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UNDERSTANDING THE CONCEPT OF INTELLIGENT OPERATIONS THROUGH ELPSA LEARNING WHEN LEARNING FROM HOME

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ABSTRACT

This Scientific Review in the form of best practice Learning the ELPSA (Experience, Language, Picture, Symbol, Application) model examines learning as an active process where students construct their own way of understanding things through individual thought processes and social interactions with others in BDR activities. In this BDR activity, LKPD is used. This Scientific Review (Best Practice) activity aims to improve understanding of the concept of integer operations through ELPSA learning for class VIIA students of SMPN 5 Sanggau. This activity is carried out in the 2021/2022 school year, to be precise in July. The success criteria set by the researchers are student activities during the BDR learning process in the good category, at least 80% of the number of students can reach the KKM which is 70. The results of this scientific review show that students' understanding of learning integer operations through ELPSA learning when BDR has been achieved by the success criteria shown in the post test results. In more detail, the percentage of achievement of the success criteria is as follows: 1) student activities during the learning process are in the good category, 2) There is an increase in the percentage of students who have reached the KKM by 31.25% from pre-test 56.25% to 87.5% in post test. From the results of the study, it can be concluded that ELPSA learning is effective in increasing the understanding of the concept of

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	integer operations during BDR.
KEYWORDS	Understanding of Mathematical Concepts, Integer Operations, Learning ELPSA
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INTRODUCTION

Learning mathematics with an understanding is essential (Van de Walle et al., 2016). To build and gain understanding of a new concept requires active and constructive effort through linking one concept to another of the students' own concepts (Subanji & Supratman, 2015), and through the experience and knowledge that students have previously acquired (Stillman, 2000).

Based on the study of Constructivism Theory that teaching is not a matter of transferring information to students, it is not passively absorbing information from books or teachers (Prianto, Subanji, & Sulandra, 2016). Therefore, in learning mathematics, students' activeness in building their own knowledge is a principle of learning mathematics (Carrillo-Yañez et al., 2018). Student activity in constructing problems is a requirement so that the concepts learned can be understood and acquire new knowledge thoroughly, deeply and not easily forgotten (Hansen, 2012).

Mathematics as one of the basic sciences plays an important role in various disciplines. In addition, learning mathematics can put pressure on the arrangement of reasoning, the formation of students' attitudes and skills in their application in everyday life as well as in studying various sciences.

In mathematics learning, generally the teacher is the main subject who gives the material, while students are objects who receive knowledge, students are "empty boxes" and the learning process is not conducive (Fauzan & Sari, 2017). In the principle of learning mathematics, the teacher's task is to motivate students to think, ask questions, solve problems, discuss ideas and problem solving strategies from students and not "give" knowledge to students, but "facilitate" students. to be able to learn independently (Hidayati, Subanji, & Sisworo, 2020). The learning process is carried out in a routine (routine), procedural (procedural), and the material is presented in the final formulation and discussion (final formula) causing low student activity.

Conceptual understanding is very important in learning mathematics (Mulyono & Hapizah, 2018). With understanding, students can express their own ideas, ideas and conjectures. Students can also use informal strategies to solve problems, and can evaluate each other's thinking results. With understanding, students can develop reasoning skills, using evidence and logic (Pratiwi, Nusantara, Susiswo, Muksar, & Subanji, 2019).

In essence, learning mathematics is an active process of constructing knowledge from students themselves (Rangkuti, 2014). To build and gain understanding of new concepts, active and constructive efforts are needed through linking one concept to another from the students themselves (Maharani & Subanji, 2018). Active and constructive effort is a thought process and mental activity that involves knowledge and experience (Suatini, 2019) that students already have which can be done in various ways, for example by guessing, trying, investigating, communicating mathematical ideas both verbally and in writing in solving various problems faced (Supardi, 2015).

Integers are class VII material in the first semester. The whole number material has been studied by students since elementary school. Based on the 2013 Curriculum and the curriculum during the pandemic of integers, the seventh grade junior high school students learned to compare integers, operations to add and subtract integers, multiplication and

division operations of integers, compare fractions, addition and subtraction of fractions, multiplication and division of fractions, recognize positive integers, least common multiples and common factors. The integer material discussed in this study is the operation of adding, subtracting, multiplying, and dividing integers.

Integers are very important material to be mastered by students in order to learn the following materials. However, there are still many students who find it difficult to determine integer operations. Students experience errors in determining the value of adding or subtracting positive and negative numbers. Students are still confused about the concept of adding, subtracting by multiplying (Kurniawan, 2019). The difficulties experienced by students when adding or subtracting positive and negative numbers, negative numbers and negative numbers. This shows that students do not understand the concept of integer operations. From the results of the pretest of 32 students from 5 questions given, it was found that 14 students had difficulty determining the operation of adding negative numbers with negative numbers and positive numbers with negative numbers.

To overcome the weak understanding of the concept of integer operations which results in student errors in calculating integer operations, the author tries to use the Experience, Language, Picture, Symbol, Application (ELPSA) design with the help of LKPD which is modified by the teacher himself. This study aims to describe the application of ELPSA learning in improve the understanding of integer operations in class VIIA students of SMPN 5 Sanggau in the 2021/2022 academic year". The indicators of success in this study are (1) The action is said to be successful if the student activities during the learning process are in the good category, (2) The student learning outcomes in this scientific review activity are said to be successful if the final score of 80% of students in the class has reached the KKM, which is at least at complete category 70 Y 100, where Y is the student's final grade.

RESEARCH METHODS

This scientific review activity was carried out at SMPN 5 Sanggau, on the basic competence of calculating integer operations. The subjects in this study were students of class VII-A, totaling 32 people. This scientific review activity was carried out in July 2021. At the planning stage, researchers developed learning tools which included, (1) lesson plans, (2). LKPD, (3). Student activity observation sheets, (4) Field Notes, (5) assessment of test learning outcomes. In the implementation of ELPSA learning activities, it is applied in a combination offline and online. The ELPSA learning was carried out at the BDR 1 activity on July 19, 2021. The results of observations of student learning activities were analyzed using the formula below.

$(X_i) = A_i/B \times 100\%$

Information (X_i) = the average score of the i-th observer, i = 1,2

A_i = total score of the i-th observer i=1,2

B = maximum total score

The average score obtained from each observer is then averaged again to get the final average score for student activities.

$X = ((X_1) + (X_2))/2$

Description: X = score of observations

X_1 = mean score of the first observer

X_2 = mean score of the second observer

Table 1 Percentage of Student Activity Categories Based on Observations

Percentage	Category
90% <$\bar{X}$≤ 100%	Very Good
75% ≤ $\bar{X}$ ≤ 90%	Good
60% <$\bar{X}$<75%	Enough
0% ≤ $\bar{X}$ ≤ 60%	Not good

(Source: Hobri, 2010)

The learning outcomes data in this study are included in the cognitive domain. After the posttest, the number of students who have reached the KKM is calculated. The KKM of mathematics at SMPN 5 Sanggau is 70. The results of the study of answers from the pre-test on the BDR 1 assignment are used to observe the level of students' understanding of the concepts of addition and subtraction of integers. Students are said to understand if 80% of students reach the KKM that has been determined in mathematics, which is 70.

RESULTS AND DISCUSSION

A. Pre Test Result

Student learning outcomes in this study are the results of the pre-test which is done individually. The pre-test questions in BDR 1 consist of five questions. The list of pre test scores is in table 2 below:

Tabel 2 Score List Pre Test

No	Student's Name	Gender	Score					Total Score	Final Score	Ability Category
			1	2	3	4	5			
1	AS	L	5	9	9	6	3	32	64	Low
2	AM	L	6	0	9	5	4	24	48	Low
3	A	L	6	12	9	10	7	44	88	High
4	AH	P	5	0	9	10	4	28	56	Low
5	A	L	6	5	3	9	4	27	54	Low
6	BRF	L	3	6	12	9	10	40	80	Enough
7	CV	P	4	12	9	10	7	42	84	Enough
8	CA	P	1	6	12	6	7	32	64	Low
9	DH	L	6	12	9	9	11	47	94	High
10	E	P	1	6	4	9	2	22	44	Low
11	FLH	L	6	12	9	10	7	44	88	High
12	FDH	L	6	12	9	10	7	44	88	High
13	HS	L	1	1	4	4	8	18	36	Low
14	IRM	L	6	8	9	10	7	40	80	Enough
15	JCL	P	6	12	9	10	8	45	90	High
16	JR	L	6	8	9	7	10	40	80	Enough
17	KZ	P	6	12	9	10	13	50	100	High
18	MF	P	1	6	10	9	6	32	64	Low
19	MIA	L	6	8	5	0	1	20	40	Low
20	NS	P	1	6	4	9	2	22	44	Low
21	NZU	P	6	12	9	10	5	42	84	Enough
22	OVD	L	6	1	9	10	5	31	62	Low
23	R	L	6	12	9	10	8	45	90	High

24	RE	L	4	12	9	10	5	40	80	Enough
25	RR	P	6	12	9	10	7	44	88	High
26	RH	P	1	1	6	4	10	20	40	Low
27	SS	L	4	12	9	10	7	42	84	Enough
28	SSP	L	4	12	9	10	5	40	80	Enough
29	STA	L	1	6	8	4	6	25	50	Low
30	TRH	P	1	1	6	4	10	20	40	Low
31	VE	P	6	8	9	10	7	40	80	Enough
32	Y	P	6	8	9	10	7	40	80	Enough
Percentage of complete learning outcomes								56,25%		

*) Information : L = Male, P = Female

	Completed value
	High ability category
	Medium ability category
	Low ability category

After carrying out the first cycle of actions, information was obtained that:

1) The results of the observation of student activities in the good category.
2) The completeness of the students' pre-test scores reached a percentage of 56.25%.

Because criteria (1) and (2) have not been achieved, the actions in cycle I have not been successful. Thus the research was continued in cycle II. In cycle II the researchers made several improvements including the following:

a) The implementation of material review before the final test must be maximized.
b) The provision of LKPD must be more attractive according to clear sources
c) Giving the material is continued to the next material, namely multiplication and division
d) The effectiveness and strengthening of actions at each stage of the ELPSA carried out during the BDR learning process is more concerned.
e) Giving additional questions about integer operations to be given at the application stage.

B. Post Test

Student learning outcomes in this study were the results of the posttest at the end of BDR 1 which was done individually. The posttest consists of five questions. Table 2 below is a list of posttest scores.

Table 2 List of posttest scores

No	Student's Name	Gender	Score					Total Score	Final Score	Ability Category
			1	2	3	4	5			
1	AS	L	9	6	4	7	7	33	66	Low
2	AM	L	9	5	5	6	7	32	64	Low
3	A	L	8	7	4	11	14	44	88	High
4	AH	P	8	7	4	7	16	42	84	Enough

No	Student's Name	Gender	Score					Total Score	Final Score	Ability Category
			1	2	3	4	5			
5	A	L	8	7	8	6	16	45	90	High
6	BRF	L	8	7	8	11	16	50	100	High
7	CV	P	8	7	8	11	16	50	100	High
8	CA	P	8	7	8	6	16	45	90	High
9	DH	L	8	7	8	11	16	50	100	High
10	E	P	8	7	4	7	16	42	84	Enough
11	FLH	L	9	6	4	7	7	33	66	Low
12	FDH	L	8	7	8	11	14	48	96	High
13	HS	L	7	8	8	11	16	50	100	High
14	IRM	L	6	6	5	8	16	41	82	Enough
15	JCL	P	7	8	4	11	16	46	92	High
16	JR	L	7	8	8	11	16	50	100	High
17	KZ	P	7	8	4	11	16	46	92	High
18	MF	P	7	3	8	11	16	45	90	High
19	MIA	L	6	6	5	8	16	41	82	Enough
20	NS	P	7	8	3	11	16	45	90	High
21	NZU	P	7	8	8	11	16	50	100	High
22	OVD	L	7	6	8	3	7	31	62	Low
23	R	L	7	8	8	11	16	50	100	High
24	RE	L	7	8	5	4	16	40	80	Enough
25	RR	P	7	8	8	11	16	50	100	High
26	RH	P	7	8	8	11	16	50	100	High
27	SS	L	7	8	8	11	16	50	100	High
28	SSP	L	7	8	8	11	16	50	100	High
29	STA	L	6	6	5	8	16	41	82	Enough
30	TRH	P	7	8	5	4	16	40	80	Enough
31	VE	P	7	8	8	11	16	50	100	High
32	Y	P	7	8	8	11	16	50	100	High
Percentage of complete learning outcomes								87,5%		

*) Information : L = Male, P = Female

	Completed value
	High ability category
	Medium ability category
	Low ability category

Based on the results of the post-test, the final score of students' completeness reached a percentage of 87.5%. While the percentage of student activity in the good category. Based on the results of the analysis, it is known that all aspects of the success criteria have been achieved. So it can be concluded that this research has reached the criteria of success.

CONCLUSION

Based on the results of the study, it can be concluded that ELPSA learning can understand the concept of integer operations for class VIIA SMPN 5 Sanggau with details of the success that has been achieved in cycle II, namely: (1) the results of observing student activities in good categories (2) presenting students who have reached the KKM ie the final score of at least 70 is 87.5%. On this discussion, the writer gives advice to mathematics teachers who teach at other schools who are also experiencing problems with student learning outcomes. Some things that need to be well prepared are group division and group arrangement when face-to-face offline activities are limited. In addition, making the application in the image also needs to be considered and prepared beforehand.

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