defining needs in the learning process, as well as collecting various information related to the product to be developed. This stage is divided into several steps.

a. Front-end Analysis
b. Learner Analysis
c. Task Analysis
d. Concept Analysis
e. Specifying Instructional Objectives

2. Design Stage

After obtaining the problem from the definition stage, the design stage is carried out. This design stage aims to develop learning media that accommodates students' learning styles that can be used in BIOLOGY learning. The design stage includes the following:

a. Criterion-Test Construction
b. Media Selection
c. Format Selection
d. Initial Design

3. Development Stage

This development stage aims to produce learning media that accommodates students' learning styles, which have been revised based on expert input and trials with students. There are two steps in this stage:

a. Expert Appraisal
b. Development Testing

4. Dissemination Stage

After limited trials and instrument revision, the next stage is dissemination. The aim of this stage was to disseminate learning media that accommodate students' learning styles. In this study, only limited dissemination was carried out, namely by disseminating and promoting the final product of learning media that accommodates students' learning styles. limited to biology teachers at Insan Scholar Madani Middle School, BSD.

3.4 Population and Sample

3.4.1 Research Population

The population is a set with characteristics determined by researchers so that each individual/data can be stated accurately whether they are members or not (Kadir, 2015, p. 5). The characteristics of the population will be represented by the sample, or the special characteristics of the population will be described in the sample. The population in this study was all students in class VIII of Insan Scholar Madani Middle School for the 2022/2023 academic year, totaling 81 students divided into four classes, with 21 students in each class.

3.4.2 Research Sample

The research sample is part of the number and characteristics of the population (Sugiyono, 2013, p. 81). A sample can also be interpreted as a data collection procedure, where only a portion of the population is considered and used to determine the desired characteristics. The sample in this research was class VIII A students, with a total of 21 students.

3.4.3 Research Sampling

In research activities, covering the entire object is not performed. Sampling techniques must be used. Sampling technique is The sampling technique will be used. This study uses a non-probability sampling technique, namely a sampling technique that does not give each member of the population a chance to be sampled. In this research, the type of purposive sampling used is what is often known as consideration sampling because this technique is a sampling technique where the researcher has certain considerations in taking the sample. The reason for choosing this technique was that the sample had to be class VIII students who were taught by the same teacher and had relatively similar learning outcomes.

3.4.4 Data Collection Techniques

The data collection technique used in this study was observation. In quantitative research, many observation techniques are used, both direct and indirect. The most widely used tool (instrument) for this observation technique is recording in various forms/types. Apart from that, various electronic devices can also be used, such as tape recorders, video cameras, films, and photos (Nawawi & hadari, 1995, p. 218).

The observation used in this research is in the form of involved observation (particbiological observation), namely, the researcher as the main instrument goes to the research location to observe intensively until he finds out in full what the objective is. Researchers involve themselves with the subject under study to gain a deep understanding of existing problems or phenomena.

4. Results and discussions

4.1 Research Results

The results of the development of Biology Interactive Media are based on primary data, where the average summative scores for classes 7, 8, and 9 in semester 1 are 56 %, 55.3 %, and 55.7 %, respectively, and the summative scores for classes 7, 8, and 9 in semester 2 are 44 %, 44.7 %, and 44.3 %, respectively. The student questionnaire data related to learning difficulties show that the main factor causing low learning outcomes is that the learning media used are less interesting.

4.1.1 Product Practicality, Validity and Effectiveness Results

1. Product Practicality

The Google Site-based learning media product for the Biology subject that was developed by was then applied in the classroom learning process using laptops. After the learning process was complete and students were able to understand the lesson and use the media correctly, the researcher administered a response questionnaire to the product that had been developed. The results of the student response questionnaire regarding the use of Google Site-based learning media are as follows:

Table 1. Student Responses to Products

	Item 1			
	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 4	10	47.6	47.6	47.6
5	11	52.3	52.3	100.0
Total	21	100.0	100.0	

For item 1, which was about the ease of understanding the material presented in Google Site-based learning media products, 100% of students answered that it was easy to understand. In other words, 10 (47.6%) answered easily, and 11 (52.3%) answered very easily.

Item 2

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 3	6	28.5	28.5	28.5
4	15	71.4	71.4	100.0
Total	21	100.0	100.0	

For item 2 regarding students' enjoyment of learning using the developed learning media products, 15 (71.4%) students answered happy and 6 (28.5%) students answered neutral or normal.

Item 3

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 4	4	19.0	19.0	19.0
5	17	80.9	80.9	100.0
Total	21	100.0	100.0	

For item 3, regarding enthusiasm for learning about the Digestive System material, learning media products that have been developed should be used. Of the respondents, 19% answered enthusiastically, and 80.9% answered very enthusiastically.

Item 4

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 3	6	28.5	28.5	28.5
4	11	52.3	52.3	52.3
5	3	14.2	14.2	100.0
Total	21	100.0	100.0	

For item 4 regarding understanding grammar in Google Site-based learning media products, 6 students or 28.5% answered normal, 52.3% answered easy, and 14.2% answered very easy to understand.

Item 5

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 4	4	19.0	19.0	80.9
5	17	80.9	80.9	100.0
Total	21	100.0	100.0	

For item 5 regarding the attractiveness of images or visuals in this learning medium, 19% of students answered interesting and 80.9% answered very interesting.

Item 6

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 4	12	57.1%	57.1%	57.1
5	9	42.8%	42.8%	100.0
		100.0	100.0	
Total	21			

Item 6 assessed the ease of understanding the instructions for working on questions in Google Site-based learning media products. The student responses were 57.1% who answered easily and 42.8% answered very easily.

Item 7

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 2	17	80.9	80.9	80.9
3	4	19.0	19.0	100.0
4	0			
Total		100.0	100.0	

For item 7 regarding the number of difficult words found in using this learning media, 80.9% of the students disagreed, while 19.0% did not agree.

Item 8

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 4	10	47.6%	47.6%	52.3
5	11	52.3%	52.3%	100.0
		100.0	100.0	
Total	21			

For item 8 regarding ease of understanding instructions for working on questions in Google Site-based learning media products. The student responses were 57.1% who answered easily and 42.8% answered very easily.

Item 9

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 4	2	38.0%	38.0%	61.9
5	13	61.9%	61.9%	100.0
		100.0	100.0	
Total	21			

Item 9, which concerns the ease of understanding questions, was based on Google Site-based learning media products. The student responses were 38.0% who answered easily and 61.9% answered very easily.

Item 10

	Frequency	Percent	Valid Percent	Cummulative Percent
Valid 4	16	76.1%	76.1%	76.1
5	5	23.8%	23.8%	100.0
		100.0	100.0	
Total	21			

For item 10, based on the results of testing this Google Site-based learning media product, it helps students understand the material on the Human Digestive System, with 76.1% and 23.8% of respondents answering helpful and very helpful, respectively.

4.1.2 Validation of Media and Learning Design Experts

Google Site-based interactive learning media products developed by researchers have undergone a research process and examination by experts. The first assessment was conducted by media and design expert Mr. Fahrur Rozi. He is the head of IT at Insan Scholar Madani BSD school. The following is a description of the results of the assessment.

Media and learning design experts believe that the Google Sites-based interactive learning media product developed by this researcher can be used to help the learning process. The percentage of product achievement can be calculated using the following formula:

Percentage = $= \frac{\sum jawaban\ x\ bobot}{n\ x\ bobot\ tertinggi}$ X 100

Percentage = $= \frac{60 \text{ x } 1}{15 \, x \, 5}$ X 100 = 80%
Information:
Number of Answers : 60
N : 15
Highest Weight : 5
The product achievement percentage calculation was 80%, which is a very good qualification and does not require revision.

4.1.3 Material Expert Validation

After conducting research on Google Site-based interactive learning media products by media and learning design experts, these learning media products were also assessed by material experts, namely Mrs. Poppy Rusdi, M.Sc. The following are the results of the material experts' responses to this product.

Biology material experts in the Human Digestive System chapter believe that the Google Site-based interactive learning media product developed by researchers can be used to assist the learning process and that the material in it is suitable for application. The percentage of product achievement can be calculated using the following formula:

Percentage = $= \frac{\sum jawaban \, x \, bobot}{n \, x \, bobot \, tertinggi}$ X 100
Percentage = $= \frac{40 \text{ x } 1}{10 \, x \, 15}$ X 100 = 80%
Information:
Number of Answers : 40
N : 10
Highest Weight : 5
The calculated percentage of product achievement of 80% is a very good qualification and does not need revision.

4.1.4 Classroom Teacher Validation

The Google Site-based learning media product developed by this researcher is first implemented in the learning process by the class teacher. She is the mother of Tania Agnesa, M. Sc. Master's degree from Gajah Mada University. The response questionnaire given to teachers to obtain an assessment was basically the same as the questionnaire given to material experts. The following are the results of the class teacher's response to the product.

The class teacher believes that the Google Site-based learning media product developed by the researcher can be used to assist the learning process and that the material contained therein is suitable for application in class VIII of SMP Insan Scholar Madani BSD. The percentage of product achievement level can be calculated using the following formula:
Percentage = $= \frac{\sum jawaban \, x \, bobot}{n \, x \, bobot \, tertinggi}$ X 100
Percentage = $= \frac{40 \text{ x } 1}{10 \, x \, 15}$ X 100 = 80%
Information:
Number of Answers : 40
N : 10
Highest Weight : 5
The calculated percentage of product achievement of 80% is a very good qualification and does not need revision.

4.1.5 Validation of Product Effectiveness Level

a. Field Test Results

Teaching and learning activities at Insan Scholar Madani Middle School start at 07.40 – 15.00, but students are required to attend school at 07.00 WIB because they do hand over first until 07.15 and continue with the class guardianship session from 07.20 – 07.40 WIB.

b. Respondent Characteristics

Based on the results of data processing, information was obtained about the characteristics of students in class VIII SMP, namely that 42 students were male and 40 were female.

c. Display of N-Gain Test Results Data (Pre-Test and Post-Test)

To determine the level of effectiveness of a treatment, researchers conducted an N-gain test using pre- and post-test data.

With formula:

$$\text{N-Gain} = \frac{Skor\ Post\ Test\ Ideal - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretest}$$

Division of N Gain Score	
N Value - Gain	Category
g>0,7	High
0,3≤g ≤ 0,7	Currently
< g 0,3	Low

Source: Melzer in Syahfitri, 2008: 33

N-Gain Effectiveness Interpretation Category	
Percentage (%)	Interpretation
<40	Ineffective
40-55	Less Effective
56-75	Effective Enough
> 76	Effective

Source : Hake, R.R, 1999

Based on the data obtained, the interpreted percentage of N-Gain's effectiveness is 56.29%, meaning that the treatment provided is effective enough to have an impact on improving student learning outcomes.

4.2 Discussion

4.2.1 Validation Analysis of Interactive Media Development Based on Google Site

The Google Sites-based interactive learning media were validated by two experts. The first expert was a media specialist. The researcher asked Mr. Fahrur Rozi, S.Kom, the head of IT at the BSD Civil Scholars School, to carry out the validation in terms of clarity. The instructions for using media, clarity of text/writing, clarity of material descriptions, quality of image display, animation presentation, and color composition. The questionnaire was administered and processed using a Likert scale, and a percentage of 80% was obtained. According to Sugiyono (2020) in Quantitative and Qualitative R&D Research Methods, a study is declared valid and does not need revision if the percentage of feasibility level is 60–79 (fairly valid, no need for revision) and 80–100 (very valid, no need for revision).

Apart from media experts, researchers also validated the content or learning materials on the digestive system carried out by Mrs. Poppy Rusdi, M.Sc. He is in the Quality Assurance section of the Madani Scholars school and has a master's degree in marine biology. The results showed that the percentage level of appropriateness of the material was 80%, meaning that the material created was valid and no revision was needed. Quantitative researchers can collect data using instruments in the form of questionnaires to measure quantitative data. The Likert scale can be used to measure the attitudes, opinions, and perceptions of a person or group of people towards social phenomena. Using a Likert scale, the variables being measured are translated into indicator variables and obtained as a benchmark for compiling instrument items, which can be in the form of statements or questions.

4.2.2 Analysis of the Level of Effectiveness of Interactive Media Based on Google Site

Based on the results of the N-gain test, the percentage obtained was 56.297%. Based on the N-Gain effectiveness interpretation category, a treatment is said to be effective if it meets a percentage above 76%. It is said to be quite effective if it meets the percentage between 56-75%. This means that Google Sites-based learning media is quite effective in improving student learning outcomes. This is in line with previous research, namely Hesti Lukitaningrum, 2016, entitled the development of learning media based on the Google Site website can improve the learning outcomes of class XI students. Furthermore, the results of research conducted by Lestari, titled "Development of Google Site Website-Based Learning Media for Junior High Schools (SMP) for Social Sciences (IPS) subjects can improve the learning outcomes of class VII students. In another study," Development of Interactive Learning Media Based on the Google Site Website by Wulandari and Zuhroh, the effectiveness of the control class was 61.1% and the experimental class received a score of 88.2%, indicating a significant change in student learning outcomes before and after treatment.

5. Conclusion

5.1 Conclusions

Based on the results of this study and the discussion, the following conclusions were drawn:

1. The product resulting from the development stage was assessed by three validators as meeting the valid category, with the average score from the three validators being 80. This means that the media being developed is valid and does not require revision.
2. The average pre-test result, which shows students' initial abilities in class VIII in the Human Digestive System subject, is 70.47. Meanwhile, the post-test score obtained an average of 87 after going through teaching and learning activities using interactive learning media for students' learning styles based on Google Sites. The average student score increased by 16.52 percent with an N-Gain value of 0.56%. This shows that the use of media in learning the Human Digestive System in class VIII has been implemented effectively.

5.2 Suggestions

Based on the conclusions and research results, the following suggestions are proposed:

1. Teachers can use interactive learning media products based on Google Sites to improve student learning outcomes in the Human Digestive System material in class VIII SMP.
2. The material contained in this learning media was developed only on the Digestive System in Humans; it is recommended that readers or other researchers who wish to develop further research regarding Google Site-based learning media should carry out development on a different scope of material, at different educational unit levels, or other abilities that students must have in learning Biology.

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