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E-Assessment of Literacy Movement Using Labanotation in Dance Learning for Junior High School Students

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This study aimed to determine the use of labanotation for E-Assessment in junior high school students in Jakarta. The method used in this research was quantitative descriptive. Afterwards, the data analysis used independent sample t-tests, with the SPPS v.16 program. The samples were taken from 5 school areas in Jakarta, involving 70 students from 7 schools. The data collection technique was obtained by answering the questions in the E-Assessment web. For the analysis, there were several tests involving such as expert test, reliability test, homogeneity and normality test, and practicality test. The results showed that the E-Assessment was worth to be used constructively and the content and results of ICC reliability were in a good category. The practicality test results involving the teacher's response were also in a good category. Therefore, the E-Assessment for literacy movement using labanotation was appropriated to use.

Key words: *Dance Learning, E-Assessment, Junior High School, Labanotation, Literacy Movement.*

Introduction

Changes in assessment strategy to measure skills in a complex global environment are needed (McTighe & Wiggins, 2012). The change in measuring competencies should be integrated with indispensable knowledge skills for the future and is required innovative learning and assessment for teaching collaborative work that will reflect in skills, ability and knowledge (Bell, 2014; Lai & Viering, 2012).

In learning and assessment activities, students are expected to solve problems through communication, information, media and technology, including information literacy and media literacy (Lai & Viering, 2012). Technological literacy can be performed by implementing the E-Assessment system. Assessment using digital technologies are increasingly being used in the program in schools (Charteris, et al., 2015). Therefore, the learning quality issues involving electronic media must be improved.

Afterwards, the using of digital assessment can be classified into 1) basic literacy as numeracy literacy, scientific literacy, technology literacy and information, financial literacy, and culture literacy; 2) competence or ability to handle various complex problems; 3) ability to survive in a changing environment (Anggayana, 2018). The e-assessment ratings will lead the students to have the ability in solving problems.

The ability to solve problems will encourage critical thinking skills that include declarative knowledge, procedural, and meta-cognition (Matt, 2003). It can influence the socio-emotional understanding and development to suppress and reduce conflict or stress (Eddy, 2016). Conflicts and stress can be avoided with the ability to understand the self, which is expressed in the form of gestures. An understanding of the body in learning can be done by imitating, developing, perceiving, manipulating, and improvising motion movement namely the literacy movement. It is following Harrow's psychomotor theory which consists of manipulative skills, motors and movement that require neuromuscular coordination (Harrow, 1972). This neuromuscular condition will lead to motion perception which involving the cognitive of person. The study in literacy movement has been conducted to determine the ability to think and move through the form of dance notation symbols and coding (Bucek, 1998). The symbol and code in dancing are quite complicated, so dancers need to make a written record of the motion, read the symbols, and shape the patterns of the symbol. Furthermore, Bucek (1998) in his research also explained that the literacy movement is a tool to facilitate dance content skill. The literacy movement is performed with various coding method, kinesthetic (moving), visual (reading), and tactile (writing) in order to stimulate learning and understanding the information (Sudlow, 2019).

The E-Assessment of literacy movement developed in this study is the ability to read, write, and interpret symbols in the form of a motion by using Labanotation proposed by Rudolf van Laban.

Method

The method used in this research was quantitative descriptive through the performance of E-Assessment literacy movement given to junior high school students in Jakarta. The data

analysis was using independent sample t-test with SPSS v16 program. Samples were taken from five schools' area in Jakarta, with a total of 70 students from 7 schools.

The instruments were developed by adopting a symbol of Labanotation created by Rudolf von Laban. Literacy motions measured by understanding and interpreting the symbol of motion through reading, writing, and interpret the notation with smooth, quick, and precise. The instruments of literacy motion can be seen in Table 1.

Table 1: Concentration Grid Test Instruments of Literacy Movement

No.	Indicator	Aspect
A.1	Exercising by reading the motion symbol	The accuracy of motion with readable symbols
		Doing motion smoothness in accordance with the readable symbol
		In response to the speed symbol
B.1	Describe/write the description of motion	The accuracy of describing the motion of the readable symbols
		Smoothness describes the motion in accordance with the readable symbols
		Suitability in decrypting the motion with Perfected Spelling System
C.1	interpret/make a motion symbol	Embodies accuracy in the description of motion in the form of symbols
		Embodies the motion smoothness description in the form of symbols
		Embodies the suitability of the description of motion in the form of symbols

The technique of collecting data is conducted through the performance test by answering the questions in the E-Assessment web. The analysis then conducted using an expert test to measure the validity of the instrument using CVI. The experts involving in this research were three experts to assess the linguistic and four experts to measure the material. Meanwhile, for the reliability test were using ICC analysis which used to test the homogeneity and normality as the prerequisite test statistic and determining the differences in treatment outcomes among students from seven schools. Afterwards, the practical test for the E-Assessment web was conducted by calculating the percentage of the questionnaire responses' results

Result and Discussion

Validity Test of Instrument Results

The result of the validity test which was obtained using the CVI Mean I-CVI or the average proportion of the relevant items was 0.68. In addition, the results of four assessors assessment

toward E-Assessment instrument was obtained several aspects of assessment including the aspect of conformity assessment from the existing indicators, the aspect of writing items, the aspect of language, and the aspect of appearance. The results of general validation toward E-Assessment instrument from expert testing was obtained that the maximum scores were 20 in the aspect of conformity assessment from the existing indicators and the most significant percentage was 82.3% from other aspects and thus can be categorised as worth to use.

The level of reliability agreement among the four assessors can be obtained by calculating the reliability coefficient using interclass correlation coefficient. The result of all the assessment was using SPSS version 16 in table 2.

Table 2: Inter-class Correlation Coefficient

	Inter-class Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	DF1	DF2	Sig
Single Measures	.838b	.811	.861	21 617	335	1005	.000
Measures Average	.954c	.945	.961	21 617	335	1005	.000

From the table 2, it can be seen that the inter-class correlation in the analysis showed the average inter-class agreement amounts to 0.838 while for the assessor consistency was 0954 which meant having high stability (Stephen & Shane, 2000; Streiner, et al., 2015).

Normality and Homogeneity Test

Normality test was used to view the data distribution whether sample data has been drawn from a normally distributed population or not. Normality assumption was required while conducting the parametric analysis. Therefore, it is necessary to conduct the steps such as: 1) determining the hypothesis Ho = Data has not normal distribution; Ha = the data has a normal distribution; 2) testing criteria Ho accepted if Sign Kolmogorov-Smirnov <0.05 and Ho is rejected if the sign Kolmogorov Smirnov > 0.05.

Based on table 3, it is known that the significant value Asiymp.Sig (2-tailed) of 0.788 greater than 0.05. Then, following the Kolmogorov-Smirnov test for normality in the table above, it can be concluded that the data were normally distributed. Thus, the normality requirements have already fulfilled in the regression model.

Table 3: One-Sample Kolmogorov-Smirnov Test

		Residual unstandardized
N		69
Normality Parameters	mean	.0000000
	Std. deviation	.27845465
Most Extreme Differences	Absolute	.200
	Positive	.180
	Negative	-.200
Kolmogorov-Smirnov Z		1,665
Asymp. Sig. (2-tailed)		.788

Afterwards, homogeneity is the similarity of nature and character in such a group. The homogeneity test would be focused on such group of data, whether it is homogeneous or not and to determine the similarity variant.

Based on the results in Table 4, it was obtained that the significance value was 0.520 > 0.05. Hence it can conclude the test variables based junior high school literacy skills have the same variant or homogeneous.

Table 4: Homogeneity Variant Test

Junior High School			
Levene Statistic	DF1	DF2	Sig.
.873	6	63	.520

Hypothesis Testing

The hypothesis testing in this research was using the Two Way ANOVA which also called Anova 2 Direction or Variant 2 Factor Analysis. It has a function to compare the average difference between the groups which have been divided into two independent variables.

In table 5, the correlation matrix between X1 with Y obtained r = 0.565. X2 with Y r = 0.534, and the variable X3 with Y obtained r = 613 with the probability of all variables = 0.000 <0.05, then Ho is rejected, which means that there was a relationship / significant correlation between X1, X2 and X3 with Y.

Table 5: Correlations between X1 with Y

		Literacy ability Motion	Reading Symbols Motion	Description Describing Motion	Interpret Symbols Motion
Pearson Correlation	Literacy ability Motion	1,000	.565	.534	.613
	Reading Symbols Motion	.565	1,000	.000	-.049
	Describing Description Motion	.534	.000	1,000	.047
	Interpret Symbols Motion	.613	-.049	.047	1,000
Sig. (One-tailed)	Literacy ability Motion	,	.000	.000	.000
	Reading Symbols Motion	.000	,	.000	.043
	Describing Description Motion	.000	.000	,	.049
	Interpret Symbols Motion	.000	.043	.049	,
N	Literacy ability Motion	70	70	70	70
	Reading Symbols Motion	70	70	70	70
	Describing Description Motion	70	70	70	70
	Interpret Symbols Motion	70	70	70	70

In table 6, the model (1) was explaining the value of the correlation (R) between (X3) with (Y) which is equal to the magnitude of the percentage of .613. It is also explaining the influence of X3 variable Y, which is called the coefficient determination. From the result of the terminated coefficient (R2) on the model (1) of 0.376, this implies that the influence of the independent variable (X3) on the dependent variable (Y) is approximately 37.6%.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.613a	.376	.366	1,768
2	.855b	.730	.722	1,171
3	.992c	.985	.984	.283
a. Predictors: (Constant), Interpret Symbols Motion				
b. Predictors: (Constant), Interpret Symbols Motion, Motion Symbol Reading				
c. Predictors: (Constant), Interpret Symbols Motion, Symbol Reading Motion, Description Describing Motion				

In the model (2) described the magnitude of the correlation (R) between (X1) and (X3) toward (Y) which was equal to 0.855 and explaining the magnitude of the variable effect percentage of X1 and X2 to Y of 0.855 or 85.5%.

In the model (3) described the magnitude of the correlation (R) between X1, X2, and X3 toward (Y) which was equal to 0.992 and explained the magnitude of the variable effect percentage of X1, X2 and X2 to Y of 0.922 or 92.2%.

In table 7, it explained the real significance or effect of score variable between X2, X1 and X2 Ditching Frequency simultaneously. From the results in the second model showed than F value = 1.399E3, and the significance level was 0.000 < 0.05. Thus, the regression can be used to predict the ability of literacy movement.

Table 7: ANOVA

Model		Sum of Squares	df	mean square	F	Sig.
1	Regression	127 913	1	127 913	40 901	.000a
	residual	212 659	68	3,127		
	Total	340 571	69			
2	Regression	248 752	2	124 376	90 757	.000b
	residual	91 819	67	1,370		
	Total	340 571	69			
3	Regression	335 299	3	111 766	1.399E3	.000c
	residual	5,273	66	.080		
	Total	340 571	69			
a. Predictors: (Constant), Interpret Symbols Motion						
b. Predictors: (Constant), Interpret Symbols Motion, Motion Symbol Reading						
c. Predictors: (Constant), Interpret Symbols Motion, Symbol Reading Motion, Description Describing Motion						
d. Dependent Variable: Ability Literacy Movement						

The t value of X1 = 40.266 with a probability = 0.000 <0.5 which meant it has significant effect. Then, for variable t value X2 = 38.818 with probability = 0.000 <0.05, which meant there was a significant effect. For t value of X3 = 32.914 with probability = 0.000 <0.05, which means that there is significant effect as well. Therefore, from the X1, X2, and X3 showed a significant effect in each of the values.

Practicality Test Instruments

In order to find out the quality and practicality of web e-assessment, then the user is given the questionnaire about practicality response of e-assessment web covering the aspects of objectivity, systematic, construction, linguistic and practicality with the total number of items statement up to 11 items. Alternative ratings assessed each aspect: excellent (scored 5), good (scored of 4), Fair (scored 3), less (scored 2) and considerably less (scored 1). Table 8 presents a summary of the assessment of the teacher's response to the e-assessment web in the classroom.

As seen from table 8, teachers who assess the e-assessment were having subjectivity, systematic, construction, linguistic and functional practicality. This is illustrated by the average value of the overall percentage amounts to 80.37%. Based on the criteria of practicality formula e-assessment web, generally, it was considered that the assessment was practical for the teachers to assess the literacy movement using Labanotation in Junior High School students on dance learning.

Table 8: Practicality Assessment Analysis of Web E-Assessment

Component	Respondents										Total	Percentage (%) Practicalities
	1	2	3	4	5	6	7	8	9	10		
1	4	3	4	4	4	3	4	3	4	3	36	0.82
2	4	3	4	4	4	3	3	4	4	3	36	0.82
3	4	4	4	4	4	4	4	3	4	4	39	0.89
4	4	3	4	3	4	3	3	3	4	4	35	0.80
5	4	3	4	3	4	3	3	3	4	3	34	0.77
6	4	3	4	3	4	3	3	3	4	3	34	0.77
7	3	3	3	3	3	3	3	3	3	3	30	0.68
8	4	4	4	4	4	4	4	3	4	3	38	0.86
9	4	3	4	3	4	4	3	3	4	4	36	0.82
10	4	4	4	3	4	3	4	3	4	4	37	0.84
11	4	3	4	3	4	3	3	3	4	3	34	0.77
Amount	**43**	**36**	**43**	**37**	**43**	**36**	**37**	**34**	**43**	**37**	**389**	
Average	**3.91**	**3.27**	**3.91**	**3.36**	**3.91**	**3.27**	**3.36**	**3.09**	**3.91**	**3.36**	**35,36**	**80.37**

From the results above, it showed that the literacy movement e-assessment web was worth to use. According to Buzzetto-More & Alade (2006) motion-based literacy e-assessment web was an ongoing process that involved planning, discussion, consensus building, reflection, measurement, analysis and improvements based on the data and artifacts collected on the learning objectives. This e-assessment offer new measures to assess learning that will generate rich data sources and expanding how educators understand the mastery of learning and teaching effectiveness (Vendlinski & Stevens, 2002). The used of E-assessment were including the use of computers as part of any activity such as summative, formative, or diagnostic. It can be in another form including the submission of online tasks in an electronic portfolio.

E-assessment as a part for e-learning also offers the harmony of teaching and assessment methods (Jordan, 2013; Mackenzie, 2003). This provides a solution, for students to learn without a distance bound. E-assessment allows students to understand their weaknesses and feedback is considered impersonal and nonjudgmental. Thus the use of digital can open the way students thinking who provide information, both for students and teachers (Jordan, 2012; Miller, et al., 2008; Northcraft & Earley, 1989; West & Turner, 2016). Dermo (2009b) in his research, found another issue in the e-assessment, such as the validity, practicality, safety and

reliability. Although, the dimensions were analysed separately, the e-assessment can have a high risk in the management.

Nowadays, students should be able to learn to use technology. Nevertheless, students typically use technology mainly for social activities (i.e., Communication and entertainment) but not for academic learning (Peck, et al., 2002). In this case, teachers and students should be familiar with the operation of the technology, understanding the purpose of using technology and should be able to use technology as a learning tool. Exercise under well-guidance will enable them to adjust to technology faster (Davies, 2011). Both teachers and students should be expected to do the learning associated with the use of new technology, and practice using the equipment (Leu, et al., 2005).

The teachers could provide the best situation for the students to develop competency in technology. The students should know first why technology was used. Afterwards, the evaluator would determine whether or not the students have understood the use of technology for learning purposes (Davies, 2011).

Conclusion

The E-Assessment dealing with dance learning in junior high school has been performed. Several variables in the research were obtained through a quantitative method. The four variables were tested to find out its significant the dependent variable with the independent variable. Thus, from the research's result and discussion, it can be seen that there were simultaneous influences among the dependent and independent variable.

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