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THE CREATIVITY LEVELS OF PRE-SERVICE TEACHERS AND THE PREFERENCES OF A TEACHER MODEL SUPPORTING CREATIVITY

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The Creativity Levels Of Pre-Service Teachers and the Preferences of a Teacher Model Supporting Creativity

Arikhan EMINE¹

Abstract

Creativity is significant in the education world. Pre-service teachers who adopt the methods of creativity and benefit from them are as important as the methods that reveal creativity in the teaching process. In this context, the purpose of this study is to measure the creativity levels of pre-service teachers and the preferences of a teacher model supporting creativity. For that purpose, three scales were used and analyzed. The first scale is 'Hacettepe Personality Inventory scale'; the second scale is "Teacher Index Scale Supporting Creativity (CFTIS Scale)" and the third scale is "Kaufman Creativity Domains Scale Turkish Form (KCAS-TF)" test. According to the findings of the study, it can be claimed that the personality traits and creativity areas of the pre-service teachers and the teaching styles that support creativity are shaped in accordance with these definitions, and that the ability to produce new ideas and the skills to create new ideas are frequently used in the field of creativity, especially by the individuals studying in departments that require artistic creativity. Also, students who receive art education are more creative than those who do not.

Keywords: pre-service teachers; teacher model; creativity; teaching styles;

Introduction

Thinking is the greatest ability that distinguishes humans from other living things. Thinking from simple to "remembering", "simple thinking", "critical thinking" and "creative thinking" appears in a much broader spectrum. This study has focused on "creative thinking" which is inventive, innovator, or new solutions to old problems. It is also a way of thinking that brings about the emergence of original thoughts (Demirci, 2007). There are many ways of raising creative thinking. First of all, looking and analysing the prominent event from more than one aspect and make different interpretations is necessary. Secondly, by synthesizing existing knowledge and building on it to create a different and original structure is an important step. Finally, developing creative thinking skills, from

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primary school to university must be seen as an important goal at all educational levels (Yalçın and Yaman, 2005).

When creative thinking abilities are examined; the problem and incompleteness of the information given identify directions, develop new ideas and hypotheses, produce original ideas. These are all implemented to see the links between ideas and to develop the parameters of thought being able to obtain components, new designs and foresight approach. It has been seen that creativity forms the basis of thought (Yenilmez & Yolcu, 2007). Creative thinking skills in many fields from art to science in daily life originate from creativity. According to Özerbaş (2011) the dimensions of creative thinking include fluency, flexibility, originality, and enrichment and were identified as creative thinking abilities.

It is expected that children learn creative activities and develop their creativity positively when they have creative individuals as teachers who become a model while using their creativity which has a very important place education program. In order for children to easily cope with the problems they may face in the future, great importance must be given to creativity in preschool education programs. It is a known fact that the basis of the education program is creativity, and the preschool is the most important period to develop creativity positively. For this reason, pre-service teachers are expected to value creativity and expected to contribute to its positive development. Creativity and development curriculum, in which pre-service teachers learn how to teach it, is necessary. Teachers need to be equipped in terms of creativity. It is important to support the acquired theoretical knowledge and literature with more and deeper researches. Consequently, this research contributes to the literature review of creativity and its importance in the curriculum which is unique to the area.

Methodology

The aim of this study is to analyse the Hacettepe Personality Inventory (HPI) scores, the Teachers Supporting Creativity Scale scores and the Kaufman Creativity Areas Scale scores of pre-service teachers studying in different branches.

For that purpose, three scales were used. The first scale is Hacettepe Personality Inventory. The scale "Personal and Social Adaptation Inventory", which was developed by Özgüven (1992) to measure personality traits, was used in the study. The inventory consists of 8 factors in total. Personal Adjustment Subscales are "Self-Improvement (CG)", "Emotional Stability (DG)", "Neurotic Tendencies (NE)" and "Psychotic Symptoms (PG)". Social Cohesion Subscales are "Family Relationships (AP)", "Social Relationships (SI)", "Social Norms (SN)" and "Antisocial Educations (AE)". Each of the sub-factors has 20 items and the entire inventory consists of 168 questions (Özgüven 1992). The Cronbach alpha coefficient of the Hacettepe personality inventory was calculated as 0.84, and the resulting value shows the reliability of the inventory. The items in the Hacettepe

personality inventory have true and false options and have been calculated according to the answer key in the inventory. Each correct item was given 1 point. High scores indicated positivity while low scores indicated negativity (Özgüven, 1992, p 8-20). The second scale is 'Teacher Index Scale Supporting Creativity (CFTIS Scale)' developed by Cropley. It was used to measure teacher model and their preferences teaching in the classroom that support students' creativity levels. The creativity levels of pre-service teachers were measured with the third scale which is "Kaufman Creativity Domains Scale Turkish Form (KCAS-TF)" test, was adapted to Turkish by Şahin (2016).

The Creativity Foster Teacher Index Scale (CFTIS), was first created and developed by Soh (2000). After that in 2013, it was adapted to be used in Turkish by Dikici. CFTIS index was first had more items but after elimination now has 33 items. It has 9 sub-factors. These are as follows; "Independence", Integration ",", Motivation", "Judgment", "Flexibility", "Evaluation", "Questioning", "Giving Opportunity", "Disappointment". Cropley (1997) put forward nine sub-dimensions. These cajoule learner's creativity and lead their attention to classroom attitude of teachers in his research "Fostering Creativity in the Classroom: General Principles". These attitudes are called as "independence, integration, motivation, judgment, flexibility, evaluation, questioning, opportunity and disappointment". Soh (2000) developed the "Creativity Fostering Teacher Index (CFT Index)" scale regardind the 9 attitudes developed by Cropley (1997) in his study. This index was not only used in Turkey and Singapore, but also adapted in these countries: Mexico, Chile, Canada, Hong Kong and Nigeria (Soh, 2000).

KCAS-TF scale consists 5 factors. They are "Academic Creativity", "Scientific / Mechanical Creativity", "Creativity in the Field of Artistic Performance", "Self / Daily Creativity" and "Artistic Creativity" respectively. The scale was rated and numbered by using Likert Scale. 5 is as "I am much more creative" and 1 as "I am much less creative"(Şahin, 2016).

The study was carried out with 853 fourth-year students studying social sciences in a total of six universities in Northern Cyprus and Turkey in the 2017-2018 academic year. First of all, the validity and reliability of the scales were tested with the SPSS-24 package program. The reliability statistics of the data were tested with Cronbach's Alpha coefficient, and it was determined that the data had a strong (0.785) reliability level. Structural equation modelling was used in the analysis of the data using the AMOS 21.0 statistical program.

Research Questions

The main research questions of the study are listed below: (1) Do the answers given by the final year pre-service teachers studying in different branches to the Hacettepe Personality Inventory predict the scores of the Teacher Index Supporting Creativity?; (2) Do the answers given by the senior pre-service teachers studying

in different branches to the Hacettepe Personality Inventory predict the Kaufman Creativity Fields Scale scores?

Results

The pre-service teachers, who participated in the study, consist of individuals who are compatible in terms of personality compatibility. This is indicated by the fact that their average score is 44.23 points: Psychotic Symptoms (PS) 11.18 points, from the dimension of Personality Adjustment in the Self-Actualization (Kg) dimension 10.67 points and from the Emotional Stability (Mk) dimension 11.52 points and 10.86 points from the Neurotic Tendency (Ne) dimension respectively. These are all the sub-scales of HCI.

On the other hand, the pre-service teachers participating in the research scored an average of 9.37 points in the Family Relationships (AP) dimension of Social Cohesion, an average of 11.43 points in the Social Relationships (SI) dimension, an average of 11.06 points in the Social Norms (SN) dimension, and Anti-Social Tendency (PI.) dimension with an average of 9.17 points. As a result, it shows the teachers are easy going in their social relations which is shown by the fact that the mean average of 41.03 points from the Social Cohesion scale.

The average of the scores of the participant pre-service teachers in the study from the General Cohesion Scale was 85.25 points, and it was seen that the general adjustment of the participant teachers consisted of individuals who could be compatible.

In Table 1 the findings of the structural equation model applied regarding the predictability of the pre-service teachers' scores on HCE were given.

Table 1. The Predictability of Pre-service Teachers' Scores from HPI to Predict the Scores Gained from CFTIS (N=853)

HKE Component		B	Sh	P
Personal Adaptation	CFTIS	-0.010	0.006	0.067
Social Adaptation		0.006	0.004	0.168

* $p < 0.05$ $\chi^2/sd = 3.045$, $GFI = 0.976$, $AGFI = 0.958$, $NFI = 0.970$, $CFI = 0.980$, $RMSEA = 0.049$

The analysis values of the regression model established regarding the predictor of the scores obtained by the pre-service teachers from personal and social cohesion in HPI have an acceptable fit in terms of χ^2/sd , and an excellent fit in terms of GFI, AGFI, NFI, CFI and RMSEA, and shows that the established model is suitable. According to the data obtained from the model, the scores the pre-service teachers got from personal adjustment ($\beta = -0.010$; $p > 0.05$) and social adjustment ($\beta = 0.006$;

$p>0.05$) in HCI were not statistically significant. This result tells us that there is no significant relationship between the personality traits of the pre-service teachers and their teaching styles, that is, regardless of the personality of the pre-service teachers, these traits will not have an effect on the teacher style they adopt. This result shows us that pre-service teachers do not reflect their general adaptation level, which is a result of their personal and social adaptation, to their teaching styles, which will be decisive in their professional lives, and that they can remain independent in these two issues.

Table 2 shows the regression findings of the pre-service teachers' scores on HPI predicting their scores on KCAS-TF.

Table 2. The Predictability of Pre-service Teachers' Scores from HKE to Predict the Scores Obtained from KAYO (N=853)

HKE Component		B	SH	P
personal Adaptation	KCAS-TF	-0.099	0.029	0.000*
Social Adaptation		0.020	0.036	0.584

* $p<0.05$ $\chi^2/sd=3.839$, $GFI=0.990$, $AGFI=0.966$, $NFI=0.975$, $CFI=0.981$, $RMSEA=0.058$

The analysis values of the model established for predicting the scores of the pre-service teachers included in the study from the HCI scores they received from the SWOT have an acceptable rate in terms of χ^2/sd , and a perfect fit in terms of GFI, AGFI, NFI, CFI and RMSEA, and the established model is suitable. It was determined that the scores of the pre-service teachers in the personal adjustment sub-dimension in the HCI predicted their SWOT scores significantly and negatively ($\beta=-0.099$; $p<0.05$). Accordingly, the increase in the personal adaptation of the pre-service teachers causes a decrease in their creativity perceptions. It was determined that pre-service teachers' social adaptation did not significantly predict their SWOT scores ($\beta=-0.020$; $p>0.05$). According to the findings, there is no significant relationship between the personality traits of the pre-service teachers and their creativity, that is, regardless of the personality of the pre-service teachers, these traits do not affect the teacher style they will form in displaying creative behaviour in teaching. This result shows us that pre-service teachers do not reflect their special adaptation levels, creativity levels that will be determinant in their professional lives, and the whole set of behaviours that support creativity, to their teaching styles, and that they can remain independent in these two issues.

Discussion

Kurt and Kurt (2007: 313-315) argue that the relationship between creativity and education is also related to the field of education and affects each other. They also emphasized that pre-service teachers studying in art departments such as painting and music have to use their creative skills more and develop their creativity in art education departments. They also argue that creativity is not only related to art education departments, but also related to different fields (Kurt and Kurt, 2007: 313-315). Accordingly, it is seen those pre-service teachers studying in art departments are able to develop or use their creativity thanks to the field courses. It is thought that pre-service teachers studying in different departments can develop their creativity with an education program that supports creativity and teachers who have teacher behaviours that support creativity. In order to improve the creativity levels of pre-service teachers studying in different fields, to support teacher behaviours that support creativity, and to bring their creativity to the fore, it is important that there are art courses in undergraduate programs and that they are given in a way that supports creativity.

The person is an important factor in the formation of the creative product and process. The person who takes the individual to the creative product, researches and questions, is connected with the developing creativity process, the production of creative ideas and the emergence of the creative product. Creative people are people who have original ideas, wide imaginations, different perspectives, high motivation and who can produce different products. Sak (2016) describes creative personality traits as people who have the ability to think original, act independently, take risks, question, and are open to innovations. The creative person has many personality traits. According to Onur and Zorlu (2007), an individual with a creative personality is free-thinking, has a sense of humour, has developed social relations, is open to criticism, can listen to suggestions and make their own decisions, has strong comprehension skills and memories. They have developed imagination skills, deal with different subjects at the same time, want every subject to be perfect, and they are perfectionists. Starko (2004), on the other hand, describes creative personality traits as people who can take risks, like to solve problems, are adventurous, self-confident, and can think flexible and original. Creative teachers can be expressed as teachers who stay away from traditional education in which the teacher is active and the student is passive, who do not support rote learning, and who teach by using their own creativity. Creative teachers are defined as teachers who give students an opportunity to develop their creativity, encourage students to explore and enable them to learn by experimenting and experience, and teach accordingly. According to Özerbaş (2011), creative teachers are people who consider the developmental characteristics, interests and decisions of students while preparing a creative lesson plan, include activities focused on problem solving while preparing a lesson plan, and are able to implement such a plan and

have it implemented. Sungur (2001) emphasizes creative teachers as people who can communicate easily, love to read and are curious.

It was determined that there were no statistically significant correlations between the scores of the pre-service teachers who participated in the study from the personal adjustment sub-dimension in the HCI and the scores they got from the independence, integration, motivation, judgment, flexibility, evaluation, questioning, opportunity and frustration sub-dimensions of the FCI. Personality traits of prospective teachers are not in any way effective in determining their teaching styles. There is no statistically significant correlation between the scores of the pre-service teachers in the social cohesion sub-dimension in HCI and the scores they got from the independence, motivation, judgment, flexibility, evaluation, questioning and frustration sub-dimensions in the FLPS.

The correlations between the scores of the pre-service teachers in the social cohesion sub-dimension in the HCI and the scores they got from the integration and giving opportunities sub-dimensions with the FCEQ are statistically significant. These correlations are negative and weak. As the scores of the pre-service teachers in the social cohesion sub-dimension increase, the scores they get from the integration and opportunity sub-dimensions decrease. In other words, the integrative and opportunistic characteristics of pre-service teachers who are socially compatible are slightly reduced.

There is no statistically significant correlation between the scores of the pre-service teachers in the general cohesion sub-dimension in HCI and the scores they got from the independence, integration, motivation, judgment, flexibility, evaluation, questioning, giving opportunity and frustration sub-dimensions in the FCI. General adaptation status of prospective teachers is not effective in determining their teaching styles in any way. A regression model was set up to test the predictive status of pre-service teachers' scores on personal and social cohesion in HCI, on their scores in FLPS. According to the results obtained, the scores obtained by the pre-service teachers in personal adjustment and social adjustment in HCI do not statistically significantly predict the scores they received from the FCI.

There is no significant relationship between the personality traits of the pre-service teachers and their teaching styles, that is, regardless of their personality, these traits do not have an effect on the teacher's style they will use in teaching. This shows that they can remain independent on these two issues.

Creative teachers are teachers who are open to new ideas, think freely and can produce original ideas. A teacher who is innovative and open to creativity, on the other hand, puts responsibility on the students, encourages their students and increases their confidence, so that students begin to think creatively (Demirci, 2007; Öztürk, 2008). With his role as a teacher in the field of creativity, he should be able to think "open to innovations, fluent, flexible and original" (Özden, 2005; Yenilmez & Yolcu, 2007).

Ward (2007) emphasizes the creative teacher characteristics as the ability to recognize and solve problems, to value and evaluate students' ideas, and to think abstractly. Personal characteristics of teachers are important in the field of education and especially for students. Yazici (2006) states that teachers should be an exemplary model with their behaviours both inside and outside the classroom. A teacher who is not a good model states that it will be a factor in the destruction of good qualities in students. Therefore, it is important for the prospective teachers to choose the teaching profession by thinking that they will be suitable for teaching as a good model and personality for the students, while raising more creative individuals. As a result of the lack of personality traits that are not suitable for the teaching profession, pre-service teachers will not be able to achieve the desired efficiency and success in their profession. Candidates who will choose teaching as a profession should love to share, be open to innovations, communicate with people, love research, and love to learn and teach (Kurt, Ekici, Aktaş, Aksu 2013). In this direction, it is important that the personality levels of the pre-service teachers who will choose the teaching profession should be in this direction.

Kind and Kind (2007) advocate that creative education should be student-centered, teachers take more risks, lessons should be project-based, and an education system focused on research and problem solving. Teachers have great responsibilities in the development of individuals' creativity. Yasa & Şahin (2012) advocate that teachers should have a creative personality in the development of individuals' creativity.

It is important that pre-service teachers encourage and encourage students to develop different ideas in terms of the development of their creativity in the classroom environment (Runco, 2004). Trnova (2014) argues that it is possible for a student to be creative with a creative teacher. For the development of creativity in individuals, it is also important for teachers to have knowledge and skills about teacher behaviours that support creativity (Dikici, A., 2013). It is thought that the implementation of teacher behaviours that support creativity in classroom education will also support the development of creativity levels in individuals. There are many teacher behaviours that support creativity in classroom education environments. Cropley (1997) "Fostering Creativity in the Classroom; In his study titled "General Principles", he listed nine sub-dimensions that encourage student creativity and draw attention to teachers' in-class behaviours. Teacher behaviours that support creativity are independence, integration, motivation, judgment, flexibility, evaluation, questioning, opportunity and frustration.

Davies (2013) emphasizes that many teachers associate creativity with originality, independence and art. Henessey (2017) argues that the evaluation of creativity depending on any field is complex and a better model has not been created yet. However, Beghetto (2005) emphasizes that the evaluation sub-dimension of creativity in classroom creativity activities is the basic dimension for the development of students' creativity. Evaluating students and giving continuous feedback are important for the development of students' creativity (Olafsson,

2020). Painting education is another important area of art education. Painting education department is one of the areas where creativity is kept in the foreground, as it is an art department. Dikici (2006) describes the relationship between painting education and creativity; He argues that pre-service teachers studying in the department of art education, art teaching not only improve their creativity levels, but also develop their problem-solving skills, which is one of the important sub-dimensions of creativity. Although the pre-service art teachers do not take music lessons, their creativity levels can improve because painting education is an art branch.

It is an expected phenomenon that teachers or pre-service teachers exhibit different personality traits, have different levels of creativity, and create their own unique teacher model that supports this creativity. Reilly, Lilly, Bramwell, and Kronish (2011) argued that it is important for creative teachers to know which creative methods they should use while transferring a subject to students in the development of students' creativity skills.

There are statistically significant, negative and low-strong correlations between the scores of the pre-service teachers in the personal adaptation sub-dimension in the HCI and the scores they got from the academic creativity, scientific/mechanical creativity, original/daily creativity and artistic creativity sub-dimensions in the SWOT. As the scores of the pre-service teachers in the personal adaptation sub-dimension increase, the scores they get from the sub-dimensions of academic creativity, scientific/mechanical creativity, authentic/everyday creativity and artistic creativity decrease. There is no statistically significant correlation between the scores of the pre-service teachers in the personal harmony sub-dimension and the creativity scores in the field of artistic performance.

Depending on the personal compatibility of pre-service teachers, their creativity levels are adversely affected and their creativity levels decrease in the areas where they are creative. In a single area of artistic creativity, there was no relationship between personal adjustment levels. These results show that there is no interaction between a person's adaptability and being creative, since it does not actually have an expected positive effect on the creativity levels of pre-service teachers whether they are personally compatible or not.

There is a statistically significant correlation between the scores of the pre-service teachers in the social cohesion sub-dimension in HCI and the scores they got in the academic creativity dimension in the SWOT. This correlation is negative and low-strength, and as the scores of the pre-service teachers in the social cohesion sub-dimension increase, their scores in the academic creativity sub-dimension decrease.

The correlations between the scores of the pre-service teachers in the social cohesion sub-dimension and the scores they got from the other sub-dimensions in the SWOT except for academic creativity were not statistically significant. The fact that pre-service teachers are socially compatible reduces their creativity in the

academic field. In addition, the social compatibility of pre-service teachers does not have an effect on their creativity in any way. In other words, the fact that there are socially compatible pre-service teachers does not mean that they will exhibit creative behaviours in any way.

There is no statistically significant correlation between pre-service teachers' HCI general compliance scores and the scores they get from the sub-dimensions of scientific/mechanical creativity, self/daily creativity, creativity in the field of artistic performance, and artistic creativity in SWOT. There is a statistically significant, negative and weak correlation between the TCI general compliance scores of the pre-service teachers participating in the study and the scores they got from the academic creativity dimension in SWOT. As the general compliance scores of pre-service teachers increase, their academic creativity scores decrease.

According to the findings, even if the general adaptation level increases in any way, there is no effect on which pre-service teachers can be successful in the field of creativity. Creativity was not found to be related to general adaptation, and this result shows that there is no correlation between pre-service teachers' personal characteristics, their level of adaptation and their teacher behaviour in the way of creative behaviour. According to the model established to look at the predictive status of the scores of the pre-service teachers included in the research on the scores they got from HCI, the scores they got from the sub-dimension of personal adjustment in the ICI predicted the scores of the pre-service teachers in a significant and negative way. The increase in the personal adaptation of pre-service teachers causes a decrease in their creativity perceptions. Social adaptation of pre-service teachers significantly predicts their SWOT scores.

There is no significant relationship between the personality traits of the pre-service teachers and their creativity, that is, regardless of the personality of the pre-service teachers, these traits do not affect the teacher's style they will form in displaying creative behaviour in teaching. In addition, it shows that pre-service teachers do not reflect their special adaptation levels, creativity levels that will be determinant in their professional lives, and the behaviour that supports creativity, to their teaching styles, and that they can remain independent in these two issues.

Conclusion

The use of creativity as a skill is essential for pre-service teachers studying in different departments, and they need to show maximum interest and importance to this subject. In particular, it is essential that they have the issues and relevant skills related to their field, and that they have the necessary creativity by working in this direction. According to the findings of the study, it is a result that the personality traits and creativity areas of the pre-service teachers and the teaching styles that support creativity are shaped in accordance with these definitions, and that the ability to produce new ideas and the skills to create new ideas are frequently used

in the field of creativity, especially by the individuals studying in departments that require artistic creativity.

It is obvious that creativity and art advance with a very close connection, and it has been observed that students who receive art education are more creative than those who do not. For this reason, it is necessary to give more space to music lessons and other art fields in order to support the different teaching behaviours of pre-service teachers by shaping the curriculum studies in this direction. In this way, the students to be educated will be integrative, their judgmental aspects will be strong and they will be objective.

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