THE RELATION BETWEEN CREATIVITY AND COMPUTER LITERACY OF PROSPECTIVE SCIENCE TEACHERS

Lect. Kadir KESGİN *

Nilüfer KESGİN *

ABSTRACT

The aim of this research is to find out the creativity level of prospective Science teachers' and to determine whether it has any relation to computer literacy. The research was implemented to the students of Science Teaching department in Amasya University in 2015-2016 academic year. 60 final year students attented the research. General survey method was used. "How Creative Are You?" creativity scale was used to identify the creativity level of the students. "Computer Literacy Scale" was used to measure the computer literacy. "Personal Information Form" was used to identify the personal features. The collected data was analyzed via SPSS programme. When the "How Creative Are You?" and "Computer Literacy" scales were analysed, the value in the sig. column is 0.052. Since this value is greater than 0.05, the relationship between Creativity and Computer Literacy is at p>0.05 level. In the case of these values, there is no significant relationship.

Keywords: Creativity, Computer Literacy, Prospective Science teachers

JEL Classificaiton: I21

ÖZET

Bu araştırmanın amacı, fen bilgisi öğretmen adaylarının yaratıcılık düzeylerini bulmak ve bilgisayar okuryazarlığı ile bir ilişkisi olup olmadığını tespit etmektir. Araştırma, 2015-2016 eğitim öğretim yılında Amasya Üniversitesi Fen Bilgisi Öğretmenliği Bölümü öğrencilerine uygulanmıştır. Araştırmaya 60 son sınıf öğrencisi katılmıştır. Genel anket yöntemi kullanılmıştır. Öğrencilerin yaratıcılık düzeyini belirlemek için "Ne Kadar Yaratıcısınız?" Yaratıcılık ölçeği kullanılmıştır. Bilgisayar okuryazarlığını ölçmek için "Bilgisayar Okuryazarlığı Ölçeği" kullanılmıştır. Kişisel özellikleri tanımlamak için "Kişisel Bilgi Formu" kullanılmıştır. Toplanan veriler SPSS programı ile analiz edilmiştir. "Ne Kadar Yaratıcısınız?" ve "Bilgisayar Okuryazarlığı" ölçekleri, sig değeri analiz edildiğinde sütun 0.052 değeri bulunmuştur. . Bu değer 0.05'ten büyük olduğu için Yaratıcılık ve

∗ Bandirma Onyedi Eylul University, Gönen Vocational School. kadir@bandirma.edu.tr

∗ Bandirma Science and Art Center, niluferkesginn@gmail.com

Bilgisayar Okuryazarlığı arasındaki ilişki p> 0.05 düzeyindedir. Bu değerler söz konusu olduğunda, anlamlı bir ilişki olmadığı tespit edilmiştir.

Anahtar Kelimeler: *Yaratıcılık, Bilgisayar Okuryazarlığı, Yaratıcı Fen Bilgisi Öğretmenleri*

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1. INTRODUCTION

The aim of this research is to find out the creativity level of prospective Science teachers via implemented scales and to determine whether it has any relation to computer literacy. Creativity is to make a new proposal with a new point of view. It enables to interrelate between objects and to bring out a product from the interrelation. Human being has archieved to survive by using his creativity. The skill of using a raw material by cultivating has developed by means of creativity.

According to Torrance (1988), creativity is "the process of sensing problems or gaps in information, forming ideas and hypotheses and communicating results". Thinking process, all competences of mind, feelings are in an interactive relation in creativity of innovation and invention. All competences of mind progress via creativity. The complement of intelligence is the creativity. It is the top step of intelligence. Intelligence is to collect data, to learn and to adapt them into various circumstances and the sum of using these competences. The content of the sum of these competences develops through creativity by establishing interrelation and connection between the information.

San (2008) based on Conrad (1995) defines creativity as in the beginning of a process of searching, researching and finding a creature that encompasses concepts, emotions and imaginations, which are associated with sensation and emotions that are born of perception, and which constitute the beginning of an effective metaphor.

Creativity was scientifically searched by American Physchology Union under the presidency of Guilford in 1950's for the first time.

Today, creative thinking has played an important role in the innovation. The discoveries and inventions that played an important role in community development are the product of creative thinking. Creativity may be in the mind of a government man as well as an unqualified man. As a result of this, it is possible to see creativity everywhere and everytime.

The definition of creativity is simply to create useful products or ideas. Creativity presents original products (İmrek, 2002). First of all, the social return of the product is as important as the specialities and benefits of it. It is considered the more creative is the product, the more its social return. The created product needs to be evaluated under its own circumstances. For example, the difficulty of the problem, the elegancy of the suggested solution, the effect of the product. Creativity needs to be evaluated based on the ability and skills feeding the creativity (Barron, 1968). Creativity is as complex as intelligence. It prevents giving a general definition of creativity that everyone looks at the subject from a different

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aspect (Sternberg, 1985). According to Mumford (1998), all creativity models are based on two hypothesis.

Hypothesis 1.   Creative thinking is an unconscious, noncontrollable phenomenon and it is best described by the term 'I found!'

Hypothesis 2.   Creative thinking is based on the knowledge of a person and it is under the control of conscious control and guidance.

In developed countries, as science and technology improve throughout creativity, it is important to advance the mental development of children. It is compulsory to improve the high level mental development in increasing knowledge based economies. It is important for the future of the society to gain the skills in schools.

It is enabled to improve the success of pupils by fundamental transformation in the field of education. The change in today's world is too fast. The education is the head of which is affected by this change (Genç & Eryaman, 2008).

Education aims to train individuals who are adaptable to the developments of science and technology, feel responsibility to the society, sensitive to global and local problems, have free and scientific thinking power, develop his own knowledge, skills and behaviour, creative and productive. These specialities foreseen to be gained by individuals in the education process polish gradually from pre-school education to higher education (Ersoy, 2006).

Those who have the ability to learn basic computer information; to use the computer to increase the quality of life, to get information or to have fun in the daily life; to follow and discuss innovations about computers and comment on them; to compare and appreciate information technologies at a certain level have become computer literate.

Computer literacy rate in our country is increasing day by day. In today's world, while creative individuals are preferred in terms of labor force, computer literacy of individuals is expected to be at the highest level.

In line with the decisions taken by National Education in recent years, it has been aimed to increase the computer literacy and to make the students acquainted with the computers in the fastest way possible, and to make the use of computers at all levels of education in order to make them use the computer correctly in every moment. It is aimed to use the computer correctly, such as using the computer as a communication tool and understanding the importance of the computer in daily life.

Computer literacy scale developed by Acar (2016) and translated into Turkish by Kılınç and Salman (2006) was used in our study.

2. DESCRIPTION OF THE METHODOLOGY

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It is based on the relational research model. It is used to define the relation between variables and to estimate the probable results. The relation level between two or more variables is evaluated via statistical tests. Correlations tests are used to define the relation level. Correlation shows whether two or more variables change steadily together.

It is used in this study that:

• "How creative are you?" scale to survey the general creativity level.

• Demographical information form

• Computer Literacy Scale to measure the computer literacy

In the study, "How creative are you?" scale which was developed by Raudsepp (1981) and adapted into Turkish by Çoban (1999) was used to survey the general creativity level of the students. It is a five-point-likert-scale with 50 items that survey the perception of themselves in the framework of creativity by defining individual creativity levels.

The scale items are pointed that Strongly Agree: 2 points, Agree: 1 point, Neutral: 0 point, Disagree: -1 point, Strongly Disagree: -2 points. The creativity levels of the participants are calculated by adding up these points.

Scale points;

100 - 80: high creativity level

79 - 60: better than avarage creativity level

59 - 40: avarage creativity level

39 - -20: lower than avarage creativity level

-19 - -100: not creative

Cronbach Alpha co-efficient of the adapted to Turkish "How Creative Are You?" scale is 0.95. Reliability co-efficient was measured again for this study and Cronbach Alpha co-efficient was found out 0.84.

The computer literacy scale, developed by Acar (2016) and translated into Turkish by Kılınç and Salman (2006), consists of 15 questions.

The scale used in our study was developed using the computer literacy scale that Kılınç and Salman (2006) used in their study. The pilot application of the scale by Acar (2016) was implemented in Elazığ province. KMO (Kaiser Meyer Olkin) and Bartlett test were applied to the students to determine the suitability of the data obtained from the 24-item scale for factor analysis. As a result of the analysis, KMO value was found to be .832. The Bartlett test was calculated as 3.135.

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In order to determine the factor structure of the scale, factor analysis was performed with the results of KMO and Bartlett tests were sufficient. The lowest factor load value was .40.

It was found appropriate to subtract the items having a load value below the load value from the scale. A 15-item scale was obtained. It was determined that this 15-item scale had a single-factor structure. Total variance of the scale was calculated as 51.257%. The factor loadings of the items were found to be between .410 and .701.

As a result of the item analysis, item-total correlation of each item was calculated. It is known that items with a total correlation of .30 or higher should be well discriminated by the students, items remaining between .20 and .30 can be tested if the item is considered mandatory or that the item needs to be corrected, and that items with less than .20 should not be tested (Büyüköztürk, 2010).

The item-total correlation values of the items were found to be between .324 and .712, and all items of the scale were distinctive according to the results. The Cronbach alpha internal consistency coefficient for the whole scale was calculated to be .872. In pilot application, it was found that it would be more appropriate to convert the scale from 7-point to 3-point likert according to the feedback obtained from the computer literacy scale. As a result of the analyzes, it was determined that the computer literacy scale of the three-item likert-type scale was a one-dimensional, reliable and valid scale.

Each question is 3-point likert type. It was scored that 3 points given to the answer to "Agree", 2 points to "Neutral" answer and 1 point to "Disagree" answer. The scale was determined to be one-dimensional, reliable and valid. The highest score was 45 and the lowest was 15 points. The reliability coefficient of our study was found to be 0.88. The reliability of the research was confirmed by expert opinions during the scoring of the test.

3. RESULTS

The creativity of science teacher candidates were examined within the scope of this research. The average of creativity scores was 45.30. The creativity of prospective teachers is "medium level". The average of the scores of the prospective teachers who received computer literacy was found to be 32.00. The computer litarecy of the prospective teachers is "medium level".

The aim of the study was to examine the relationship between creativity and computer literacy levels of prospective teachers. It is thought that it will contribute to understanding the nature of creativity and will guide the importance of the use of creativity to develop computer literacy in our country.

This research is based on relational research model. It is used to determine the relationships between variables and to predict possible results. The relationship between two or more variables is tried to be measured by using statistical tests. Correlation test is used to determine the level of relationship. Correlation reveals whether two or more variables (individually) show a consistent change.

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In this study group, thirty-one of the science teachers are male and twenty-nine female students. When the education level of the mothers of the science teachers were examined, it was seen that eight of them were primary school, fourteen of them were middle school, eighteen of them were high school and twenty of them were university graduates. When the educational status of fathers of science teachers is examined, it is seen that 1 is primary school, ten is secondary school, twenty-two is high school and twenty-seven is university graduate. Twenty-two of the families of science teachers stated that they had minimum wage and lower income, while thirty-eight stated that they had an income above the minimum wage. Table 1

In this research, there is not a relation between the creativity levels and computer literacy of prospective science teachers. Prospective science teachers who have high computer literacy do not have high level of creativity.

In this research, the general creativity and computer literacy levels of prospective science teachers were measured and their relationship was examined. When the results of the scale were compared, it was observed that prospective science teachers' scores on the general creativity scale and computer literacy levels were not correlated with each other and there was a significant difference between them. It has been shown that computer literacy has no effect on general creativity levels. In the light of the obtained data, it was found that the values did not have any effect on each other in the regression results.

In order to reveal the relationship between the prospective science teachers' creativity scale and computer literacy, the mean scores and total deviations of the prospective science teachers' scales were calculated and the regression between the scales was examined. Table 2

When the "How Creative Are You?" and "Computer Literacy" scales were analysed, the value in the Sig. (significance) column is 0.052. Since this value is greater than 0.05, we can say that the relationship between Creativity and Computer Literacy is at p> 0.05 level. In the case of these values, there is no significant relationship. However, the difference from .05 value being very low shows that there may a relationship between them and it should be continued to study on.

CONCLUSION

According to the results of the research, it was seen that computer literacy had no effect on creativity. However, when the value is considered in the significance column, it is not a very low level. As a result, necessary studies should be developed and supported by studies of difference. As a result of these studies, it is not seen that computer literacy individuals are creative at the same time. It was observed that these two features were not related to each other and had no effect on each other.

Table 1. Descriptive Statistics

Demographic Attributes	Frequency	Percantage (%)
Gender		
Male	31	52,00

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Female	29	48,00
Educational Level of Mother		
Illiterate	0	0,00
Primary School	8	13,33
Secondary School	14	23,33
High School	18	30,00
University	20	33,33
Education Level of Father		
Illiterate	0	0,00
Primary School	1	1,66
Secondary School	10	16,66
High School	22	36,66
University	27	45,00
Income Level of Family		
Average	22	36,66
High	38	63,33

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