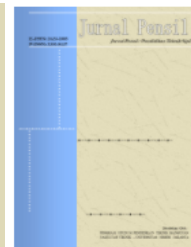


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THE EFFECT OF COGNITIVE FLEXIBILITY ON IMPROVING CLEAN AND HEALTHY LIVING BEHAVIOR IN ELEMENTARY SCHOOL STUDENTS

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Abstract

The emergence of various diseases that often attack school-age children (ages 6-14) was generally related to Clean and Healthy Life Behavior. The purpose of clean and healthy life behavior in schools is to empower students, teachers, and the community in the school environment so that they know and are willing and able to practice clean and healthy life behavior and take an active role in realizing healthy schools. Therefore, instilling clean and healthy life behavior values in schools is an essential and absolute need that can be done through persuasive activities and cognitive flexibility abilities. Cognitive flexibility is the ability to think about things in different ways. This study aims to determine the effect of cognitive flexibility on improving clean and healthy life behavior in elementary school students. The method used is a quantitative correlation, with data analysis using SPSS. Data collection was carried out by distributing questionnaires through Google Form. The study was conducted in one elementary school in Jakarta in grades 1st to 6th, with 125 students as respondents. The improvement of Clean and Healthy Life Behavior is assessed from 3 indicators of cognitive flexibility and 8 indicators of clean and healthy life behavior in schools.

Keywords: Cognitive Flexibility, Clean and Healthy Living Behavior, Environmental Health

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Introduction

A child of School age is a particular group that is vulnerable to health problems (Ward et al., 2022). Health problems in school-age children are often related to personal hygiene, including the cleanliness of fingernails and toenails, dental and oral hygiene, cleanliness of hair, skin, clothing, and overall body care (Altalib et al., 2022). The inability of children to maintain their own personal hygiene later will be susceptible to infection (Mukaromah, 2020). In line with this, research conducted by (Syahrizal, 2018) states that health problems that often arise in school children are usually related to personal hygiene, such as: not cutting nails regularly, not brushing teeth properly and correctly, not getting used to washing hands with soap and running water which can cause Upper Respiratory Tract Infections, skin diseases, diarrhea, and worms. With these health problems can hinder the achievement of student achievement in school (Kassymova et al., 2018).

Based on data from the World Health Organization (WHO, 2018), helminth infections are the most significant cause of disease among children aged 5-14. Vitamin A deficiency is the biggest cause of blindness in children (Dermawan, 2012). According to WHO, as many as 100,000 Indonesian children die yearly from diarrheal diseases. Not only that, not a few children who show unhealthy behavior, such as preferring to consume foods that are high in salt, sugar, fat, as well as low fiber, can increase the risk of obesity, diabetes, hypertension, and other diseases (Mayne et al., 2020). Students, before eating, do not wash their hands first, thus allowing the entry of germs into the body (Zubaidah et al., 2017). This refers to the thoughts of Hamiyah and Jauhar (2015) that an unhealthy environment also causes this unhealthy behavior, such as less clean area school, home area, or community environment (Nurmansah & Retnowati, 2020).

Mustar (2018) states that During this period, many health problems will determine

the quality of children in the future, especially at school (Mustar et al., 2018). This is because most children aged 5-14 spend a pretty long time in educational institutions daily. Therefore, comprehensive efforts from various sectors are needed to overcome these problems. The low effort to raise awareness of clean and healthy living among students impacts elementary school students who do not fully know how to properly maintain personal or environmental health.(Butler, 2020)

Health promotion in schools is an effort to create schools into a community that can improve the community's health status (Wang et al., 2020). As educational institutions, schools have a strategic role and position in health promotion efforts. With the direct practice learning method, the lessons learned can increase success and knowledge about health issues and the values and positive attitudes towards healthy living (Makmur et al., 2017).

In order to prevent and reduce the various problems above, it is necessary to have a clean and healthy life behavior through the development of clean and healthy life behavior in schools. These efforts do not only rely on the teaching and learning process of physical education, sports, and health. Still, they need to be supported by policies, facilities, and infrastructure, as well as appropriate programs (Marcen et al., 2022) so that clean and healthy living behavior will become a culture among school residents (Hermiyanty et al., 2016). School-age children are very sensitive to the given stimulus (La Patilaiya, 2021). Therefore, children of this age can easily be guided, directed, and instilled in habits to behave in a clean and healthy life.

For this reason, participation from various parties is needed, both parents, teachers, health workers, school committees, and the community (Yufiarti et al., 2019). School students are essentially the easiest and fastest age group to accept the changes given. It is hoped that by providing an understanding of clean and healthy living in school children, it can lead to positive habits

to maintain and improve health, the culture of clean and healthy living will be carried over to a large extent, and when adults, the culture will not change again (Maryunani, 2013).

This childhood is very appropriate to instill positive values and health so that it can be used and carried over to adulthood later (UNICEF, 2019). Children learn directly from their environment (Bridgers et al., 2020) about how they should behave to improve their quality of life and be able to obtain the highest degree of health. Starting with providing an understanding of clean and healthy life behavior and continuing with other health matters, it is hoped that students' interest and willingness will grow to participate and be active in implementing the clean and healthy life behavior program at their school and their residence (Biswas, 2020). The expected goals will be achieved if this is done, and students' knowledge of clean and healthy life behavior will increase.

In addition, the clean and healthy life behavior pattern intends to motivate children to play an important role in realizing fitness (physical) health or body health; to realize this, the development of a good health system is carried out. One of the targets for the development of the health environment is none other than schools because schools are institutions that provide education for children as well as the development of a social, environmental health system (Tabi'in, 2020). The elementary school period is also a golden period for instilling clean and healthy life behavior values and has the potential as an agent of change to promote clean and healthy life behavior in the school, family, and community environment to create quality human resources later (Diana et al., 2014).

Law Number 36 Year 2009 Article 79 concerning health (Undang Undang Republik Indonesia No 36 Tahun 2009, 2009), it is emphasized that School Health is held to improve the ability to live healthy students in a healthy environment so that they can learn, grow, develop harmoniously, and are expected to become quality human

resources. Children with good health will have optimal growth and health standards, including physical and psychological growth in general and development according to their age (Julianti & Nasirun, 2018). Apart from that, good health children will look cheerful, eager to play, shout, run and jump and usually do not want to be silent because their period is an exploratory period (Tabi'in, 2019).

The benefits of getting used to healthy behavior from an early age include children having a healthy lifestyle that can be applied in everyday life (Jauhari, 2020). Children of school age (6-14 years) are very active in learning what is in their environment, so the urge to know and act on their environment is huge. Children at this age are easy to direct and guide (Adista & Yulvia, 2021). In the formation of student behavior, in addition to being formed at school, the most important thing is the family environment before students will interact with the community. Behavior formation can basically be formed from the family, school, and community environment in which the student is located. (Sari, 2013)

Various ways can be done to familiarize children to behave in a clean and healthy life. One way is by increasing cognitive flexibility, which is the ability to think about things differently. In the cognitive development of school-age children, they can think rationally. Children develop an understanding of the relationship between things and ideas.

Problems that are often raised in learning require flexibility skills. This flexibility is a skill to obtain information to learn that can solve problems (Toraman et al., 2020). According to Aprianto (Aprianto et al., 2021), Flexibility skills have a role in making someone qualified in a way that person can know and apply his knowledge to solve problems.

Based on the explanation, the purpose of this study was to determine the effect of Cognitive Flexibility on the Improvement of Clean and Healthy Living Behavior in Elementary School Students. The problem of this research is whether there is any effect

of Cognitive Flexibility on the Improvement of Clean and Healthy Life Behavior in Elementary School Students. This research's benefit is adding insight in increasing Cognitive Flexibility to Improve Clean and Healthy Life Behavior in Elementary School Students.

Cognitive Flexibility

Cognitive flexibility is the ability of an individual to align the cognitive strategy process in dealing with new and unexpected situations in the environment. Cognitive flexibility is also known as flexibility of thinking. Cognitive flexibility produces a growth mindset, while the opposite of cognitive flexibility is a rigid pattern with a fixed mindset output.

According to opinion, Morton (Morton, 2020) stated that cognitive flexibility: involves creative thinking and flexible adjustment to changing requests. This ability assists children in using their imagination and creativity to solve problems. At the aspect of cognitive flexibility, namely: being aware of choices where this aspect reflects an individual's awareness that he has various choices when facing certain situations then the willingness to be flexible which is an aspect that reflects the individual's willingness to realize his last choice, self-efficacy, this aspect reflects one's confidence.

Every child experiences a phase of inflexibility (Shayna M. Cheek, 2021). However, education can change them. The purpose and function of the development of cognitive flexibility are so that students can develop significant predictions for skills, training to improve students' performance in class (Cartwright et al., 2019; Cheng et al., 2015), so that students can do reasoning, with a focus on both naturally occurring (spontaneous), and through scientific processes (experiment) so that students have several abilities, namely: adaptation, problem-solving, resilience, and creativity. Factors that affect cognitive flexibility are: attention, working memory (working memory), inhibition, skill and learning, social circle, and genetics. Efforts to

increase cognitive flexibility include curriculum selection, play games, reading habits, intervention, exercise, discuss (Aprianto et al., 2021; Filippi et al., 2022).

In general, education has an important goal to foster a habit of thinking for students to be able to solve a problem they face, with students having the ability to think intelligently in the form of flexibility skills to overcome it, where individuals not only have information but must have a way of thinking solve the problem. The step in solving problems intelligently is a real effort to think critically by strengthening flexibility skills. Learning outcomes are more meaningful for students if they can independently solve problems and think critically by applying flexibility skills, so they can make the right decisions in solving problems.

Habits of mind in the form of flexibility skills are associated with a person's intelligence in acting, according to scientific experts trying to develop habits of mind (thinking skills) through various research. Habits of mind have a relationship with cognitive aspects, which are the characteristics of students to think intelligently in the highest category in thinking so that students can solve the problems they face based on the characteristics of success in education.

Syah (2013) explains that cognitive flexibility is an individual's ability to think followed by actions that are appropriate to the situation at hand. Students who have the habit of thinking with flexibility skills can have a different mind, and have the ability to think in the form of giving a different idea or suggestion and working effectively; for example, if students have high cognitive flexibility when they are playing, then the teacher asks to clean the school environment together, the child who has cognitive flexibility will follow the teacher's directions to clean the school environment and think that playing can be done the next day, the child has other alternatives in his life and has the flexibility of thinking. Meanwhile, children who do not have cognitive flexibility will be angry and do not

want to follow the teacher’s directions to clean the school environment. Because he feels he is playing and does not want to be disturbed so his mind is stiff and not flexible. That is the importance of the teacher stimulating so that students can have cognitive flexibility abilities.

Clean and Healthy Life Behavior in Schools

Clean and healthy life behavior in schools is an activity to empower students, teachers and the school community to want to adopt a healthy lifestyle to create healthy schools. The benefits of clean and healthy life behavior in schools are creating a clean and healthy environment, improving the teaching and learning process and making students, teachers and the school environment healthy. (Kemenkes, 2016).

8 Indicators of Clean and Healthy Living Behavior in Schools:

1. Wash hands with running water and use soap
2. Eating healthy snacks in the school canteen
3. Using clean and healthy latrines
4. Regular and measured exercise
5. Eradicating mosquito larvae
6. No smoking in school
7. Weigh and measure height every month
8. Throw garbage in its place.

Research Method

This study uses quantitative research methods. The data collection technique used is using data collection method with a questionnaire. This research was conducted at an elementary school in Jakarta with 125 respondents consisting of grade 1 to grade 6 elementary school students. This study uses descriptive data analysis techniques through

normality test, simple linear regression test, coefficient of determination test, and significance test calculated using the SPSS application. The aim is to see the effect of the independent variable on the dependent variable (Purwanto et al., 2021). There are two variables in this study. The independent variable in this study is Cognitive Flexibility (X) and the dependent variable in this study is Clean and Healthy Life Behavior (Y).

The instrument used to measure Cognitive Flexibility is a question of statements that can generally be grouped into three indicators. Then the instruments used to measure clean and healthy life behavior are eight indicators. The question consists of 22 statements with five alternative answers. The highest answer was given a value of 5, while the lowest was given a value of 1. The instrument used was calculated using the SPSS application.

Based on the validity test of Cognitive Flexibility, as many as six statements, all questions are declared valid. The researcher also tested the validity of the clean and healthy life behavior instrument as many as 16 statement items, and there was 1 question that was not valid so 15 valid items were used to collect the next data. Calculation of the reliability coefficient of the instrument item using the Cronbach’s Alpha coefficient, through the help of SPSS, the Cronbach Alpha coefficient data for the clean and healthy life behavior variable is 0.675.

Results and Discussion

Normality Test

A normality test is a test conducted to determine whether the research data variables are normally distributed or not. The results of the normality test of this study can be seen in table 1.

Table 1. Normality Test Results

One-Sample Kolmogorov-Smirnov Test
Unstandardized Residual

N		125
Normal Parameters, b	mean	.0000000
	Std. Deviation	5.54653017
Most Extreme Differences	Absolute	.070
	Positive	.052
	negative	-.070
Test Statistics		.070
asymp. Sig. (2-tailed)		.200c,d

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Based on the results of the normality test data using the Kolmogorov-Smirnov Test method, it can be seen that the results of the significant value or Asymp. Sig (2-tailed) has a value of 0.200. This means that the significance value of the research data is $0.200 > 0.05$. In other words, the data is normally distributed so that it meets the requirements for the next test process.

Simple Linier Regression Test

A simple linear regression test is used to test whether cognitive flexibility (X) is related to an increase in clean and healthy living behavior (Y). In the following table, two is presented, namely the results of this study's simple linear regression test.

Table 2. Simple Linier Regression Test Results

Coefficients					
Model	Unstandardized Coefficients		Standardized Beta	t	Sig.
	B	Std. Error			
1 (Constan)	31,900	4.158		7,671	.000
Cognitive Flexibility	1.458	.169	.614	8,638	.000

Dependent Variable: Clean and Healthy Life Behavior

In the table of coefficient results above, it can be seen that in column B, the results of constant values and simple regression coefficients are listed for the work motivation variable. So the results, when expressed in the form of an equation, are as follows:

$$Y = 31,900 + 1,458X$$

Where X = Cognitive Flexibility

Y = Clean and Healthy Life Behavior

If the value of X = 0 will be obtained Y = 31,900

This means that the value (a) or constant of 31,900 this value indicates that when Cognitive Flexibility (X) is zero or not increasing, the Clean and Healthy Life Behavior (Y) will still be worth 31,900

regression coefficient value (b) of 1,458 (positive) which shows a unidirectional effect, which means that if Cognitive Flexibility is increased by one unit, it will increase Clean and Healthy Behavior by 1.458 units.

In form of the equation above, it shows that the constant value is 31,900. it means that when the variable X (Cognitive Flexibility) has a value of 0, then the variable Y (Clean and Healthy Life Behavior) has the same value or 13,900. Furthermore, the regression coefficient value of the variable X (Cognitive Flexibility) is 1.458 with a positive value direction, and then the conclusion is that for every 1% increase in Cognitive Flexibility, the Clean and Healthy Life Behavior will increase by 1.458. This

means that in instilling a Clean and Healthy Living Behavior, it is felt that an increase is needed, a Cognitive Flexibility ability is needed in that behavior, the greater the Cognitive Flexibility given, the more the Clean and Healthy Life Behavior will also increase, this is evidenced by the linear equation above.

Coefficient of Determination Test (R2)

The coefficient of determination (R2) determines how much the independent variable can explain the dependent variable. The results of the coefficient of determination test (R2) can be seen in table 3.

Table 3. Coefficient of Determination Test Results (R2)

Model Summary				
Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1				
1	.614a	.378	.373	5.569

Predictors: (Constant), Cognitive Flexibility

The table above explains the magnitude of the correlation or relationship (R) value, which is 0.614. From the output, the coefficient of determination (R Square) is 0.378, which implies that the influence of the independent variable (Cognitive Flexibility) on the dependent variable (Clean and Healthy Life Behavior) is 37.8%. While the remaining 62.2% was caused by other factors not examined by the researcher.

t-test (Significance)

In this study, in determining the t table value that will be the benchmark, a formula is needed, namely $df = n - k$ ($125 - 2 = 123$) with a significance value of 5% or 0.05, so for respondents as many as 123 for the benchmark t table value is at 1,979. Next, we will compare the t value of the table with the calculated t value determined in the results in the following table:

Test the hypothesis in this study using the t-test. The t-test test used by researchers in this study determined the effect of cognitive flexibility in improving clean and healthy living behavior. The results of the t-test are presented in table 4 below.

Table 4. t-test Results

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			

1	(Constant)	31,900	4.158		7,671	.000
	Cognitive Flexibility	1.458	.169	.614	8,638	.000

Dependent Variable: Clean and Healthy Life Behavior

In the results of the significance test table above, the t-count value is 8.638. So it can be concluded that the value of $t_{arithmic} > t_{table}$ is $8.638 > 1.979$ and the result is a significant value of $0.000 < 0.05$. This shows a significant positive influence between the Cognitive Flexibility variables on the Clean and Healthy Living Behavior variables. Obtaining the results of the significance test (t) above can also answer the hypothesis test in this study, including:

H0: Cognitive Flexibility does not affect Clean and Healthy Life Behavior
 H1: Cognitive Flexibility does not affect Clean and Healthy Life Behavior

So in testing the hypothesis in this study using the t-test results, it shows that H0 is rejected and H1 is accepted because the Cognitive Flexibility variable has a positive and significant influence on the Clean and Healthy Living Behavior variable. So it can be concluded that there is a positive and significant relationship between Cognitive Flexibility and Clean and Healthy Living Behavior in Elementary School students. Appropriate with research conducted by (Santosa, 2013) the results of his research state that there is a relationship between cognitive flexibility with focused coping methods, with the results of the research stating that cognitive skills can develop their self-competence, then the results of strengthening flexibility skills indicate that problem-solving abilities for the better, therefore, in this case, cognitive flexibility can be an alternative to improve clean and healthy living behavior.

This is in line with the theory stated by (Wulandari & Surjono, 2013), which states that flexibility skills show that students can better understand the material in the life system being taught, and it is more meaningful when the teaching and learning process takes place, students are allowed to complete a task, given problems,

formulate problems, and discuss to get a solution to the problem. Following what Costa & Kallick (Costa, A. L., & Kallick, 2012) said, students who have a flexible way of thinking will give a lot of ideas or ideas and have an active role during the learning process so that the application of clean and healthy living behavior can be applied because of the role of cognitive flexibility owned by students at school.

Conclusion

The purpose of clean and healthy life behavior in schools is to empower students, teachers, and the community in the school environment so that they know and are willing and able to practice clean and healthy life behavior and take an active role in realizing healthy schools. School age is a golden age for instilling clean and healthy life behavior values so that students have the potential as agents of change to promote clean and healthy life behavior, both in the school, family, and community environment. Therefore, teaching clean and healthy life behavior values in schools is a basic and absolute need that can be done through persuasive activities by increasing students' cognitive flexibility abilities through cognitive stimulation in schools because the results of the study state that cognitive flexibility affects the improvement of clean and healthy living behavior on students in elementary school.

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