Creativity Domains in Special Needs Prospective Teachers

Isabel Pont-Niclòs [1], Antonio Martín-Ezpeleta [2], Marta Zaragoza-Zayas [3], Yolanda Echegoyen-Sanz [4]

[1,2,3,4] University of Valencia, Spain.

Abstract

Creativity and creative thinking are fundamental keys for the intellectual and educational development of people. This importance is observed in the recent inclusion of a creativity test in the 2022 PISA tests. It should be taken into account that teachers play a key role in the development of creativity in the different domains and there is a relationship between teachers' creative perceptions and creative performance in the classrooms. In addition, some studies suggest that children with neurodevelopmental disorders perform better on creativity tests, so special needs teachers should be prepared for the task. The objective of this work is to assess the self-perceptions of creativity in special needs prospective teachers in different creative domains and compare them with students from other specialties. Participants were 113 Spanish prospective teachers from the specialties of special needs, music, and English. Kaufman Domains of Creativity Scale (K-DOCS) was used to assess the self perception of creativity in five different domains Self/Everyday, Scholarly, Performance, Scientific/Mechanic and Artistic of student teachers of the three specialties. The results show relevant differences in the perception of creativity of the different domains, being Scientific/Mechanic the one with the lowest. Moreover, prospective teachers tend to assess their creativity across traditionally stereotypic lines, with statistically significant differences in the Performance and Artistic domains. For the special needs specialty, prospective teachers have a lower perception of their creativity when compared with students from the other two specialties. Since there are many specific tasks that require creativity from the special needs teacher, the inclusion of specific content and resources on creativity (not currently present in the Spanish curriculum) is proposed. This will enrich the training of special needs future teachers.

Keywords: creativity, prospective teachers, special needs.

1. Introduction

It is widely recognized that creativity, understood as the sum of different domains (not only the artistic one, as it is usually interpreted), plays a key role in the intellectual and educational development of citizens [1]. Hence, the OECD has decided to evaluate creative thinking in the last edition of its PISA tests in 2022 [2]. Creative thinking is more than just the occurrence of random ideas. It is a tangible competence, based on knowledge and practice, that supports individuals to achieve better results, sometimes in difficult and challenging environments.

The concept of creativity in ancient times was linked to theological ideas [3], but the modern meaning is focused on the human being itself. In the 1950s the scientific research on creativity started with the consideration of creativity as a process that all people can possess and therefore can be taught [4]. Although creative thinking is still an emerging construct, the broader and intrinsically related construct of creativity has been thoroughly investigated. For example, Plucker, Beghetto and Dow [5] define creativity as "the interaction between aptitude, process and environment with which an individual or group produces a perceptible product that is new and useful according to the social context", reflecting its social and multidimensional nature. The ability to accumulate innovations is the characteristic that differentiates human creativity from other animal species. And this accumulation process is determined by four factors: social learning, direct teaching, socially motivated desire, and normative pressure for conformity. The

latter, although counterintuitive, allows the generated innovations to be copied and preserved by others long enough to be modified and improved in the future. This view of cultural transmission places more emphasis on the preservation of innovations than on how they are produced [6].

On the other hand, Kaufman and Beghetto [7] proposed the four C model of creativity in which they distinguish between "little-c" creativity (everyday) which can be found in nearly all people, "mini-c" creativity (inherent in the learning process), "pro-c" creativity (professional-level expertise in any creative area) and "Big-C" (eminent creativity), which is reserved for the great. Mini-c creativity can be achieved for almost anyone that can exercise creative thinking and can be developed with practice and improved by education. There is a general consensus among educators and psychologists that creative thinking can also stimulate other individual abilities, as problem-solving skills [8, 9], metacognitive ability [5, 10], or inter and intrapersonal skills [11] and promote the development of identity [12], academic achievement [13, 14], and future success in professional life and social participation [15].

However, the educational environment can encourage or hinder creative thinking, so teachers play a key role in the development of student's creativity. It is thus important to analyze teachers' creativity and self-perceptions of creativity since for creative teaching, teachers need to believe that they can, they must be willing to do so, and they need to understand what creative teaching means [16]. The conclusions of authors such as Chan and Yuen [17] or Yates and Twigg [18], who affirm that in order to develop students' creativity their teachers must have previously developed their own creativity, are also very relevant. In addition, teachers need to feel supported to develop creative teaching strategies. Patston et al. [19] even denounced that there is little support for teachers to turn policies that emphasize creativity into actual practice after analyzing the curricula in 12 countries.

Teaching goals and practices can be influenced by the type of education (general or special education). It is well known that effective practices for students with disabilities require the teachers to specialize in non-traditional learning and many times in the use of creative pedagogical practices. Most educational proposals for developing creativity in special needs students have a classical view of creativity and focus on the artistic [20, 21] or musical [22] domains. Of all neurodevelopmental disorders, ASD (Autistic Syndrome Disorder) and ADHD (Attention Deficit/Hyperactivity Disorder) are the most prevalent in school age. In fact, it is estimated that between 5% and 6% in the Spanish school population suffer from one of them [23]. Some studies show that the symptoms associated with these disorders, in addition to producing deficiencies, can also encourage the appearance of behavioral and/or cognitive strengths, highlighting creativity among all of them [24-26]. People diagnosed with Asperger syndrome is a population with many examples of successful creative individuals [27]. As for those diagnosed with ADHD, their inhibitory control mechanisms and the contextual modulation of creative cognition are believed to be different [28]. A recent systematic revision of papers on the assessment of creativity in children and adolescents with ASD and/or ADHD demonstrated a higher performance of both groups as compared with their classmates [29]. As Chakravarty [30] explained, students with disabilities possibly use compensation strategies via various creative behaviors. In this context, studying the differences between special needs prospective teachers and those from other specialties in their perceptions of creativity results very interesting.

2. Objectives

The main objective of this research was to explore the perceptions of creativity of special needs prospective teachers in various creativity domains, comparing it with students from different specialties. As a secondary objective the influence of gender was also analyzed. The research questions were:

- What are the perceptions of creativity in the different domains of prospective teachers?
- Are the perceptions of creativity in the different domains of special needs prospective teachers similar to those of students from other specialties?
- Are there any differences according to gender?

3. Methods

Participants were students in their last year of the grade in Primary education teaching at a large public Spanish university situated in the top five of the country's rankiing. Data reported here was collected during 2020 and pertain to students in three different specialties: special needs (N=48), music (N=32), and English (N=34). Age of the 113 preservice teachers varied between 20 and 39 years with a mean age of 21.24, and a standard deviation of 2.60; 89 (78.76%) were female and 24 (21.24%) were male, which corresponds to the population of Primary Education teachers.

The perception of creativity in the different domains was assessed using the "Kaufman domains of creativity scale (KDOCS)" [31]. In an online questionnaire (from which demographic data was also collected) preservice teachers were asked to compare themselves with people of approximately their age and life experience, and rate themselves in a series of tasks as much less creative (1), less creative (2), neither more or less creative (3), more creative (4) or much more creative (5), in a 5-point Likert scale. For acts that they have not specifically done, they were asked to estimate their creative potential based on their performance on similar tasks.

K-DOCS is composed of 50 items and assesses creativity in 5 domains: Self/Everyday (which includes interpersonal and intrapersonal creativity), Scholarly (which includes creative analysis, debate, and scholarly pursuits), Performance (in which both music and writing are included, but with emphasis on public presentation), Mechanical/Scientific (including mechanical ability and interest in science and math), and Artistic (related with different artistic traits). The validity of the Spanish translation was analyzed via Cronbach's Alpha. The results for the different scales in the self perception of creativity were a = .747 for Self/Everyday (11 items), a = .846 for Scholarly (11 items), a = .891 for Performance (10 items), a = .869 for Mechanical/Scientific (9 items), and a = .859 for Artistic (9 items), which demonstrates the high validity and appropriateness of the instrument used in this study.

Descriptive analysis of the results of the questionnaire was done using SPSS software version 26. Particularly mean and standard deviation was calculated for each of the dimensions in the questionnaire. To check the normality of the distributions Kolmogorov-Smirnov test for one sample was used. For gender analysis t Student test for independent samples (normal distributions) after Levene test to assess the equality of variances or Mann Whitney U test (non-normal distributions) were used. One way ANOVA for normal distributions and Kruskal-Wallis H

test for independent samples for non-normal distributions were used to check the differences between students from the three different specialties (special needs, music and English). In all cases the significance level was 0.05. Effect sizes were calculated using Hedges's g or the formula for non-parametric data described by Field [32]. The magnitude of effect sizes was evaluated according to the Cohen's classification for behavioral sciences [33]: null if $0 \leq |g| \leq 0,1$; low $0,1 < |g| \leq 0,29$; medium $0,30 < |g| \leq 0,49$ and large if $0,5 \leq |g|$.

4. Results

The first aim of this study was to examine the perceptions of creativity of prospective teachers. Their perceptions in the different domains measured by the K-DOCS [31] are shown in table 1. As can be seen, the prospective teachers have an average to high perception of their creativity in the different domains, with the highest value on the Self/Everyday domain, followed by the Scholarly, Artistic and Performance domains and the lowest in the Scientific/Mechanic one. The values are very similar to the ones obtained by Kandemir and Kaufman [34] for Turkish future teachers (although in their case the values obtained for the Artistic domain were slightly higher than those of the Scholarly domain). They are also comparable to the scores of US university students [35] in all domains, although in that case the Scientific/Mechanic domain scores were higher (M=2.75). If we compare our results with the ones obtained by Elisondo et al. [36] for a sample of adult Spanish population with different educational backgrounds, prospective teachers scored higher in all domains (with a mean difference of 0.215) except in the Scientific/Mechanic domain for which they scored 0.24 points lower.

Table 1. Descriptive statistics for the different creativity domains.

Creativity domain	Min.	Max	Mean	Standard deviation
Self/Everyday	2.64	4.82	3.78	.47
Scholarly	2.00	4.91	3.34	.58
Performance	1.10	5.00	2.77	.88
Scientific/Mechanic	1.00	4.56	2.35	.80
Artistic	1.67	5.00	3.29	.80

Male and female prospective teachers had different perceptions of their creativity, as shown in table 2. Female students scored higher in the Performance and Artistic domains, while male students scored higher for Self/Everyday, Scholarly and Scientific/Mechanic. However, the results of t test for independent samples (normally distribute variables) and the Mann-Whitney U test (non-normally distributed variables) showed that the observed differences were significant only for the Performance and Artistic domains (both with a large size effect), but not for the rest.

Table 2. Differences on the self-perception of creativity of prospective teachers according to gender.

Creativity domain	Gender	Mean	Standard deviation	z	p	g
Self/Everyday$^{\Phi}$	Female	3.77	.46	-.422	.673	.47
	Male	3.82	.51			
Scholarly	Female	3.32	.57	-.381	.352	.59
	Male	3.37	.66			
Performance	Female	2.65	.87	-2.981	.002**	.86
	Male	3.23	.80			
Scientific/Mechanic$^{\Phi}$	Female	2.30	.79	-1.413	.158	.81
	Male	2.56	.83			
Artistic	Female	3.39	.76	2.512	.007**	.78
	Male	2.94	.83			

$^{\Phi}$ Non-normally distributed variables.

**There are statistically significant differences at the .01 level.

The mean values of the self-perception of creativity in the different domains of prospective teachers with different specialties are shown in Figure 1. Special needs prospective teachers tend to have a lower self-perception of creativity than prospective teachers in other specialties, specially in the Self/Everyday, Scholarly and Performance domains. They have scores similar to English prospective teachers and much lower than Music prospective teachers in the Scientific/Mechanic domain and no differences between specialties were found for the artistic domain.

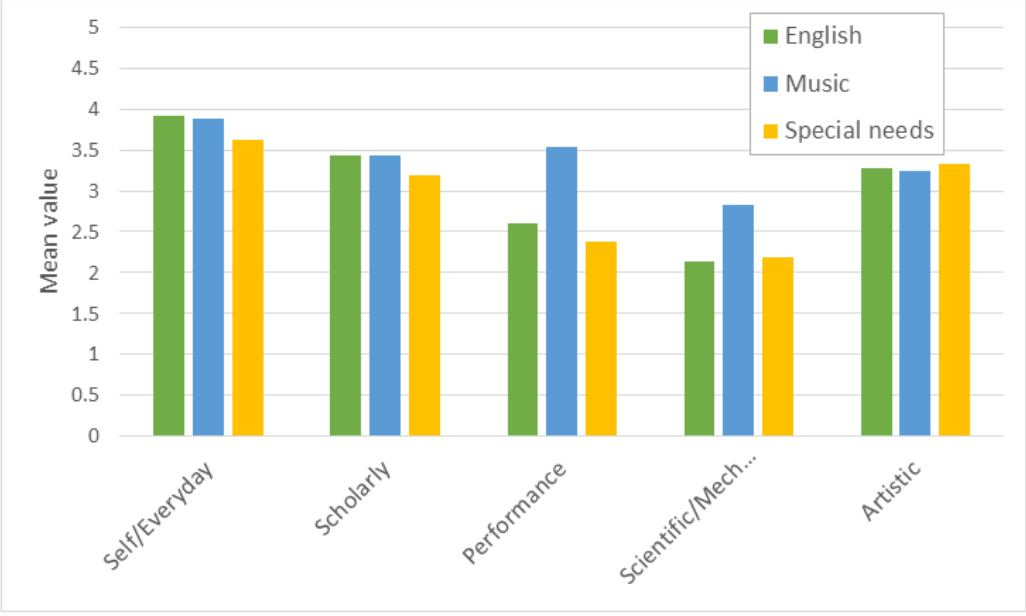

Figure 1. Mean values of the self-perception of creativity in the different domains of prospective teachers in the specialties of English, Music and Special needs.

To check if those observed differences were statistically significant 1-way ANOVAs or Kruskal-Wallis test for independent samples, depending on the normality of the distributions, were carried out. The results are showed in table 3. Statistically significant differences were observed for three of the creativity domains: Self/Everyday, Performance and Scientific/Mechanic. To further examine where the differences lay between groups, the Bonferroni procedure was subsequently applied. At $\alpha = 0.05$, the *post-hoc* analysis indicated statistically significant differences in Self/Everyday between special needs and English (p=.012) and music (p=.022), but no differences between English and music (p=1.000). For the Performance dimension there were differences between music and both English (p<.001) and special needs (p<.001), but not between the latter (p=.583). In the case of the Scientific/Mechanic domain the same trend was observed, with differences between music and both English (p=.004) and special needs (p=.007), but not between English and special needs (p=1.000).

Table 3. Differences on the self-perception of creativity of preservice teachers according to specialty.

Creativity domain	F	p
Self/Everyday Φ	10.943	.004**
Scholarly	2.713	.071
Performance	23.848	.000***
Scientific/Mechanic Φ	12.701	.002**
Artistic	.091	.913

Φ Non-normally distributed variables.

** There are statistically significant differences at the .01 level.

*** There are statistically significant differences at the .001 level.

5. Discussion

The primary goal of this research was to assess the perception of creativity of prospective teachers across five domains (Self/Everyday, Scholarly, Performance, Mechanical/Scientific, and Artistic) and study the possible differences according to gender or specialty, comparing special needs teachers with peers studying other specialties.

The study showed that prospective teachers perceive themselves as moderate to highly creative, although their perception depends on the specific creativity domain, with the lowest scores obtained in the Scientific/Mechanic domain, and similar to what happened for Turkish preservice teachers [34]. These results are in line with studies [37, 38] stating that teachers are required to demonstrate creative abilities in order to develop creative learners and assimilate educational processes in the classroom.

If we analyze the results according to gender it is apparent that they tend to assess their creativity across traditionally stereotypic lines. Females rated themselves higher on domains related to artistic traits, such as Artistic and Performance domains, while males rated themselves

higher on science-analytic domains, such as Scientific/Mechanic in line to what happened in previous studies [36, 39].

The results also point to significant differences between special needs future teachers and future teachers studying other specialties as English or music, with special needs teachers having a lower self-perception of creativity in most domains. Kasirer and Shnitzer-Meirovich [40] also found the same trend for in-service teachers with teachers in general education perceiving themselves as more creative than those in special education, although it was demonstrated that special needs teachers outperformed teachers in general education on the originality level of divergent thinking.

Play and artistic expression are commonly used in therapeutic and educational settings, due to their benefits on the self-esteem, expression of emotions, problem solving and conflict resolution. This group of prospective special needs teachers scored themselves below 2.5 in the Performance domain, but better in the Artistic domain, with values above 3, both very involved in play and artistic expression.

Studies on creativity [41] coincide in relating creativity with psychological, social and emotional well-being. Special education is characterized by small classrooms that allow the teacher to devote more time to developing creativity among their students, without the same pressure to meet the required curriculum as in general education. In addition, special needs teachers need to be able to make significant adjustments to answer the various needs of their students. One example is the use of figural learning tools as a major pedagogical technique. There are programs for children and adults with autism [42] relying on adapting the physical environment and using visual structures for organizing space and activities. These are the type of tasks that require creativity from the special needs teacher [43].

To sum up it is important to highlight that special needs future teachers should increase their creative self-concept since the motivation to work towards a learning or teaching goal is influenced by the perception of self-efficacy in the topic or area of knowledge [44]. Consequently, it would be interesting to include specific training programs in the curriculum that allow teachers to improve their creativity and their creative self-perception. In addition to the specific content on creativity in the curriculum, it would also be important to add resources and specific educational materials to develop creativity. Some options could be creative writing, problem-solving activities both in the scientific and social areas to improve divergent thinking or, for example, the development of verbal creativity with activities to enhance lexical divergence and metaphorical processes. As explained above, if teachers do not develop their own creativity, it will be difficult for them to develop their pupils' creativity. This is of particular importance (given the characteristics of their future students) for the case of special needs teachers. The superiority shown by students with ASD in some domains of creativity, for example, is also an opportunity to strengthen their self-esteem and the social integration of these students with special educational needs.

6. Acknowledgements

Authors would like to thank the financial support from the Spanish Ministry of Science and Innovation (Project PID2021-124333NB-I00).

References

[1] Forgeard, M. J. C., & Kaufman, J. C. (2016). Who cares about imagination, creativity, and innovation, and why? A review. Psychology of Aesthetics, Creativity, and the Arts, 10(3), 250–269. https://doi.org/10.1037/aca0000042

[2] OECD (2022). Thinking outside the box. The PISA 2022 creative thinking assessment. Available at https://www.oecd.org/pisa/innovation/creative-thinking/

[3] Glăveanu, V. P., & Kaufman, J. C. (2019). Creativity: A historical perspective. In J. C. Kaufman & R. J. Sternberg (Eds.), The Cambridge Handbook of Creativity (2nd ed., pp. 11–26). Cambridge University Press.

[4] Guilford, J. P. (1950). Creativity. American Psychologist, 5, 444–454.

[5] Plucker, J., Beghetto, R., & Dow, G. (2004). Why isn't creativity more important to educational psychologists? Potentials, pitfalls, and future directions in creativity research. Educational Psychologist, 39(2), 83-96.

[6] Vartanian, O. (2019). Neuroscience of Creativity. In J. C. Kaufman & R. J. Sternberg (Eds.), The Cambridge Handbook of Creativity (pp. 148–172). Cambridge University Press.

[7] Kaufman, J.C., & Beghetto, R.A. (2009). Beyond Big and Little: The Four C Model of Creativity. Review of General Psychology, 13(1), 1-12. https://doi.org/10.1037/a0013688

[8] Spencer, E., & Lucas, B. (2018). Understanding the role of creative self-efficacy in youth social action. University of Winchester.

[9] Long, H., & Plucker, J. (2015). Assessing creative thinking: practical applications. In Wegerif, R., L. Li & J. Kaufman (eds.), The Routledge International Handbook of Research on Teaching Thinking, Routledge.

[10] Barbot, B., & Heuser, B. (2017). Creativity and Identity Formation in Adolescence: A Developmental Perspective, in The Creative Self (pp. 87-98). Elsevier.

[11] Gajda, A., Karwowski, M. and Beghetto, R. (2017). Creativity and academic achievement: A meta-analysis, Journal of Educational Psychology, 109(2), 269-299.

[12] Barbot, B., Lubart, T. I. and Besançon, M. (2016). "Peaks, slumps, and bumps": Individual differences in the development of creativity in children and adolescents. New Directions for Child and Adolescent Development, 151, 33–45. https://doi.org/10.1002/cad.20152

[13] Higgins, S. et al. (2005). A meta-analysis of the impact of the implementation of thinking skills approaches on pupils. Eppi-Centre, University of London.

[14] Beghetto, R. (2010). Creativity in the classroom. In J. C. Kaufman & R. J. Sternberg (eds.), The Cambridge Handbook of Creativity. Cambridge University Press.

[15] Smith, J., & Smith, L. (2010). Educational creativity. In J. C. Kaufman & R. J. Sternberg (eds.), The Cambridge Handbook of Creativity. Cambridge University Press.

[16] Hong, E., Hartzell, S. A., & Greene, M. T. (2011). Fostering Creativity in the Classroom: Effects of Teachers' Epistemological Beliefs, Motivation, and Goal Orientation. The Journal of Creative Behavior, 43(3), 192-208. https://doi.org/10.1002/j.2162-6057.2009.tb01314.x

[17] Chan, S., and Yuen, M. (2014). Personal and Environmental Factors Affecting Teachers' Creativity-Fostering Practices in Hong Kong. Thinking Skills and Creativity, 12, 69-77.

[18] Yates, E. and Twigg, E. (2017). Developing Creativity in Early Childhood Studies Students. Thinking Skills and Creativity, 23, 42-57.

[19] Patston, T. J., Kaufman, J. C., Cropley, A. J., & Marrone, R. (2021). What Is Creativity in Education? A Qualitative Study of International Curricula. Journal of Advanced Academics, 32(2), 207–230. https://doi.org/10.1177/1932202X20978356

[20] Vaitkevičiene, A., & Jokubauskiene, O. (2016). The specialist qualities of implementing an art education curriculum for learners with special needs from the teachers' standpoint. Specialusis Ugdymass, 35(2), 39-71. https://doi.org/10.21277/se.v1i35.256

[21] Isis, P. D., Bush, J., Siegel, C. A., & Ventura, Y. (2010). Empowering students through creativity: Art Therapy in Miami-Dade County public schools. Art Therapy, 27(2), 56-61. https://doi.org/10.1080/07421656.2010.10129712

[22] Wong, M. W.-Y. (2021). Fostering musical creativity of students with intellectual disabilities: Strategies, gamification and re-framing creativity. Music Education Research, 23(1), 1-13. https://doi.org/10.1080/14613808.2020.1862777

[23] Canals, J., Morales-Hidalgo, P., Jané, M. C., & Domènech, E. (2018). ADHD Prevalence in Spanish Preschoolers: Comorbidity, Socio-Demographic Factors, and Functional Consequences. Journal of Attention Disorders, 22(2), 143–153. https://doi.org/10.1177/1087054716638511

[24] Russell G, Kapp SK, Elliott D, Elphick C, Gwernan-Jones R, Owens C. (2019) Mapping the Autistic Advantage from the Accounts of Adults Diagnosed with Autism: A Qualitative Study. Autism in adulthood, 1(2), 124-133. https://doi.org/10.1089/aut.2018.0035

[25] Sabapathy, T, Madduri, N, Deavenport-Saman, A, Zamora, I, Schrager, SM, & Vanderbilt, DL. (2017) Parent-Reported Strengths in Children with Autism Spectrum Disorders at the Time of an Interdisciplinary Diagnostic Evaluation. Journal of Developmental & Behavioral Pediatrics, 38(3), 181-186. https://doi.org/10.1097/DBP.0000000000000423

[26] Mahdi, S., Viljoen, M., Massuti, R. et al. (2017). An international qualitative study of ability and disability in ADHD using the WHO-ICF framework. European Child & Adolescent Psychiatry, 26, 1219–1231. https://doi.org/10.1007/s00787-017-0983-1

[27] Lyons, V., & Fitzgerald, M. (2013). Critical evaluation of the concept of autistic creativity. In Recent Advances in Autism Spectrum Disorders-Volume I. IntechOpen.

[28] Abraham, A., Windmann, S., Siefer, R., Daum, I., & Güntürkün, O. (2006). Creative thinking in adolescents with attention deficit hiperactivity disorder (ADHD). Child Neuropsychology, 12, 111-123.

[29] Zaragozà, M., Echegoyen-Sanz, Y., & Martín-Ezpeleta, A. (2022). Creativity in boys and girls with autism spectrum disorder (ASD) and attention and/or hyperactivity disorder (ADHD). A systematic review. Multidisciplinary Journal of Educational Research. In press.

[30] Chakravarty, A. (2009). Artistic talent in dyslexia. A hypothesis. Medical Hypotheses, 73(4), 569-571. https://doi.org/10.1016/j.mehy.2009.05.034

[31] Kaufman, J. C. (2012). Counting the muses: Development of the Kaufman-Domains of Creativity Scale (K-DOCS). Psychology of Aesthetics, Creativity, and the Arts, 6, 298-308.

[32] Field, A. (2018). Discovering statistic using SPPS. Sage

[33] Cohen, J. (1988). Statistical Power Analysis for Behavioral Sciences. Erlbaum.

[34] Kandemir, M. A., & Kaufman, J. C. (2019). The Kaufman Domains of Creativity Scale: Turkish Validation and Relationship to Academic Major. The Journal of Creative Behavior, 54(4), 1002–1012. https://doi.org/10.1002/jocb.428

[35] Lee, J. H., & Portillo, M. (2022). Transferability of creative self-belief across domains: The differential effects of a creativity course for university students. Thinking skills and Creativity, 43, 100996. https://doi.org/10.1016/j.tsc.2021.100996

[36] Elisondo, R. C., Soroa, G., & Flores, B. (2022). Leisure activities, creative actions and emotional creativity. Thinking skills and Creativity, 45, 101060.

[37] Rubenstein, L. D., Ridgley, L. M., Callan, G. L., Karami, S., & Ehlinger, J. (2018). How teachers perceive factors that influence creativity development: Applying a Social Cognitive Theory perspective. Teaching and Teacher Education, 70, 100-110.

[38] Al-Dababneh, K. A., Al-Zboon, E. K., & Ahmad, J. (2019). The creative environment: teachers' perceptions, self-efficacy, and teaching experience for fostering children's creativity. Early Child Development and Care, 189(10), 1620-1637. https://doi.org/10.1080/03004430.2017.1400969

[39] Kaufman, J. C. (2006). Self-Reported Differences in Creativity by Ethnicity and Gender. Applied Cognitive Psychology, 20, 1065-1082. https://doi.org/10.1002/acp.1255

[40] Kasirer, A., & Shnitzer-Meirovich, S. (2021). The perception of creativity and creative abilities among general education and special education teachers. Thinking Skills and Creativity, 40, 100820. https://doi.org/10.1016/j.tsc.2021.100820

[41] Tamannaeifar, M. R., & Motaghedifard, M. (2014). Subjective well- being and its sub- scales among students: the study of role of creativity and self-efficacy. Thinking Skills & Creativity, 12, 37–42. https://doi.org/10.1016/j.tsc.2013.12.003

[42] Mesibov, G. B., Shea, V., Schopler, E. (2005). The TEACCH approach to autism spectrum disorders. Academic/Plenum.

[43] Virues-Ortega, J., Julio, F. M., & Pastor-Barriuso, R. (2013). The TEACCH program for children and adults with autism: A meta-analysis of intervention studies. Clinical Psychology Review, 33(8), 940-953. https://doi.org/10.1016/j.cpr.2013.07.005

[44] Ozder, H. (2011). Self-efficacy beliefs of novice teachers and their performance in the classroom. Australian Journal of Teacher Education, 36(5), 1-15. http://dx.doi.org/10.14221/ajte.2011v36n5.1