Journal of Education, Teaching and Learning
Volume 1 Number 2 September 2016. Page 71-75
p-ISSN: 2477-5924 e-ISSN: 2477-4878

Effect of Motivaton and Creativity on Students' Psychomotor Ability

Muhamad Arpan[1)], Dewi Sulistiyarini[2)], Danar Santoso[3)]

[1)] *IKIP PGRI Pontianak, Pontianak, Indonesia*
E-mail: arpanmuhamad@gmail.com

[2)] *IKIP PGRI Pontianak, Pontianak, Indonesia*
E-mail: dhewysulis@gmail.com

[3)] *IKIP PGRI Pontianak, Pontianak, Indonesia*
E-mail: danar.santoso21@gmai.com

Abstract. This research aims to determine: (1) the effect of motivation on students' psychomotor ability; (2) the effect of creativity on students' psychomotor ability; (3) the effect of motivation and creativity as in aggregate on students' psychomotor ability; and (4) the contribution of motivation and creativity on students' psychomotor ability in the subject of Web Programming. This research is an ex-post facto type. The population was sixth semester students of TIK Education Research Program of PGRI Pontianak totaling 217 students. The sample was 135 students with proportional random sampling techniques that determined by the Issac and Michael table. Data collection using a questionnaire. The data was analyzed using regression analysis to test the hypotheses. The results showed that: (1) motivation has a positive and significant effect on students' psychomotor Ability; (2) creativity has a positive and significant effect on students' psychomotor Ability; (3) motivation and creativity as in aggregate had a positive and significant effect on students' psychomotor Ability with 68.88%; and (4) the contribution of motivation is 12.5% and creativity is 32.5% on students' psychomotor Ability in the subject of Web Programming.

Keywords: Motivation; creativity; psychomotor ability.

I. INTRODUCTION

Information and Communication Technology (ICT) in education has been growing rapidly. It can be seen the use of technology in education as a learning resource, assist in the dissemination of information and knowledge without limits of time and space. Improvement of the quality in education can be seen from various aspects such as through the assessment process of learning which is divided into three areas: cognitive, affective, and psychomotor. The success of students in the learning process can be influenced by factors of intern and extern. The factors of intern includes physical and psychological.

One of the example of psychological factors is motivation. If students' learning motivation is high, it can support the success of learning outcomes. But if students' learning motivation is low, it will become an obstacle in learning outcomes. Lecturers must be able to choose the right variety in order to create an attractive learning situations. If lecturers can do that, the students' motivation will be increase and students' learning outcomes will be achieved.

Web Programming is a subject that requires the students to think creatively and able to develop a web-based program. In this subject, students learn about the basic concepts and design the web with a basic structure of Web Programming. In the learning process of understanding the Web Programming, the student obtained not only in terms of the cognitive domain, but the main goal in this research is to develop psychomotor ability of students.

A. Motivation

Motivation can be defined as everything that drives behavior that requires or encourages a person to make ends. Motivation is the driving force that caused the habbit to the spesial purposes[1].

Motivation is essential to learning [2]. Motivation is an essential component required in the learning process. For students learning motivation can foster the spirit of learning so that students are encouraged to conduct learning activities. Students who have high motivation is able to achieve higher performance. For professors find the motivation to learn from the students was very necessary to maintain and enhance the spirit of learning greater the motivation that created the achievement of learning goals will be even greater.

B. Creativity

Creativity is an experience in express and actualize individual identity in the form of an integrated relationship with oneself, with nature and with others [3]. Processing the power of creativity to do with some of the activities associated with the environment society or family society, time, facilities and infrastructure, and more. Such activities

Journal of Education, Teaching and Learning
Volume 1 Number 2 September 2016. Page 71-75
p-ISSN: 2477-5924 e-ISSN: 2477-4878

can be a source of learning is effective in enhancing creativity.

Creativity consists of common traits and processes are different in each person, but there are some common features that define creativity, which includes fluency, flexibility, originality and elaboration. Although the general features of creativity and the process differ from person to person there are some common features that define creativity. They are fluency, flexibility, originality and elaboration as follows [4]. Confidence, dare to take risks, enterprising, ambitious, active adventure, curiosity, consideration, different, tolerance, flexibility are some of the traits of creative people [5].

C. *Psychomotor Ability*

Psychomotor ability is also known as process skills, the skills that lead to the development of mental ability, physical, and social fundamental as a driver of higher capability within the individual students [6].

Psychomotor components, the dimensions of physical action, in the form of the skills to do, can be trained with the following activities: through select, prepare, assemble and use a set of instruments appropriately and correctly. Limitations of time and facilities in the lab is often a constraint psychomotor development. To resolve these matters, students should take advantage of spare time outside the regular time schedule to train yourself to use the equipment, of course, with the guidance of instructors [7].

Psychomotor learning outcomes can be seen directly in some form of skills. Forms of psychomotor skills, namely: (1) Movement reflex (movement skills at the unconscious); (2) Skills in the unconscious movements; (3) The ability to provide perceptual including visual, auditory distinguish motor, and others; (4) The ability of the physical field, for example, strength, harmony and precision; (5) Movements skills, ranging from simple skills to the complex skills; and (6) capability with respect to non sursive communications such akspersif movement, interpretative [8].

Based on the background that has been described, this research aims to determine: (1) the effect of motivation on students' psychomotor ability; (2) the effect of creativity on students' psychomotor ability; (3) the effect of motivation and creativity as in aggregate on students' psychomotor ability; and (4) the contribution of motivation and creativity on students' psychomotor ability in the subject of Web Programming on ICT Education of IKIP PGRI Pontianak.

II. METHOD

A. *Types of Research*

This research uses a quantitative approach with ex-post facto type.

B. *Time and Place of Research*

The research was conducted in ICT Education of IKIP PGRI Pontianak with the address at Jalan Ampera No. 88 Pontianak, Kalimantan Barat, Indonesia. Data collection and processing of research conducted on March until July 2016.

C. *Population and Sample of Research*

Population of the research is the sixth semester of the students of ICT Education on Web Programming subject. Population numbers are 217 students. The research sample is 138 students. The sampling technique is using proportional random sampling with Isaac and Michael table with level error is 5%.

D. *Data Collection Techniques and Research Instruments*

The data that collected is related to students' motivation, creativity, and psychomotor ability in Web Programming. Data collection techniques using questionnaires and documentation.

Questionnaires were completed by giving to the students to get the value of motivation and creativity. Documentation used to get the value of students' psychomotor ability in Web Programming.

E. *Data Analysis Techniques*

Data analysis is used to process the data of research variables. The analysis of this research is using descriptive and inferential statistics.

Descriptive statistics are used to describe the data without making a decision. Descriptive analysis include the mean, median, mode, standard deviation, variance, and skewness.

Inferential statistics are used to perform data calculations and then the results are targeted at populations. The inferential statistics in this research is simple and multiple linear regression.

Before doing the data analysis, the data should tested with the requirements analysis. Requirements analysis is used to see the condition of the data is feasible or not, including normality, linearity and multicollinearity test. Here are the results of the test requirements analysis.

Table 1. Results of Testing Requirements Analysis

Variable	Data Normality	Data Linearity	Data Multicolinearity
Motivation	0,327	0,000	1,929
Creativity	0,089	0,000	1,929

Based on Table 1, the data of motivation and creativity are normal, linear, and not correlated. Thus, the data can continue to perform descriptive and inferential statistical analysis.

III. RESULTS AND DISCUSSION

A. *Results*

The data of the research have been obtained and tested its requirements, then the next step is make calculations and analysis to answer the research hypothesis. Here are the results of data analysis of the research.

Journal of Education, Teaching and Learning
Volume 1 Number 2 September 2016. Page 71-75
p-ISSN: 2477-5924 e-ISSN: 2477-4878

1) Descriptive Statistics Analysis

Descriptive statistics analysis describes the variables in generally that consists of variable motivation, creativity, and psychomotor ability. Based on questionnaires that given to 138 students on Web Programming subject, the results are are described as follows:

The results of data analysis of motivation that is obtained by the mean is 76.95, median is 77, mode is 78, the standard deviation is 8.745, variant is 76.482, and skewness is -0.265.

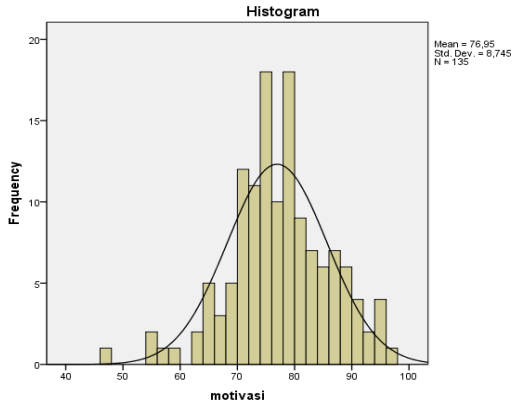

Fig. 1 Histogram of Motivation

The results of data analysis of creativity that is obtained by the mean is 68.50, median is 67, mode is 62, standard deviation is 11.484, variant is 131.879, and skewness is 0.422.

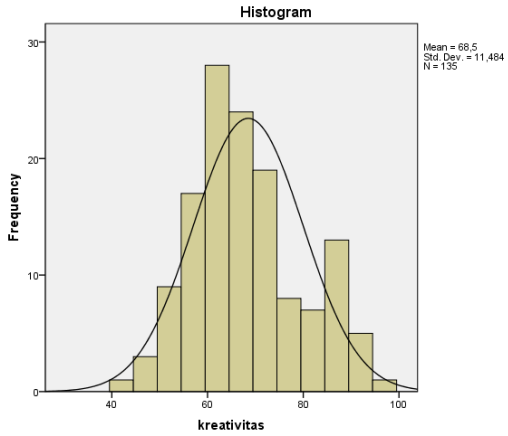

Fig. 2 Histogram of Creativity

The results of data analysis of psychomotor ability is obtained by the mean is 75.44, median is 76, mode is 70, standard deviation is 4.786, variant is 22.905, and skewness is -0.090.

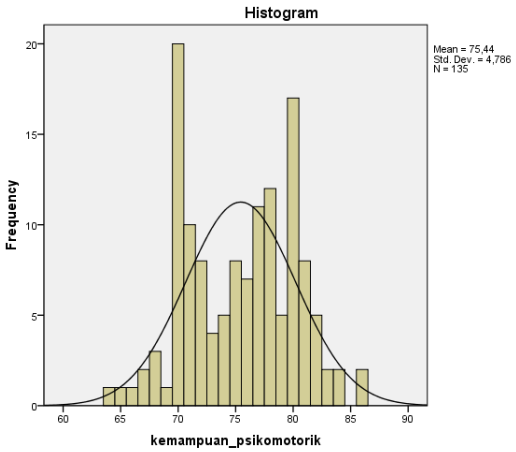

Fig. 3 Histogram of Psychomotor Ability

2) Inferential Statistics Analysis

Inferential statistics analysis is use to see whether or not the correlation between the variables and determine the correlation of the variables. Based on the analysis, the result showed that the correlation value (r) of motivation (X1) and psychomotor ability (Y) is 0.801 with the coefficient of determination (r2) is 0.642.

The correlation value (r) of creativity (X2) and psychomotor ability (Y) is 0.711 with the coefficient of determination (r2) is 0.506. The correlation value (r) of motivation (X1), creativity (X2), and psychomotor ability (Y) as aggregate is 0.830 with the coefficient of determination (r2) is 0.688. The details of the values can be seen in Table 2.

Table 2. Result of Model Summary

Variable	R	R Square	Adjusted R Square	Std. Error of the Estimate
$X_1 - Y$	0,801	0,642	0,639	2,875
$X_2 - Y$	0,711	0,506	0,502	3,378
$X_1, X_2 - Y$	0,830	0,688	0,568	2,693

To see whether or not the effect can be seen from the sig. of Anova table. The value of Sig. variable < 0.05 can be used to see if the multiple regression model can be used to predict the students' psychomotor ability.

Here is the Anova summary of variable motivation (X1), Creativity (X2), psychomotor ability (Y).

Table 3. Result of Anova

Variable	F	Sig
$X_1 - Y$	238,287	0,000
$X_2 - Y$	136,016	0,000
$X_1, X_2 - Y$	145,650	0,000

Based on Table 3, significance value to the psychomotor ability (Y) of motivation (X1), creativity (X2), and motivation and creativity (X1, X2) as in aggregate is 0,000. It means that the variables of motivation and creativity can be used to predict the psychomotor ability (Y).

Furthermore, the next step is looking for the value of simple and multiple linear regression. The correlation value of motivation on psychomotor ability and creativity on psychomotor Ability can be seen in Table 4.

Table 4. Summary of Simple Linear Regression Coefficient

Journal of Education, Teaching and Learning
Volume 1 Number 2 September 2016. Page 71-75
p-ISSN: 2477-5924 e-ISSN: 2477-4878

Variable	Unstandardized Coefficients		T		Sig	
	Constant	X	Constant	X	Constant	X
$X_1 - Y$	41,703	0,438	18,961	15,437	0,000	0,000
$X_2 - Y$	55,139	0,296	31,249	11,663	0,000	0,000

Based on Table 4, the simple linear regression equation obtained for motivation and psychomotor ability is:

$$\hat{Y} = 41{,}703 + 0{,}438X_1$$

Meanwhile the simple linear regression equation for creativity and psychomotor ability is:

$$\hat{Y} = 55{,}139 + 0{,}296X_2$$

The correlation value of motivation and creativity as in aggregate on psychomotor ability can be seen in Table 5

Table 5. Multiple Regression Coefficient

Model	Unstandardized Cofficients		T	Sig.
	B	Std. Error		
(Constant)	41,906	2,060	20,340	0,000
Motivation	0,125	0,028	4,431	0,000
Creativity	0,325	0,037	8,791	0,000

Based on Table 5, the multiple linear regression equation obtained for motivation and creativity as in aggregate on psychomotor ability is:

$$\hat{Y} = 41{,}906 + 0{,}125X_1 + 0{,}325X_2$$

B. Discussion

1) Effect of Motivation (X1) on Psychomotor Ability (Y)

Motivation plays an important role in the learning process for both lecturers and students. Knowing the students' learning motivation is necessary for lecturers to maintain and enhance the learning spirit of students. For students' side, learning motivation can increase the spirit of learning on Web Programming.

Based on the analysis of the data, the motivation had a positive and significant effect on students' psychomotor ability of Web Programming at 0.801 and coefficient determination of 0.642 or 64.2%, that classified as good and high. This is confirm the previous result that motivation had a positive effect on students' learning achievement of Economic at 39.3% [9].

The regression equation of motivation (X1) on psychomotor ability (Y) of Web Programming is $\hat{Y}$ = 41.703 + 0,438X1. It means that any increase in scores of student learning motivation, it will be followed by a rise in scores of students' psychomotor ability of Web Programming.

2) Effect of Creativity (X2) on Psychomotor Ability (Y)

Creativity is an activity that raises high imaginative in doing something so that it can get the good results. Creativity in Web Programming is helping students to improve psychomotor ability.

Based on the analysis of data, the creativity had positive and significant effect on students' psychomotor ability of Web Programming at 0,711 and coefficient determination at 0.506 or 50.6%, that classified as good and high. This is confirm the previous result that creativity had a effect on students' learning achievement of Accounting at 21.9% [10].

The regression equation of creativity (X2) on psychomotor ability (Y) on the subject of Web Programming is $\hat{Y}$ = 55.139 + 0,296X2. It means that any increase in scores on the creativity of the students, it will be followed by a rise in scores of psychomotor students' ability of Web Programming.

3) Effect of Motivation (X1) and Creativity (X2) as in Aggregate on Psychomotor Ability (Y)

Psychomotor ability is a skill possessed by the students. Psychomotor ability can improve the ability of the students in critical thinking, synthesis and act that will be more effective and efficient for the students in achieving a good learning outcome of Web Programming.

Based on the results, the coefficient determination is 0.6888. It means that the motivation and creativity as in aggregate give the effect of 68.88% on psychomotor ability, while 31.12% effected by other variables outside of motivation and creativity.

Multiple linear regression equation the effect of motivation (X1) and creativity (X2) on psychomotor ability (Y) on the subject of Web Programming is **$\hat{Y}$ = 41,906 + 0,125X1+ 0,325X2.** It means that any increase in score of motivation and creativity of students learning as in aggregate, it will be followed by a rise in scores of students' psychomotor ability of Web Programming.

4) The Value of Contribution of Motivation (X1) and Creativity (X2) on Psychomotor Ability (Y)

Students' psychomotor ability of Web Programming effected by motivation and creativity. Based on the multiple linear regression equation, it can be seen the contribution of each variable of motivation and creativity are 12.5% and 32.5%. The greatest contribution of students' psychomotor ability based on the results of the research is the students' creativity. This shows that creativity is an important factor in improving the students' psychomotor ability on Web Programming.

IV. CONCLUSIONS

Motivation had positive and significant effect on students' psychomotor ability of Web Programming with regression equation $\hat{Y}$ = 41.703 + 0,438X1. The correlation coefficient (r) is 0.801 and coefficient determination (r2) is 0.642. It means that the motivation variable has the effect of 64.2% of students' psychomotor ability on Web Programming while 35.8% is explained by factors other than motivation.

Creativity had positive and significant effect on students' psychomotor ability of Web Programming with regression equation $\hat{Y}$ = 55,139 + 0,296X_2. The correlation coefficient (r) is 0.711 and the coefficient determination (r2) is 0.506. It means that the variable creativity has the effect of

50.6% of the students' psychomotor ability while 49.3% is explained by factors other than creativity.

Motivation and creativity as in aggregate had positive and significant effect on students' psychomotor of Web Programming with regression equation $\hat{Y} = 41{,}906 + 0{,}125X_1 + 0{,}325X_2$. The correlation coefficient (R) is 0.830 and the coefficient determination (R2) is 0.6888. It means that the variable of motivation and creativity as in aggregate had the effect of 68.88% of the students' psychomotor abilitiy of Web while 31.12% is explained by other factors other than motivation and creativity.

The contribution value of students' creativity on students' psychomotor ability is 0.325 and the students' motivation on students' psychomotor ability is 0.125. It means, based on the variables examined, the biggest contribution that affect students' psychomotor ability of Web Programming is creativity.

REFERENCES

[1] E. Mulyasa, *Kurikulum Berbasis Kompetensi, Bandung*:Remaja Rosdakarya, 2003.
[2] S. M. Alessi and S. R. Trollip, *Multimedia for Learning: Methods and Development.* Boston, MA: Allyn & Bacon,2001.
[3] U. Munandar, *Mengembangkan Bakat dan Kreativitas Anak Sekolah.* Jakarta: Geramedia Widia Sarana, 2002.
[4] M. Kincaid and L. Duffus, *Learning, Thinking and Creativitiy*. New York: IDES, 2004.
[5] D. W. MacKinnon, *Creativity: A Multi-faceted Phenomenon*. Amsterdam: North-Holland Publishing, 1970.
[6] A. Susanto, *Teori Belajar Pembelajaran di Sekolah Dasar*. Jakarta: Prenada Media Group, 2013.
[7] D. Prawira, "Belajar dari Kegiatan di Luar Kelas (Laboratorium)".,*Jurnal Pendidikan Vokasi*, vol. 2, pp. 27-29, 2010.
[8] N. Sudjana, *Dasar-dasar Proses Belajar Mengajar*. Bandung: Sinar Baru Algensindo. 2009.
[9] R. Inayah, T. Martono, and H. Sawiji, "Pengaruh Kompetensi Guru, Motivasi Belajar Siswa, dan Fasilitas terhadap Prestasi Belajar Mata Pelajaran Ekonomi pada Siswa Kelas XI IPS SMA Negeri 1 Lasem Jawa Tengah Tahun Pelajaran 2011/2012", *Jurnal Pendidikan Insan Mandiri,* vol. 1, pp. 1-12, 2013.
[10] C. P. Tirtiana, "Pengaruh Kreativitas Belajar, Penggunaan Media Pembelajaran Power Point, dan Lingkungan Keluarga terhadap Hasil Belajar Mata Pelajaran Akuntansi pada Siswa Kelas X AKT SMK Negeri 2 Blora Tahun Ajaran 2012/2013 (Motivasi Belajar sebagai Variabel Intervening)", *Economic Education Analysis Journal,* vol. 2, pp. 15-23, 2013.