THE INFLUENCE OF TANGRAM MEDIA ON STUDENTS' INTEREST IN LEARNING FLAT BUILDING MATERIALS IN CLASS IV AT ELEMENTARY SCHOOL NEGERI 30 PALEMBANG

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ABSTRACT

This research was motivated by students' low interest in learning due to a lack of enthusiasm for learning in mathematics subjects, so that students were not interested in learning, liked to talk to friends, and did not pay attention to the teacher when teaching during the learning process. And also by using learning media that does not involve students in the teaching and learning process so that students are less enthusiastic in learning, not motivated because they are not involved in learning and causes students to be inactive during learning. This research aims to determine the influence of tangram media on students' interest in learning flat shape material in class IV at SD Negeri 30 Palembang. This research was carried out at SD Negeri 30 Palembang which is located on Jl. Freshwater River, 29 Ilir, Kec. Ilir Barat II, Palembang City, South Sumatra. This research is a type of experimental research, namely the True Experimental Design type. The population and sample in this research were fourth grade students at SD Negeri 30 Palembang, totaling 32 students in the control class and 32 students in the experimental class. Data collection techniques in this research are observation, questionnaires and documentation. Data analysis techniques in this research include Normality Test, Homogeneity Test, Hypothesis Test. The results of this research are hypothesis testing showing that t count $\geq$ t table or $6.938 \geq 0.349$, so it can be concluded that H0 is rejected and Ha is accepted. This means that there is an influence of tangram media on students' interest in learning flat shape material in class IV at SD Negeri 30 Palembang.

Keywords: Tangram Media Students' Learning Interests

1. INTRODUCTION

Education is a long-term investment in human capital. Education has strategic value in terms of the continuity of human civilization in the world. Because education is a person's foundation from birth until the end of their life (Rama et al, 2022, p. 1). Education is a conscious and planned effort to provide guidance or assistance in developing physical and spiritual potential given by teachers to students to reach maturity and achieve goals so that students are able to carry out their life tasks independently (Hidayat & Abdillah, 2019, p. 24).

Education is grouped into three, namely formal education, non-formal education and informal education. Formal education is one

form of education carried out by educational institutions. Formal education is differentiated according to level, including elementary school, middle school and high school. Primary school education is one of the education received by children aged 7-12 years (Lestari, Kurniawan & Ardi, 2020, p. 2). Elementary school is an educational program implemented over a period of 6 years. Basic education plays an important role in continuing the child's educational process. Primary school education has the aim of laying the foundation of intelligence, knowledge, personality, noble character, and skills for living independently and pursuing further education (Ihsan, 2020, p. 2). Education on

Elementary schools will study various knowledge which is divided into subjects, one of which is mathematics.

According to Oktaviani, Sutrisno, & Kirana (2022, p. 2) Mathematics is an abstract scientific discipline so some students experience difficulties in learning mathematics. As we know, mathematical objects are abstract. This has the potential to give rise to various difficulties in learning it, especially for students in elementary schools, considering that they are generally not able to think abstractly (Isroil & Supriyanto, 2020, p. 2). Such facts encourage the need for learning media that can provide students with visual experiences in interacting with abstract mathematical objects (Mashuri, 2019, pp. 1–2). Therefore, tangram learning media is very much used to help the process of conveying messages to students.

Tangram media is one of the media that can be used in learning geometry. This game, which originates from China, is in the form of a puzzle consisting of seven flat pieces, including five triangles, one square and one parallelogram. The seven pieces are arranged and attached so that they can form various patterns such as pictures of cats, fish, houses and so on (Mufti, Pranata, & Wahid, 2020, p. 3). Tangram media is a learning media to introduce students to flat shapes, this learning media is very interesting with various colors.

Learning media is a tool that can help the teaching and learning process which functions to clarify the meaning of the message conveyed so that the lesson objectives are better and more perfect (Darmawan & Kustandi, 2020, p. 6). Learning media are tools, means, intermediaries and connectors to spread, carry or convey messages and ideas, so that they can stimulate students' thoughts, feelings, actions, interests and attention in such a way that the teaching and learning process occurs in students (Cahyadi , 2019, p. 3). Basically, learning media is a tool that can convey a message in learning between teachers and students to arouse students' interest in learning in the learning process.

Interest in learning is a choice of pleasure in carrying out activities and can arouse someone's passion to fulfill their willingness to learn. Interest in learning will make it easier for students to concentrate and think. Immediate attention that is obtained naturally and without external violence will facilitate the development of concentration, namely focusing the mind on the lesson. Without interest, concentration on lessons will be difficult to develop and maintain (Ananda & Fitri, 2020, p. 141). Meanwhile, if you are not interested, it will lead to boredom, emptiness of attention, or even no self-involvement in something at all.

Based on the researcher's experience during the Field Experience Practice (PPL) carried out at SD Negeri 30 Palembang, information was obtained that the problem that occurred in the learning process in class IV was a lack of enthusiasm for learning in mathematics subjects, so that students were not interested in learning, liked to talk to friends. , not paying attention to the teacher in teaching during the learning process. And also with the use of learning media that does not involve students in the teaching and learning process, ultimately students are less enthusiastic during learning, students are not motivated because in following lessons using learning media students are not involved which makes students unable to concentrate when learning using learning media, This causes there to be students who are not active in the learning process because the learning is monotonous so students quickly feel bored.

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Judging from the problems above, learning media is needed that can involve students in the teaching and learning process to arouse students' interest in learning mathematics using tangram media. The research results that support the success of tangram media are research conducted by Choiroh (2018) entitled "The Influence of Tangram Media on the Learning Outcomes of Class V Students in Mathematics Subjects in Elementary Schools" from the research results it can be concluded that tangram media has high interpretation, so from the distribution test The relative value of the influence of tangram media on student learning outcomes. The N-Gain analysis shows the results of the high influence of tangram media on student learning outcomes. So, tangram media can influence the learning outcomes of mathematics subjects on flat shapes for class V students at SDN Simo Angin-Angin.

Research that supports the success of tangram media was further carried out by Sirajuddin, Hodaming, & Amelia (2023) entitled "Use of tangram media to increase interest and learning outcomes in class IV mathematics" from the results of the research it can be concluded that from the learning outcome data that has been treated using Tangram media shows an increase in mathematics learning with flat plane material. The results of data analysis on students' interest in learning after using tangram media also showed an increase, which means that there was an influence of tangram media on interest and learning outcomes in mathematics on flat plane material in class IV UPT students at Bissoloro State Elementary School.

Based on the background above, the researcher intends to carry out research using tangram learning media to see students' interest in learning. From this description, the researcher wants to conduct research using tangram media with the title "the influence of tangram media on students' interest in learning flat shape material for class IV at SD Negeri 30 Palembang".

2. LITERATURE REVIEW

Understanding Learning Media

Learning media are tools used to assist the teaching and learning process so that they can be used to convey information better. According to Pribadi (2017, p. 13), learning media, namely containing information and knowledge, are generally used to make the learning process more effective and efficient. Learning media is a means to improve teaching and learning process activities (Darmawan & Kustandi, 2020, p. 6). So that learning media can increase student interest in the teaching and learning process.

In line with this, according to Cahyadi (2019, p. 5), learning media is anything that can be used as an intermediary in the interaction process between teachers and students, provided that this media can simplify or make the learning process more effective. On the other hand, according to Nurfadillah (2021, p. 15) learning media are objects used to channel processes to recipients in the educational process. Meanwhile, according to Nurdyansyah (2019, p. 21) learning media is a learning component that has an important role in teaching and learning activities. The appropriate use of learning media can influence the quality of the process and the results achieved.

Judging from the opinions of several experts above, it can be concluded that learning media are tools used to assist the teaching and learning process in delivering learning material which can increase students' interest in learning so that learning objectives can be achieved and can help learning become more effective and efficient.

Learning Media Function

The function of learning media is as a learning aid, which influences the situation, conditions and learning environment in

order to achieve the learning goals that have been created and designed by the teacher (Nurdyansyah, 2019, p. 28).

According to Kristanto (2016, p. 10) in detail, the functions of learning media are as follows:

1) Educational Function

   a. Providing an impact that has educational value.
   b. Educate students and society to think critically.
   c. Provide meaningful experiences.
   d. Develop and expand horizons.
   e. Providing authentic functions in various areas of life and concepts alike.

2) Economic Function

   a. Achievement of learning objectives can be achieved efficiently.
   b. Achieving material can reduce costs and time.

3) Social Function

   a. Expanding interactions between students.
   b. Develop understanding.
   c. Developing students' intrapersonal experience and intelligence.

4) Cultural Function

   a. Providing changes in terms of human life.
   b. In inheriting and continuing cultural and artistic elements that exist in society.

Understanding Tangram Media

According to Jannah, Rohana, & Idrus (2023, p. 5) tangram media is an educational game that can be made from simple materials. Indah, Latif, & Rusdyanti (2023, p. 3) tangram media is a media that can be used in mathematics learning, it has various colors so that learning is not monotonous and tangram media can also be used to make it easier for students to understand the concept of flat shapes. Tangram media is a game originating from China which consists of seven flat shapes(Mahrany et al., 2023, p. 2).

On the other hand, according to Farihah (2021, pp. 59-60), Chinese tangram media consists of 7 pieces and includes 3 shapes, right triangles.isosceles, square, and parallelogram. Meanwhile, an isosceles right triangle has three sizes, namely large, medium and small. Furthermore, according to Nurhaedah, Suarlin, & Sanul, (2023, p. 3) tangram media has a character that is appropriate to mathematics learning, including learning starting with problems related to students' real world and requiring students to demonstrate them, so that students will understand more easily. flat shape concept.

From the opinions of the experts above, it can be concluded that tangram media is a game media in the form of seven flat shapes, including 3 shapes, namely a right-angled isosceles triangle and a parallelogram. can be made with simple ingredients. Not only can tangrams be made, but tangram media is also available on the public market. Tangram media is very interesting with various colors.

Benefits of Tangram Media

Tangram media is useful in increasing understanding of the properties of flat shapes, for finding the perimeter and area of flat shapes, as well as in solving real problems related to flat shapes in the real world (Nurhidayah, Meirista, & Mayasari, 2021, p. 6). According to Oktaviani, Sutrisno, & Kirana (2020, pp. 6-7) explain that there are several benefits of tangram media in the learning process, namely:

1. To introduce flat geometric shapes to students.
2. To develop students' creativity and imagination to be able to form other flat shapes or the shape of an object by combining several flat shapes.
3. To arouse motivation and the desire to learn in a fun way through attractive media colors.
4. To improve students' motor skills by rotating, flipping, sliding the media.

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Advantages and Disadvantages of Tangram Media

The advantage of tangram media is that it can develop creativity, imagination, and train concentration and patience. While the weakness of tangram media is that it requires the teacher's precision and precision to make it, tangram media only presents several flat shapes (Indiati, Puspitasari, & Febriyanto, 2021, p. 4).

According to Oktaviani, Sutrisno, & Kirana (2022, p. 7-8) tangram media has advantages and disadvantages.

1. The advantages of tangram media are:
   a. Increase interest in flat material.
   b. Able to recognize various flat shapes.
   c. Can develop creativity, imagination and train concentration and patience in arranging tangram pieces.
2. Meanwhile, the disadvantages of tangram media are:
   a. Can only be used for material about flat figures.
   b. Requires the teacher's precision and accuracy in making it.
   c. Tangram media only presents several flat shapes, so it requires students' creativity to form other flat shapes from tangram pieces.

Understanding Mathematics Learning

According to Wulandari (2020, pp. 1-2) states that learning mathematics means learning about the concepts or structures contained in the topic being studied and looking for relationships between these concepts or structures. Mathematics learning for students is the formation of a mindset in understanding an understanding and in reasoning about the relationship between those understandings (Nurfadilah & Hakim, 2019, p. 6).

Mathematics learning is the process of providing learning experiences to students to gain knowledge about the mathematics being studied (Warayang, Ardi, & Huda, 2023, p. 3). On the other hand, according to Yayuk (2019, p. 2) mathematics learning is the process of providing students with experience through a series of planned activities so that students gain competence regarding the mathematical material being studied. Furthermore, according to Guesteti & Neviyarni (2022, p. 2) mathematics learning is a process of interaction between learning components to develop students' thinking abilities in problem solving.

From the understanding above, it can be concluded that mathematics learning is abstract learning by understanding mathematical concepts to form the students' own thinking patterns. Mathematics learning itself is a planned interaction to develop students' abilities in solving existing problems.

3. METHODOLOGY

The method used in this research is True Elxpelrimelntal Delsign. This research used two samples, namely the experimental class and the control class. The experimental class uses tangram media and the control class uses book drawing media. This research uses a Posttest-Only Control Design.

The location of the research was SD Negeri 30 Palembang which is located at Jalan Sungai Air Tawar, 29 Ilir, Kec. Ilir Barat II, Palembang City, South Sumatra. The time this research will be carried out is in the Even Semester of the 2023/2024 Academic Year. And the population in this research is the entire object to be studied, namely all class IV students at SD Negeri 30 Palembang for the 2023/2024 academic year. In this research, researchers used samples. Machali (2021, p. 67) a sample is a portion taken from the entire object being studied and is considered to represent the entire population. The sampling technique used was Simple Random Sampling. Where the Simple Random Sampling technique is used to determine the sampling of population members is carried out randomly without paying attention to the strata in the population.

Data collection techniques are techniques or methods used by researchers to collect data. Data collection was carried out to obtain the information needed to

achieve research objectives (Siagian & Silviani, 2023, p. 17).

The results of the instrument trial use the validity and reliability of the instrument. In this research, the techniques used in collecting data are observation, inquiry, and documentation. The data analysis technique used is Normality Test, Homogeneity test, and hypothesis testing.

4. RESULTS AND DISCUSSION

There is an influence of the use of tangram media on students' interest in learning flat material in class IV at SD Negeri 30 Palembang. This difference occurred because during the posttest or final test interest in learning increased after using tangram media.

From the results of research conducted by researchers through observation, questionnaires and documentation, interest in learning increased after treatment using media. This can be seen from the average at the posttest. The average score during the posttest for the posttest experimental class was 85.34. while the average value in the control class was 74.09. So from this average value it can be concluded that the experimental class students' interest in learning increased more when using tangram media.

Instrument Validity Data

To carry out the questionnaire test on students, the validity of the questionnaire was tested with 30 statements with experts.

Table 1. Calculation Results of the Validity Test of the Learning Interest Questionnaire

Item No	r_{Hitung}	r_{Tabel}	Information
1	0.438	0.349	Valid
2	0.385	0.349	Valid
3	0.313	0.349	Invalid
4	0.391	0.349	Valid
5	0.302	0.349	Invalid
6	0.337	0.349	Invalid
7	0.533	0.349	Valid
8	0.379	0.349	Valid
9	0.385	0.349	Valid
10	0.650	0.349	Valid
11	0.475	0.349	Valid
12	0.523	0.349	Valid
13	0.346	0.349	Invalid
14	0.418	0.349	Valid
15	0.757	0.349	Valid
16	0.357	0.349	Valid
17	0.323	0.349	Invalid
18	0.540	0.349	Valid
19	0.365	0.349	Valid
20	0.464	0.349	Valid
21	0.189	0.349	Invalid
22	0.386	0.349	Valid
23	0.503	0.349	Valid
24	0.489	0.349	Valid
25	0.483	0.349	Valid
26	0.027	0.349	Invalid
27	0.227	0.349	Invalid
28	0.283	0.349	Invalid
29	0.602	0.349	Valid
30	0.328	0.349	Invalid

So from the field validation test analysis using SPSS 25, the instrument can be said to be valid $r_{(count)} > r_{table}$ which is set at 0.349. So that from the 30 questions that were tested, it showed that of the 30 statements there were 20 valid statements and 10 invalid statements.

Table 2. Reliability Test Calculation Results

Reliability Statistics	
Cronbach's Alpha	N of Items
,859	30

Based on the reliability test analysis using SPSS 25 above, the instrument can be said to be reliable if $r_{(count)} > r_{tabel}$ with the predetermined t_{table} value of 0.349. So that the 20 questionnaire items that have been calculated obtain high reliable results, because $r_{(count)}$ (0.859) > r_{tabel} (0.349).

Descriptive Statistical Test Results

Based on the calculations, the data obtained shows an increase in students' interest in learning, which is described in the following table:

Table 3. Experimental Class Posttest Questionnaire Data

No	Student Name Initials	Total score	Criteria
1	AHM	95	Very interest
2	AFD	78	Interested
3	AFR	85	Interested
4	CI	84	Interested
5	DMS	86	Very interest
6	DA	82	Interested
7	DW	80	Interested
8	EPI	75	Interested
9	EPR	86	Very interest
10	KDA	82	Interested
11	MBLA	87	Very interest
12	MFAB	93	Very interest
13	MHT	88	Very interest
14	MR	90	Very interest
15	MMAJ	82	Interested
16	INDIGESTION	90	Very interest
17	MEJR	83	Interested
18	MRP	79	Interested
19	MRH	97	Very interest
20	MRN	86	Very interest
21	MTS	89	Very interest
22	MDA	87	Very interest
23	NA	88	Very interest
24	NMN	93	Very interest
25	NDS	82	Interested
26	MCC	84	Interested
27	RDP	90	Very interest
28	RH	74	Interested
29	RAY	85	Interested
30	RDP	80	Interested
31	RS	86	Very interest
32	SP	85	Interested
	Amount	2,731	
	Average	85.34	
	The highest score	97	
	Lowest Value	74	

Table 3 above shows that the average score on the student interest in learning questionnaire in the Elkspelrimeln class is 85.34. The highest score on the student interest in learning questionnaire is 97 and the lowest score is 74.

Table 4. Control Class Posttest Questionnaire Data

No	Student Name Initials	Total score	Criteria
1	ASA	75	Interested
2	AMJ	74	Interested
3	AMPS	80	Interested
4	A A	82	Interested
5	A	70	Interested
6	DAPA	72	Interested
7	HF	84	Interested
8	KA	68	Interested
9	KMAH	79	Interested
10	KMFK	68	Interested enough
11	M.F	73	Interested
12	MOP	78	Interested
13	MAG	68	Interested enough
14	M.A	76	Interested
15	MAF	74	Interested
16	M.A	80	Interested
17	MAR	85	Interested
18	MCF	70	Interested
19	MKAT	70	Interested
20	MR	74	Interested
21	MTSB	68	Interested enough
22	MZZ	76	Interested
23	NKP	72	Interested
24	QC	86	Very interest
25	RMR	80	Interested
26	S.A	75	Interested
27	SS	78	Interested
28	S.A	77	Interested
29	SAA	79	Interested
30	V	53	Less Interested
31	YES	53	Less Interested
32	Z	74	Interested
	Amount	2,371	
	Average	74.09	
	The highest score	86	
	Lowest Value	53	

Table 5. above shows that the average score on the student interest in learning questionnaire in the control class is 74.09. The highest score on the student interest in learning questionnaire was 86 and the lowest score was 53.

Normality test

The data normality test is a requirement that is carried out before analyzing data. The data tested for normality is the data from the posttest results in the experimental class and control class. The normality test is carried out to determine whether the sample studied is normally distributed or not. In this normality test, researchers used SPSS 25 with the Kolmogorov Smirnov method, with a significant value > 0.05, the data was declared to be normally distributed. The

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following are the results of the normality test in the table below:

Table 5. Normality Test Results

Tests of Normality							
	Kolmogorov-Smirnova			Shapiro-Wilk			
	Statistics	df	Sig.	Statistics	df	Sig.	
Experiment Posttest	,078	32	,200*	,987	32	,963	
Control Posttest	.144	32	,089	,899	32	,006	

a. Lilliefors Significance Correction

Based on the normality test above, it can be seen that the significant value of the posttest data in the experimental and control classes on students' interest in learning mathematics is with a significant value of 0.200 and 0.089 which is declared to be normally distributed because the significant value is more than 0.05.

Homogeneity Test

The data homogeneity test carried out by researchers aims to find out whether the data is homogeneous or inhomogeneous. The homogeneity test in this study used a live test of homogeneity with a significant value ≥ 0.05, so it can be stated that the sample data has a homogeneous distribution. Researchers used SPSS 25. Following are the homogeneity results in the table below:

Table 6. Homogeneity Test Results

Test of Homogeneity of Variance					
		Levene Statistics	df1	df2	Sig.
Student	Based on Mean	1,588	1	61	,212

Learning Interests	Based on Median	1,583	1	61	,213
	Based on Median and with adjusted df	1,583	1	51,465	,214
	Based on trimmed mean	1,575	1	61	,214

a. Student Interest in Learning is constant when Class = 75. It has been omitted.

Based on the homogeneity test above, it can be seen that the significant value in giving the questionnaire at the end (posttest) in the experimental and control classes for students' learning interest with a significant value of 0.212 is declared homogeneous because the significant value is greater than 0.05.

Hypothesis testing

Hypothesis testing in this research uses the t-test with the independent simple t-test. Hypothesis testing uses the t-test to determine students' abilities in taking the posttest between the experimental class and the control class. In this research, researchers used SPSS 25. The criteria for hypothesis testing using the independent simple t-test were to accept Ho: if the significant value (2-tailed) was 0.05 and reject Ho: if the significant value (2-tailed) was 0.05 . The following are the results of hypothesis testing using the t-test in the table below:≥≤

Table 7. Hypothesis Testing

Independent Samples Test								
	Levene's Test for Equality of Variances		t-test for Equality of Means					
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Differen	95% Confidence Interval of the Difference

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							ce	Low er	Upp er
Stud ent Lear ning Inter ests	Equ al varia nces assu med	1, 18 6	,280	6,93 8	62	,000	11,250	1,62 1	8,00 9	14,4 91
	Equ al varia nces not assu med			6,93 8	56,2 54	,000	11,250	1,62 1	8,00 2	14,4 98

Based on the results of the t-test calculation above using SPSS 25, it shows that there is a difference in the average posttest results for experimental class students and control class students with degrees of freedom df = (n1 + n2) − 2 where N = 32 so df = 30 at = 0.05 obtained = 0.349. Ho is rejected and Ha is accepted if the value and significance value are 0.05. The results of the hypothesis test calculation were 6.938 and the significant value (2-tailed) was 0.000. Thus the results of the t test calculation show that (6.938 0.349) and the significant value (2-tailed) is 0.000 0.05 so it can be concluded that Ho is rejected and Ha is accepted. There is a significant difference between the interest in learning mathematics of experimental class students and control class students. In other words, there is an influence of tangram media on students' interest in learningg.

$$\alpha t_{tabel} t_{hitung} \geq t_{tabel} < t_{hitung} t_{hitung} \geq t_{tabel} \geq <$$

5. Conclusions and Suggestions

Conclusions

Based on the results of research conducted by researchers using posttest data, it can be concluded that there is an influence after the application of tangram media. It has been analyzed that the average scores of the experimental class and the control class are different. The average posttest score for the experimental class was 85.34, while the posttest result data for control class students was 74.09, so the average score for the experimental class was greater than the average score for the control class. From the results of the research data obtained, it can be seen that when using tangram media in learning in the experimental class by working on the questionnaire instrument provided, the students' interest in learning was very high. We can see from the results of the data obtained that the significance value is 0.000 when compared with 0.05, so the significant value is 0.000 < 0.05, in this case it means that Ha is accepted and Ho is rejected.

So from the results of this analysis to test the hypothesis of this research, there is a significant influence of tangram media on students' interest in learning in grade IV plane material at SD Negeri 30 Palembang. This can be seen from the t-test results that have been obtained, based on the t-test results, a significant value of 0.000 < 0.05 (p < 0.05) is obtained, so Ho is rejected. This means that Ha is accepted, thus there is a significant influence between students who receive learning using mediatangram with students who only use books in class IV of SD Negeri 30 Palembang.

Suggestions

Based on the results achieved in this research, the researcher suggests:

1. For students, it is hoped that after being given treatment using tangram media, students will be more enthusiastic in learning and it is hoped that this can inspire students to be motivated in learning so that students are happy to take part in mathematics learning about flat shapes.
2. For teachers, as information material and input in determining varied learning media according to the material presented with the aim of increasing students' interest in learning.
3. For schools, as input for implementing tangram media in learning to increase student activity in the teaching and learning process and efforts to improve the quality of learning, especially in flat material.
4. To future researchers, during the

learning process it is recommended for future researchers to form groups based on the level of ability of the students and use other variables or add other variables to make them more useful.

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