



The Effect of Sensory Learning Media on the Learning Motivation of Second Grade Elementary School Students

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ABSTRACTS

This study aims to explore in depth the impact of sensory learning media on student learning motivation in second grade elementary school. The background of this study stems from the urgent need for innovation in the learning process, especially at the elementary school level, to increase student active participation and interest in learning. The author recognizes that motivation in learning is a key foundation that greatly influences students' overall academic achievement and success. For this study, the author applied a quantitative approach, in which we tested the core hypothesis that the use of interactive and multisensory learning media can engage students' various senses. This study shows that the use of learning media that involves the five senses can increase the learning motivation of second-grade elementary school students. This media makes the learning process more interesting, interactive, and enjoyable so that students are more enthusiastic about participating in learning activities. In addition, the involvement of the five senses helps students understand the material better through direct learning experiences. Therefore, sensory-based learning media can be an effective method to increase student motivation and understanding at the elementary school level. This study is expected to contribute to the development of more effective and innovative learning strategies and serve as a reference for educators in implementing sensory learning media in elementary schools.

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1. INTRODUCTION

The educational process is a series of activities involving students and teachers (Depita, 2024; Jainiyah et al., 2023). The learning process in education is a long series of activities that requires careful planning. In accordance with Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, national education aims to develop abilities and produce a dignified character and civilization for the nation in order to educate the nation. This objective includes developing students' potential so that they become individuals who are faithful and devoted to God Almighty, have noble character, are physically and spiritually healthy, knowledgeable, skilled, creative, independent, and become democratic and responsible citizens (Nurfaizah & Oktavia, 2020). The learning process is a complex activity that involves many changes in individuals due to interaction with the environment. It is not only passive absorption of information, but also a positive process for students to build new understanding and skills. In general, the learning process causes relatively lasting behavioral changes, improving cognitive, emotional, and psychomotor skills. Increasing student motivation through the use of learning media is a crucial factor in the learning process.

Salah satu tugas guru ialah merancang proses pembelajaran yang membangun motivasi. Faktanya, masih banyak guru yang belum dapat memotivasi siswa. Selain itu, proses pembelajaran yang diterapkan masih menerapkan metode lama yang membosankan (Kharisma, 2023). Sehingga siswa merasa jenuh dalam pembelajaran di kelas terutama suasana kegiatan belajar yang masih menggunakan ceramah dalam penyampaian materi oleh guru dan belum adanya ketersediaan media ajar yang kontekstual. Dengan ini, guru mampu membuat dan memodifikasi kegiatan pembelajaran sesuai kebutuhan siswa pada tahapan perkembangannya. Dalam pendidikan sekolah dasar seharusnya dapat dialirkan dengan lebih kontekstual dan menyenangkan.

One of the tasks of teachers is to design learning processes that build motivation. In fact, there are still many teachers who are unable to motivate students. In addition, the learning processes that are implemented still use old methods that are boring (Kharisma, 2023). As a result, students feel bored in class, especially in learning activities that still use lectures to deliver material by teachers and the lack of contextual teaching media. With this, teachers are able to create and modify learning activities according to the needs of students at their stage of development. In elementary school education, learning should be delivered in a more contextual and enjoyable manner.

As educators, teachers need to know the interests and potential of each of their students. The learning process at the elementary level must be aligned with students' thinking capacities. Second-grade elementary school students are in the concrete operational stage. At this stage, children are beginning to think logically, but are still unable to solve abstract problems (Marinda, 2020). Therefore, more effective methods are needed to help students absorb the learning material more easily. For this reason, the use of learning media as a teaching aid is an important approach in creating innovative and interesting teaching methods (Setyaningsih et al., 2020). With this media, teachers will find it easier to carry out learning. The use of learning media can encourage the enthusiasm of second-grade elementary school students to learn, which is adjusted to their level of development. Through sensory media, students are able to try various contextual and fun activities so that their motivation to learn can increase.

Learning about the five senses in science class is an important foundation that students need to continue to the next level of education. In science class, students learn about the five

senses, which consist of touch, sight, taste, smell, and hearing. In addition, the five senses are an important topic to teach because they help children understand the world around them. This material helps children improve their learning abilities and daily lives, such as recognizing various textures, keeping children safe when smelling gas leaks, understanding instructions through visual and audio cues, and understanding food. In line with this opinion, according to Helmi et al., (2024), the introduction of the five senses is beneficial. For example, the sense of sight helps us to walk or read text, while the sense of hearing is key in activities such as talking and listening to instructions. The sense of touch functions to understand texture and shape, while the sense of smell can be involved in learning about aromas. Finally, the sense of taste can be involved in taste experiences. Therefore, interesting teaching methods are needed so that students can understand the learning process as a whole. The implementation of sensory material is still too abstract if it is only conveyed through theory. Therefore, this material needs the help of real media as examples (Lailan, 2023).

Sensory learning media can be made interactive through project activities. One example is a mystery box activity where students guess and feel the contents of the mystery box using their sense of touch. This media has been adapted to the thinking stage of lower elementary school students, namely 2nd graders. Learning media needs to be designed in a concrete manner so that it is easy for 2nd graders to understand. Student interest in learning can be increased through attractive learning media. Therefore, a study needs to be conducted to evaluate the effectiveness of sensory media on student learning motivation.

Based on the context and issues described above, research is needed to understand the impact of interactive sensory media on the motivation of second-grade elementary school students. Interactive sensory learning media are beneficial for educators in terms of teaching materials in the classroom. This can be a reference to facilitate the learning process for students. In addition to meeting students' needs in terms of multiple intelligences, it can also meet students' needs through the five senses, which can provide understanding.

2. METHODS

A quantitative approach was used in this study, with a pre-experimental design that adopted a one-shot case study model. This study was conducted by giving respondents the opportunity to try interactive learning media. Next, respondents were asked to complete a questionnaire that had been provided to assess the impact of learning media on student learning motivation. The one-shot case study design is illustrated in **Figure 1**.

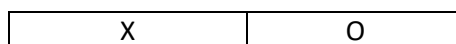


Figure 1. One shot case study

Description:

X: Treatment using sensory media.

O: Motivation results after treatment.

Source: (Yurni & Hariati, 2022).

The samples in this study were obtained through purposive sampling, which is a technique of selecting respondents selectively based on considerations or specific criteria relevant to the study objectives (Lenaini, 2021). In this study, there were 64 respondents, all of whom were second-grade elementary school students. Data collection was carried out by giving respondents a questionnaire with six statements. The experimental tool used was a learning

medium involving the five senses. This study provided students with the opportunity to directly experience the functions of their five senses using the medium provided.

The data obtained through the questionnaire was then used as the basis for assessing the suitability of the media. The data from the questionnaire was presented in a descriptive statistical format using a Likert scale as an evaluation instrument. Furthermore, the data was calculated for suitability using the following format and the percentage of suitability criteria in **Table 1**.

$$P = \Sigma^x / \Sigma y = 100\%$$

Explanation:

P = Validity percentage

Σ^x = Total respondent scores

Σy = Total overall scores

Table 1. Eligibility criteria percentages

Achievement Level	Eligibility Criteria
81% - 100%	Very Feasible
61% - 80%	Feasible
41% - 60%	Sufficiently Feasible
21% - 40%	Insufficiently Feasible
0% - 20%	Very Insufficiently Feasible

Source: (Kusuma, 2021).

In this study, data analysis was conducted by testing hypotheses to assess the relationship between independent and dependent variables using the Pearson product-moment correlation method. This study examined the relationship between independent and dependent variables using data analysis techniques through hypothesis testing. The method used in this analysis was product-moment correlation, which is described by the following formula:

$$r_{xy} = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}}$$

r_{xy} = Test validity coefficient

N = Number of children (respondents)

$\sum X$ = Sum of scores for each item

$\sum Y$ = Total sum of scores

$\sum X^2$ = Sum of squares of item scores

$\sum Y^2$ = Sum of squares of total scores

$\sum XY$ = Sum of product of item scores and total scores

In learning activities, motivation to learn is a crucial factor that affects how well students understand the material and engage in the learning process. Therefore, the use of innovative,

creative, and interesting learning media is expected to increase student motivation to learn. This study aims to examine the effectiveness of sensory learning media in strengthening concept understanding and measuring increases in student motivation during the learning process.

3. RESULTS AND DISCUSSION

This study shows the contribution of interactive learning media based on the five senses to the learning motivation of 64 second-grade elementary school students. Data was obtained through questionnaires distributed to respondents. The questionnaire data was then processed using descriptive statistics to describe the level of understanding of the concept of the five senses using interactive learning media for second-grade elementary school students.

The tactile sensory box “Mystery Box” covers activities involving fine motor skills and skin sensitivity. With the mystery box, students can touch, feel, and guess the contents of the mystery box. Students can feel the texture of the contents of the mystery box. The mystery box has three sections containing cotton (soft and smooth texture), orbs (soft texture), and slingers (rough texture). Students can also think critically when guessing the contents of the mystery box and dare to experiment with the mystery box. In the mystery box, students also show expressive attitudes such as surprise (when touching the contents of the mystery box), shouting (due to surprise), curiosity (a desire to know), and doubt (disbelief in the contents of the mystery box).

The visual sensory media “Guess the Picture” includes activities involving focus and concentration, in which students can see and find differences between two similar pictures. Students can determine and guess numbers that are clearly visible as well as numbers that are faintly visible in the image. The picture guessing activity trains students to focus on the objects they see and to concentrate well in order to determine, guess numbers, see, and find differences in the images.

The “Guess the Taste” sensory media involves activities related to taste and texture in the mouth. Students can try and taste the foods provided, such as young mango (sour taste, hard texture), salt (salty taste, coarse texture), brown sugar (sweet taste, hard texture), and coffee powder (bitter taste, smooth texture). In the taste guessing activity, there were a number of students who did not like sour, salty, sweet, or bitter tastes. Conversely, several other students showed a preference for all four tastes.

The “Distinctive Aroma” sense of smell media includes activities involving the scents and smells inhaled by students by inhaling eucalyptus oil and coffee powder. For eucalyptus oil, students responded to various aromas, some liking it because it was fragrant and relaxing (feeling calm when inhaling), while others disliked it because of its pungent smell. As for coffee powder, students responded to the pungent aroma of coffee and the smell of unripe coffee (bitter when tasted), we can see in **Figure 2**.

The auditory sensory media “What Sound Am I” included activities such as listening to and guessing the source of sounds played on a laptop and mini speakers. From this activity, students heard and guessed several sounds, such as cartoon sounds (Upin Ipin), animal sounds (cats and goats), and water sounds (rain, flowing rivers, and waves).



Figure 2. Second graders are excited to try out interactive sensory media.

1. Descriptive Data Analysis of Questionnaires

Table 2 shows significant positive responses from students regarding the use of sensory learning media. Analysis based on specific indicators shows the extent to which learning media plays an effective role in supporting the learning process.

Table 2. Learning Media

No.	Indicator	Frequency		Percentage		Category
		Yes	No	Yes	No	
1.	Did you enjoy learning about the five senses using this medium?	55	9	86%	14%	Highly Recommended
2.	Did this medium help you understand the five senses?	49	15	77%	23%	Recommended
3.	Would you like to learn using this kind of medium again?	60	4	94%	6%	Highly Recommended

Based on the table above, it shows that this research has had a very positive impact on most students through sensory media. Indicator no. 1, “Do you enjoy learning sensory material with this media?” with a result of 86% “Yes,” shows that students really enjoy learning sensory material using the media presented. This high percentage indicates that the use of sensory media has succeeded in creating a conducive, enjoyable, and interesting learning environment for students. This is very important, especially for lower grade students who tend to be more focused and motivated by attractive and colorful media displays. Students who are involved in creative media-based learning are better able to understand the subject matter because they can relate the knowledge to their personal experiences (Ramadhan & Hindun, 2023).

In indicator no. 2, “Can this media help students understand the five senses?”, 77% of students answered “Yes” to this indicator, showing that sensory media is effective in helping students understand the concept of the five senses in a concrete way. Through this media, students can recognize and understand the functions of the five senses in a contextual and interesting way. This method helps students not only to remember information, but also to experience it directly and relate it to real situations, which plays an important role in building strong and lasting understanding. This condition is in line with the opinion of Nadhifah et al.,

(2023), who stated that the application of a contextual approach with the support of concrete media has been proven to increase student learning motivation because the material presented is more meaningful and closely related to their daily lives.

In indicator no. 3, “Would you like to learn with sensory media like this again?” with a very high result of 94% “Yes,” this indicator confirms the appeal and long-term effectiveness of sensory media. This data indicates that the use of such media not only creates an enjoyable learning experience but also motivates students to continue learning and explore knowledge more deeply. The desire to experiment again with this media shows that students feel challenged and interested in trying out the sensory materials learned at school in a contextual way, which is a strong indicator of successfully cultivated intrinsic motivation. The application of a contextual approach supported by learning media shows effectiveness in increasing student motivation and learning outcomes during the learning process (Kahfi et al., 2021).

Of the three indicators above, the “Media” section of the table consistently shows positive responses with the criteria “Very Appropriate” or “Appropriate.” The use of media in contextual learning can increase students' enthusiasm for learning while improving learning outcomes during the learning process. The use of media not only makes students happy and motivated, but also helps them understand the material contextually and fosters a sustained interest in learning. Thus, sensory media can be a powerful tool for improving the quality of teaching and learning activities and achieving a more optimal understanding of the material.

Table 3 explains student learning motivation.

Tabel 3. Student Learning Motivation

No.	Indicator	Frequency		Percentage		Category
		Yes	No	Yes	No	
1.	I am excited to try learning about the five senses.	51	13	80%	20%	Feasible
2.	I enjoy learning about the five senses because it can be proven in a tangible way.	51	13	80%	20%	Feasible
3.	I enjoy learning about the five senses through science fairs.	54	10	84%	6%	Very Feasible

Based on the research findings, student learning motivation was categorized as “Feasible” for two indicators and “Very Feasible” for one indicator. This indicates that interactive sensory learning media successfully increased student enthusiasm for learning sensory material. In the first indicator, 80% of students expressed enthusiasm for interactive sensory learning media. Interactive learning media plays a role in supporting students' ease in mastering subject matter. In addition, the use of media can provide direct illustrations related to learning materials. In line with this study, interactive learning media can make it easier for students to understand abstract concepts (Taroreh, 2024). The results of the frequency table analysis show that the use of media has an impact on increasing student learning motivation.

In the second indicator, 80% of students stated that they were interested in the material on the five senses because it could be proven. Interactive learning media directly involves all five senses. Interactive learning media for the five senses include “Mystery Box,” “Guess the Picture,” “Guess the Taste,” “Distinctive Aroma,” and “What Sound Am I?” This interactive learning media applies a learning approach that involves direct experience. This learning approach makes students more confident, improves their thinking skills, increases their sense

of responsibility towards learning, and can increase their motivation to learn (Putri & Ulya, 2023). From this, it can be concluded that the learning process that uses direct experience can increase students' enthusiasm for learning.

A science fair is a science exhibition that displays interactive learning media. This activity provides an enjoyable learning experience for students through a play-based learning approach. In conclusion, a supportive learning environment has a positive influence on increasing student motivation to learn. The level of student motivation in learning about the five senses through science fair activities was recorded at 94%. This means that many students are enthusiastic about science fairs. This proves the influence of science fairs on student motivation to learn about the five senses. In general, the school environment has a significant influence on student learning motivation (Dewi & Yuniarsih, 2020).

Overall, it can be concluded that students' motivation to learn about the five senses received a fairly high rating. Of the three indicators assessed, two were classified as "Adequate" and one was classified as "Very Adequate." This fact shows that the use of interactive learning media that utilizes the five senses can increase students' interest and motivation to learn.

2. The Relationship Between Media and Learning Motivation

Table 3 shows the relationship between media and learning motivation.

Tabel 3. The Relationship Between Media and Learning Motivation

No.	X	Y	X ²	Y ²	XY
1	1	1	1	1	1
2	3	3	9	9	9
3	3	3	9	9	9
4	3	3	9	9	9
5	2	3	4	9	6
6	3	3	9	9	9
7	3	3	9	9	9
8	3	3	9	9	9
9	3	3	9	9	9
10	3	3	9	9	9
11	3	3	9	9	9
12	2	0	4	0	0
13	0	1	0	1	0
14	3	3	9	9	9
15	3	3	9	9	9
16	3	2	9	4	6
17	3	3	9	9	9
18	2	3	4	9	6
19	1	1	1	1	1
20	3	3	9	9	9
21	3	1	9	1	3
22	1	2	1	4	2
23	3	1	9	1	3
24	3	3	9	9	9
25	3	3	9	9	9
26	3	3	9	9	9
27	3	2	9	4	6
28	3	3	9	9	9
29	3	3	9	9	9

30	2	3	4	9	6
31	0	0	0	0	0
32	3	3	9	9	9
33	3	3	9	9	9
34	3	3	9	9	9
35	3	3	9	9	9
36	0	0	0	0	0
37	2	2	4	4	4
38	1	2	1	4	2
39	3	3	9	9	9
40	3	3	9	9	9
41	3	3	9	9	9
42	3	1	9	1	3
43	3	3	9	9	9
44	3	3	9	9	9
45	3	2	9	4	6
46	3	0	9	0	0
47	2	1	4	1	2
48	3	3	9	9	9
49	2	3	4	9	6
50	3	3	9	9	9
51	3	3	9	9	9
52	3	2	9	4	6
53	3	3	9	9	9
54	3	3	9	9	9
55	3	3	9	9	9
56	3	3	9	9	9
57	2	1	4	1	2
58	3	2	9	4	6
59	3	3	9	9	9
60	3	3	9	9	9
61	3	3	9	9	9
62	1	3	1	9	3
63	3	3	9	9	9
64	2	3	4	9	6

Source: (Hutabarat et al., 2023).

After determining the statistical data using the auxiliary table, the next step taken by the researcher is to calculate the calculated r value. This stage is carried out to measure and understand the correlation between the variables studied in order to test validity. The calculated r value is obtained from calculations using the Pearson product moment correlation formula, which serves to examine the linear relationship between two variables. The results of these calculations form the basis for assessing the relationship between independent and dependent variables.

$$r_{xy} = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}}$$

$$r = \frac{64.428 - (164)(156)}{\sqrt{[64.464 - 164^2][64.436 - 156^2]}}$$

$$r = \frac{27392 - 25584}{\sqrt{[29696 - 26896][27904 - 24336]}}$$

$$r = \frac{1808}{\sqrt{[2800][3568]}}$$

$$r = \frac{1808}{\sqrt{9990400}}$$

$$r = \frac{1808}{\sqrt{31607594024221}}$$

$$r = 0,5720144338$$

$$r = 0,572$$

Based on the correlation coefficient value of 0.572, there is a fairly strong correlation between variable X and variable Y. To determine the level of the relationship, refer to **Table 4** of the following coefficient intervals.

Table 4. Coefficient Intervals

Coefficient Interval	Relationship Level
0,80 – 1,000	Very strong
0,60 – 0,799	Strong
0,40 – 0,599	Fairly strong
0,20 – 0,399	Low
0,00 – 0,199	Very low

Source: (Hu et al., 2020).

$$t_{\text{count}} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$t_{\text{count}} = \frac{0,572\sqrt{64-2}}{\sqrt{1-0,572^2}}$$

$$t_{\text{count}} = \frac{0,572\sqrt{62}}{\sqrt{1-0,3227184}}$$

$$t_{\text{count}} = \frac{[0,572][7874007874]}{0,672816}$$

$$t_{\text{count}} = \frac{4503932503928}{0,8202536193}$$

$$t_{\text{count}} = 5,4909023233224$$

$$t_{\text{count}} = 5,490$$

Testing Rules:

If the t count \geq t table , then reject Ho, meaning it is significant.

If the t count \leq t table, accept Ho, meaning it is not significant.

Table 5 shows the test results.

Table 5. The test result

t count	t table
5,490	1,998

It turns out that $t \text{ count} > t \text{ table}$ or $5.49 > 1.998$, so H_0 is rejected. This means that there is a significant effect between the use of interactive sensory learning media and the learning motivation of second-grade elementary school students.

Learning motivation plays a crucial role in education, as it directly affects students' success in achieving maximum learning outcomes. Learning motivation is an internal force that guides individuals through the learning process (Deviyanti, 2021). As educators, teachers play a very important role in motivating students to learn. Motivation can arise from internal factors or external stimuli. The Big Indonesian Dictionary defines motivation as a driving force, whether conscious or unconscious, that prompts a person to take action. Motivation is divided into two categories, namely internal motivation and external motivation. Intrinsic motivation serves as the main driving force that motivates students to carry out learning activities (Melinda & Eta, 2020). In contrast to internal motivation, external motivation is motivation that encourages students to learn through external rewards (Potu et al., 2021). Interactive learning media based on the five senses has an impact on student learning motivation. With its interactive nature, this media allows students to be directly involved and gain real experiences. This condition triggers positive responses such as curiosity about activities that use the five senses media and increases students' confidence when trying these activities.

In this study, the author attempts to use interactive sensory learning media as a means of providing concrete experiences to achieve learning objectives. The senses are bodily organs that detect or perceive situations outside the body. There are five senses: sight, smell, taste, hearing, and touch (Helmi et al., 2024b). Interactive learning media play an important role in basic education, especially in increasing student engagement and motivation to learn (Aqmarina & Susilo, 2025). Thus, the use of interactive learning media based on the five senses not only improves the quality of learning but also encourages an increase in student motivation to learn at the basic education level.

Teaching second graders about the five senses plays an important role in building a basic understanding of the human body. At this stage of development, students begin to expand their knowledge of their surroundings through sensory experiences. By learning about the five senses, students can recognize and understand how their bodies interact with the environment. The five senses, namely sight, hearing, smell, taste, and touch, have vital functions in daily activities. This knowledge is important to teach to second-grade elementary school students because it provides a foundation for further understanding of the human body system at higher levels of education.

In addition, interactive sensory learning media contribute to the development of sensory and problem-solving skills in students. Students are able to recognize the function of each sense in responding to stimuli, which not only expands their knowledge of human biology but also trains their critical and analytical thinking skills. By applying interactive learning methods, such as conducting simple experiments or playing educational games, students will find it easier to grasp abstract concepts. Ultimately, this can help improve their learning outcomes and engagement in learning. These activities play an important role because, in addition to being related to academic fields, they also provide benefits in everyday life (Pratiwi & Widiyono, 2024). The use of sensory-based media has been proven to significantly improve learning achievement and student participation in the learning process. This is in line with the

findings of Husna & Supriyadi (2023), which highlight the important role of interactive media in increasing student motivation to learn at the elementary school level.

4. CONCLUSION

Based on the results of the analysis and discussion in this study, it can be concluded that the use of learning media that activates the five senses has a positive and significant impact on increasing the learning motivation of second-grade elementary school students. This media has succeeded in creating an interactive and enjoyable learning experience, while also being effective in attracting students' interest, as seen from the high positive response to the indicators of enthusiasm and motivation to continue learning. In addition, media that involve the five senses are also successful in helping students understand learning materials contextually and deeply, as evidenced by the large number of students who feel helped in understanding the five senses through the use of this media. The success of this tool in increasing student participation was not only evident during class, but also encouraged curiosity and enthusiasm to conduct further experiments. Therefore, sensory media is very suitable for widespread application as an innovative learning method that can increase student motivation and understanding at the elementary school level.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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