Academicians and Teacher Candidates' Metaphorical Approaches to Creativity

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Abstract

The aim of this study is to reveal the perceptions of creativity of academicians working in different departments of an faculty of education and teacher candidates studying in different departments through an exploration of metaphors. A phenomenological design, as one of the qualitative research designs, was used in this study. The study group consisted of academicians working in the faculty of education of a state university and teacher candidates studying at the same university. Data were collected with a semi-structured interview form prepared by the researcher and analyzed by content analysis. As a result, it was observed that the metaphors developed by the teacher candidates and the academicians varied. It was concluded that teacher candidates mostly identified the concept of creativity with nature and based their metaphors on concepts that generated positive emotions and thoughts. On the other hand, academicians produced metaphors according to their fields of study.

Keywords: Creativity, Perception, Academician, Teacher Candidate

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Introduction

In our rapidly changing world, traditional values have yielded their place to universal values, and this transition has featured innovative thinking, production, and reasoning as central concepts. Alongside these concepts that have been brought to the fore with such changes, the relevance of creativity has gained even more significance. Creativity entails having original, useful, and new ideas that are valuable (Amabile, 1988, 1997; Yıldırım, 1998; Zhou & Shalley, 2003; Pluer, Beghetto, & Dow, 2004; Milbrandt & Milbrandt, 2011; Robinson, 2016), producing something unique using pre-established facts (Fisher, 2004; Timuçin, 2004; Sözbilir, 2018), seeing the same thing as others but thinking about something different (Alder, 2004), and heading in directions that no one has pursued before. It involves the hope of reaching uncharted places like an explorer (Hegarty, 2014). Creativity and passion stemming from the desire to explore are traits unique to humans (Yavuz 1989; Keun & Hunt, 2006; Robinson, 2011; Michalko, 2011). Where there is a human, there is also imagination, which is at the root of creativity. The use of imagination brings with it originality and innovation (Robinson, 2016). As can be seen, the concept of creativity cannot be explained with a single limited definition. Rather, creativity can be generally defined as the process of creating new perceptions of the world by using the perspective that humankind has developed over time together with the freedom provided by imagination.

Creativity is the product of multifaceted thought (Onur & Zorlu, 2017) and it is a mental power that is believed to be inherent in all people (Alder, 2004; Lowenfeld, 1947). Mental power is highly crucial in the formation of creativity (Ülgen & Fidan 1991), because creative individuals like to think and have inquiring attitudes. They are also sensitive to problems; they feel the need to generate thoughts and develop new ways of thinking due to being aware of their environments (Adams, 2001; Gardner, 2007; Robinson, 2011; Parsıl, 2012). Every thought that is produced brings with it different possibilities and opens the way to creative thinking. Craft (2000), who presented a similar opinion, stated that an important part of creative thinking occurs with probabilistic thinking.

Creative thinking is at the center of human cognition (Amabile, 1997) and represents the ability to generate both new and useful ideas (Hennessey & Amabile, 2010). At the same time, creative thinking has a complex formation process. A creative individual first starts by analyzing a problem that awaits a solution (Bessis & Jaqui, 1973). This is followed by processes based on thought that include considerations of the environment, perceptions, images, emotions, imagination, logical thinking, analysis, synthesis, and metaphorical thinking that affect the development of creativity (Sungur, 1997; Robinson, 2011; Hooijdonk, Ritter, Linka, & Kroesbergen, 2022). Thought is the result of cognitive processes and the first step in those processes is perception (Ülgen & Fidan 1991; Yıldız & Şener, 2007).

Perception is the interpretation of the sensory impressions of individuals (Kashyap, 2018) and the stimuli transmitted to the brain through the sense organs in order to understand the environment (Püsküllüoğlu, 1995; Yıldız & Şener, 2007). Our perceptions have an important place in the phenomenon of creativity. Accordingly, perception, as an element of thought, is intertwined with creative thinking. Creative thinking develops with imagination and imaginative thinking, and imaginary concepts formed by our perceptions are chosen selectively (Öztürk, 2004). In this direction, the concept of creativity forms images, or metaphors, in the mind (Pekdoğan & Kanak, 2015).

Metaphors are formed by the combination of words. They are powerful mental tools for individuals to understand and explain abstract and complex phenomena, and they offer a way of thinking that allows for a transition from one object to another with perceptual similarity (Morgan, 1998; Saban, Koçbeker, & Saban, 2006; Semerci, 2007). In other words, a metaphor is an explanation of a concept, phenomenon, or event with another concept by way of analogy (Oxford, Tomlinson, Barcelos, Harrington, Lavine, Saleh, & Longhini, 1998). Metaphors enable the experiences of the individual to direct them from one way of understanding to another through the mind and allow them to form different mental structures related to concepts (Kövecses, 2003). Metaphors are widely used in education because they facilitate understanding, qualify concepts, are frequently used in daily life, and are an integral part of thinking (Lakoff & Johnson, 2015).

Education systems aim to develop individuals' thought structures and produce individuals who use their minds in various ways (Yenilmez & Yolcu, 2007). This raises the importance of training individuals who produce knowledge, question, and think creatively and multidimensionally (Gök & Erdoğan, 2011). At this point, it is expected that teacher candidates' awareness of the concept of creativity and its importance will increase in parallel with the quality of the training that they receive. The knowledge and competency of teacher candidates who receive training in order to provide students with creative thinking skills and develop their individuality and unique features are important. A review of the literature revealed several studies addressing topics that have included imagination and creativity in Turkish education (Ünveren, 2020), factors affecting the scientific creativity levels of secondary school students (İnel-Ekici &Tanır, 2020), the development of creative thinking skills with aesthetic creativity education activities in a social studies course (Gürkan & Dolapçıoğlu, 2020), the concepts of creativity and tolerance (Yılmaz & Güven, 2019), the metaphorical perceptions of psychology department students regarding the notion of creativity (Yavuz-Açıl & Kanlı, 2018), the analysis of science instructors' perspectives on creativity (Akcanca & Cerrah Özsevgeç, 2016), and the metaphorical perceptions of teacher candidates regarding the idea of "creative teachers" (Schreglmann & Kazancı, 2016). However, the vast majority of these studies focused solely on teacher candidates. The involvement of academicians in the present study in addition to teacher candidates is of critical importance in terms of providing a novel perspective for

the literature. Moreover, if teacher candidates are to be considered creative teachers, they are also expected to be individuals with attributes such as curiosity, openness to diverse opinions, and the capacity for critical analysis. In order for teacher candidates to become creative teachers, they must be curious, open-minded, and capable of looking at issues critically. Determining students' ways of thinking about creativity, establishing relationships, and interpreting, or, in other words, perceiving, is important in terms of representing the extent to which creative thinking abilities will be developed. Similarly, it should not be forgotten that an academic's perspective on and awareness of creativity can offer many opportunities for young people who are university students and now considered adults. It is possible for the academicians who will train teacher candidates to offer creative activities to their students in parallel with their perceptions of creativity and to create educational environments that allow their students to organize creative activities. From this point of view, the creativity perceptions of academicians can directly and indirectly affect the creativity perceptions of teacher candidates.

Aim of the study

The aim of this study is to reveal perceptions of creativity among academicians working in different departments of an education faculty and teacher candidates studying in different departments through metaphors. For this purpose, answers to the following questions were sought:

1. Which metaphors do academicians working in different departments of an education faculty and teacher candidates studying in different departments use to explain the concept of creativity?
2. To which categories do the metaphors used by academicians working in different departments of an education faculty and teacher candidates studying in different departments belong, according to their common characteristics?

Method

In this section, information about the research model, study group, data collection, data analysis, and validity and reliability is provided.

Research Model

In this study, a phenomenological design, as one of the qualitative research designs, was used since it was aimed to reveal how teacher candidates studying in an education faculty and academicians working in the same faculty perceive the concept of creativity. This design formed the basis of the study with a focus on individuals with experiences of the phenomenon being researched, aiming to highlight the perceptions and experiences of individuals from their own perspectives (Lester, 1999; Creswell, 2013) and concentrating on phenomena about which we are aware but for which we lack an in-depth and detailed understanding (Yıldırım & Şimşek, 2008).

Study Group

The study group consisted of academicians working in and teacher candidates studying in the education faculty of a state university in Turkey in the 2019-2020 academic years. The reason for choosing this study group was a desire to examine the concept of creativity in universities, which are important steps in the education and training of students and teachers. The teacher candidates and academicians included in the study group were selected according to the simple random sampling method. Simple random sampling is a method in which individuals for the study sample are randomly selected with known probability, and this probability is n/N for each individual, it is important that individuals be selected by means of a purely random process. In this sampling method, each unit is given an equal chance of being selected without making any adjustments regarding the population units (Güriş & Astar, 2019; Kurtuluş, 2010; Şenol, 2012). The demographic characteristics of the academicians and teacher candidates in the study group are shown in Table 1.

Table 1. Demographic characteristics of academicians and teacher candidates included in the study

Variables	Categories	Academicians		Teacher Candidates	
		n	%	n	%
Gender	Male	23	65.7	98	32.8
	Female	12	34.2	200	67.1
	Mathematics Teaching	6	17.1	16	5.3
	Turkish Teaching	5	14.2	47	15.7
	Classroom Teaching	5	14.2	51	17.1
Department	Social Sciences Teaching	4	11.4	91	30.5
	Psychological Counseling and Guidance	4	11.4	85	28.5
	Computer and Instructional Technologies Education	1	2.8	8	2.6
	Science Education	3	8.5	-	-
	Preschool Education	4	11.4	-	-
	Foreign Languages Education	1	2.8	-	-
	Assessment and Evaluation in Education	2	5.7	-	-

As seen in Table 1, 32.8% of the teacher candidates participating in the study were male and 67.1% were female, while 65% of the academicians were male and 34% were female. Since simple random sampling was used, it was seen that the ratios of female teacher candidates and male academicians participating in the study were higher. The differences in percentages of participants in different departments were due to the fact that data were collected considering the numbers of students in the departments in the year the study was conducted.

Data Collection

In this study, data were collected with a semi-structured interview form prepared by the researcher. This data collection tool was used because it enabled the participants to provide in-depth information about the relevant field (Büyüköztürk, Çakmak, Akgün, Karadeniz, &Demirel, 2018) and it revealed the topics that needed to be explored (Merriam, 2009). After giving brief information about the subject and metaphors to the academicians and teacher candidates, the interview form was

distributed. It was observed that the academicians took longer to express their metaphors than the teacher candidates. For the purpose of the study, the following questions were asked to ensure the integrity of the answers: "If you were to compare the concept of creativity to a living or inanimate entity, an object, or anything else you can think of, what would you compare it to? Can you explain why?" The participants were asked to complete the following parts of the form in providing their answers: "Creativity is similar to ……………….. because ……………………….." The form also included a section addressing the demographic characteristics of the participants.

Data Analysis

The data obtained in this study were first transferred to the computer environment and subjected to content analysis. A list of metaphors was created in light of the participants' ability to liken creativity to other concepts and express likeness. During this process, the forms of 57 teacher candidates and 5 academicians were deemed invalid due to inconsistency in the explanation of the metaphor or the reason for the metaphor, or an explanation not being provided. After creating that list, the frequency (*f*) and percentage (%) of each metaphor were calculated (Tables 2 and 3). It was observed that 147 different metaphors were produced by 298 teacher candidates and 33 different metaphors were produced by 35 academicians. Then, considering the common characteristics of the metaphors expressed by the participants, the category development stage was begun. While determining the categories, the relevant literature was examined (Akyol & Kızıltan, 2019; Aslan, 2019; Baş, & Kıvılcım, 2019; Değirmenci & Eskici, 2019; Kara & Bozbayındır, 2019; Çenberci, Sezgin Memnun, & İnce, 2020) and categories suitable for the metaphors obtained were created with 12 categories for the teacher candidates and 6 for the academicians. Categories were created by taking into account the metaphors expressed by the participants (Tables 4 and 5). In this stage, descriptive statements about the metaphors in each category were also included. Furthermore, department and gender coding was carried out for both teacher candidates and academicians. The following letters were used in the metaphor codes: I=Primary Mathematics Education, T=Turkish Education, S=Classroom Education, P=Psychological Counseling and Guidance, L=Social Studies Education, B=Computer and Instructional Technologies Education, F=Science Education, O=Preschool Education, Y=Foreign Language Education, and E=Assessment and Evaluation in Education. During the data analysis process, each of the participants was shown the ordering and coding of the data. Letters were also used to note the participant's gender at the end of each code with F Fem ale and M=Male for all teacher candidates and academicians (e.g., S88-F, P155-F, L226-M).

Validity and Reliability

As Merriam (2009) stated, validity and reliability are guarantees of the creation of an appropriate conceptual framework of any study with the collection, analysis, and interpretation of data and the credibility, measurability, and reliability of the findings. Yıldırım and Şimşek (2008)

emphasized that reporting the data obtained in a study and stating how the researcher reached the results of the study are important for the study's validity. In this respect, in the current study it is important to explain how the research process was carried out from the collection of data to the data analysis and to provide detailed lists of the metaphors obtained to ensure the study's validity. To ensure the study's reliability, the opinions of two different field experts were obtained regarding the metaphors created by academicians and teacher candidates. Afterwards, the reliability of the study (Reliability = Agreement/Agreement + Disagreement) was calculated as a result of the adjustments made after taking into account the feedback from those experts (Miles & Huberman, 1994). For teacher candidates, the experts associated 4 metaphors with a different category than the researcher. Considering this difference, the reliability was calculated as 147/147+4 = .97. For the academicians, it was seen that 5 metaphors were associated with a different category than that selected by the researcher, and the reliability was calculated as 33/33+5 = .86. These results confirm that the study has sufficient reliability.

Results

In this section, the metaphors created by the teacher candidates and academicians to describe the concept of creativity and the categories established for those metaphors are given. In addition, direct quotations from the participants' answers are provided.

1.   Metaphors for Creativity Created by Teacher Candidates and Academicians

As a result of the analysis of the data obtained in accordance with the purpose of the study, the metaphors created by the teacher candidates and academicians to describe the concept of creativity are given in Tables 2 and 3 together with the frequencies and percentages of the metaphors.

Table 2. Metaphors of teacher candidates describing the concept of creativity

Creativity Metaphor	f	%	Creativity Metaphor	f	%	Creativity Metaphor	f	%
Dream world	27	9	Infinity	2	0.6	Artist	1	0.3
Inventing	11	3.6	Egg	2	0.6	Kite	1	0.3
Child	9	3	Awareness	1	0.3	Snowflake	1	0.3
Rainbow	8	2.6	Writing	1	0.3	Pottery master	1	0.3
Universe	6	2	Dancing with words	1	0.3	Shadow	1	0.3
Human	6	2	Canvas	1	0.3	Firework	1	0.3
Diversity	6	2	Spring	1	0.3	Woodworking	1	0.3
Sky	5	1.6	Flower blooming in the desert	1	0.3	Dot	1	0.3
Originality/uniqueness	5	1.6	Clock	1	0.3	Sailing a ship in the desert	1	0.3
Tree	5	1.6	Four operations	1	0.3	Concretization	1	0.3
Sun	5	1.6	Cosmos	1	0.3	Logic	1	0.3
Flower	4	1.3	Mountain climbing	1	0.3	Nothingness	1	0.3
Drawing	4	1.3	Rain	1	0.3	Effort	1	0.3
Innovation	4	1.3	Fingerprint	1	0.3	Flood	1	0.3

Nature	4	1.3	Finding a solution	1	0.3	Talent	1	0.3
Art	4	1.3	Bakery products	1	0.3	Screenwriting	1	0.3
Mother	3	1	Sun rising after darkness	1	0.3	Individualization	1	0.3
Food	3	1	Construction project	1	0.3	Time	1	0.3
Newborn baby	3	1	Breakthrough in civilization	1	0.3	Chameleon	1	0.3
Colors	3	1	Pottery	1	0.3	Peacock	1	0.3
Improvisation	3	1	Painting	1	0.3	Milky Way	1	0.3
Water	3	1	Sprout	1	0.3	Miracle	1	0.3
Birth	3	1	Pearls	1	0.3	Tale	1	0.3
Ocean	3	1	Fred Flintstone's car	1	0.3	Technology	1	0.3
Sea	3	1	Giving life to a log	1	0.3	Apple tree	1	0.3
Rebirth	3	1	Activity	1	0.3	Hope	1	0.3
Space	3	1	New life	1	0.3	Meteor	1	0.3
Bird	3	1	Traveling by unknown vehicle	1	0.3	Plant	1	0.3
Productivity	3	1	Using different glasses	1	0.3	Multipurpose furniture	1	0.3
Brain	3	1	Using a different bridge than others	1	0.3	Logos	1	0.3
Sculptor	3	1	Unknown	1	0.3	Sculpture	1	0.3
Play dough	3	1	Snowdrop	1	0.3	Paint	1	0.3
Butterfly	3	1	Light	1	0.3	Torch	1	0.3
Painter	2	0.6	Dough	1	0.3	Obstacles that we face	1	0.3
Black hole	2	0.6	Surprise	1	0.3	Football	1	0.3
Scientist	2	0.6	A surprise gift	1	0.3	Equation	1	0.3
Different path	2	0.6	Ant	1	0.3	Song	1	0.3
Pencil	2	0.6	Manhole cover	1	0.3	Unlimited power	1	0.3
Existing	2	0.6	Ladder	1	0.3	Cinema	1	0.3
Thinking	2	0.6	Coal	1	0.3	Toy	1	0.3
Journey	2	0.6	Intelligence	1	0.3	Telephone	1	0.3
Teacher	2	0.6	Star	1	0.3	Stone	1	0.3
Book	2	0.6	Seeing an oasis in the desert	1	0.3	Horse	1	0.3
Love	2	0.6	Seeing more than meets the eye	1	0.3	Key shop	1	0.3
Road	2	0.6	Acne	1	0.3	Walking on two hands	1	0.3
Seed	2	0.6	Magic wand	1	0.3	**TOTAL**	298	100
House construction	2	0.6	Locomotive	1	0.3			
Cloud	2	0.6	Superhero	1	0.3			
Dream	2	0.6	Money	1	0.3			
World	2	0.6	Phoenix	1	0.3			
Impossibility	2	0.6	Balloon	1	0.3			

When the findings in Table 2 are examined, it is seen that 147 different metaphors were produced as a result of grouping the metaphors created by 298 teacher candidates. Among these metaphors, the ones with the highest frequencies are dream world (f=27), inventing (f=11), child (f=9), rainbow (f=8), universe (f=6), human (f=6), diversity (f=6), sky (f=5), originality (f=5), tree

(*f*=5), and sun (*f*=5). The diversity of the metaphors produced by the teacher candidates may be due to their individual differences and may reflect unique cultural elements.

Figure 1. Word cloud consisting of metaphors produced by teacher candidates for the concept of creativity

Table 3. Metaphors of academicians describing the concept of creativity

Creativity Metaphor	*f*	%	Creativity Metaphor	*f*	%	Creativity Metaphor	*f*	%
Childhood	2	5.7	DNA	1	2.8	Art	1	2.8
Tree	2	5.7	Dream	1	2.8	Incubation	1	2.8
Artwork	1	2.8	Uncharted island	1	2.8	Cat	1	2.8
Food	1	2.8	Pi	1	2.8	Treasure	1	2.8
An empty glass	1	2.8	Newborn child	1	2.8	Factory	1	2.8
Numbers	1	2.8	Sky	1	2.8	Carpenter	1	2.8
Soil	1	2.8	Processing raw material	1	2.8	Pink	1	2.8
Book pages	1	2.8	Pomegranate	1	2.8	Bittersweet	1	2.8
Cooking	1	2.8	Champion	1	2.8	Einstein	1	2.8
Being brave	1	2.8	Human life	1	2.8	Innovation	1	2.8
Ghost	1	2.8	Talent	1	2.8	Friend in need	1	2.8
TOTAL							**35**	**100**

When the findings in Table 3 are examined, it is seen that 33 different metaphors were produced as a result of grouping the metaphors offered by 35 academicians. Childhood (*f*=2) and tree (*f*=2) have the highest frequencies among these metaphors.

Figure 2. Word cloud consisting of metaphors produced by academicians for the concept of creativity

2. **Conceptual categories of metaphors of teacher candidates and academicians describing the concept of creativity**

The conceptual categories of the metaphors created by teacher candidates and academicians to describe the concept of creativity and the frequencies and percentages of these categories are given in Tables 4 and 5.

Table 4. Conceptual categories of the metaphors of teacher candidates describing the concept of creativity

Categories (*f*=12)	*f*	%	Metaphors (*f*=147)	*f*	%
Creativity as part of nature	20	13.6	Rainbow (S88-F, P155-F, P172-F, P175-F, L234-F, L253-F, L263-F, L226-M), tree (S66-F, L215-F, L246-F, P182-M, P292-M), nature (S75-F, P134-F, P141-F, S72-M), flower (I5-F, L229-F, L264-F, S96-M), water (T17-F, S73-F, L254-F), ocean (S80-M, P145-M, P125-F), sea (S83-F, S84-F, S89-F), seed (P131-F, L260-M), cloud (P163-F, L206-F), plant (L244-F), snowdrop (S67-F), sprout (T33-F), apple tree (L220-F), coal (S97-M), stone (L288-M), rain (I16-F), flood (P193-M), pearls (T34-F), spring (I4-F), snowflake (P159-F)	45	15.1

Creativity as an abstract concept	19	12.9	Dream world (T18-M, T37-M, T48-M, S91-M, P174-M, P178-M, L221-M, L223-M, L240-M, L287-M, T46-F, T50-F, T51-F, T57-F, S78-F, S82-F, P112-F, P116-F, P132-F, P135-F, P136-F, P151-F, P170-F, L233-F, L236-F, L242-F, L243-F), diversity (P184-F, P185-F, B195-F, L265-F, P190-M, T298-M), originality/uniqueness (T43-F, P143-F, P160-F, T52-F, P188-M), innovation (T55-F, P189-F, P293-F, L249-M), brain (P164-F, L270-F, P167-M), infinity (I8-M, L275-M), thinking (T56-F, L238-F), love (S70-M, P186-F), dream (P169-F; L210-M), awareness (S105-M), logic (P187-M), nothingness (P191-F), time (L204-F), miracle (L213-F), hope (L224-M), new life (T47-F), unknown (S61-F), intelligence (S98-F), phoenix (P147-F)	63	21.1
Creativity as work, action, and behavior	18	12.2	Improvisation (P117-F, S295-F, I12-M), birth (T32-F, P137-F, S86-M), productivity (B199-F, P144-M, L225-M), house construction (T23-M, L268-F), existing (T54-F, P114-M), journey (S62-F, L252-F), mountain climbing (P14-M), effort (P192-M), finding a solution (T20-F), activity (T45-F), traveling by unknown vehicle (T53-F), wearing different glasses (T58-M), using a different bridge than others (T60-F), seeing an oasis in the desert (S100-F), walking on two hands (S297-M), playing football (L271-M), using unlimited power (L277-F), concretization (P180-F)	27	9
Creativity as a tool	17	11.5	Inventing (T26-M, T27-M, P121-M, L209-M, L222-M, T30-F, T38-F, B198-F, L214-F, L255-F, B291-F), play dough (P157-F, P162-F, L284-F), pencil (T49-F, L203-F), clock (I6-F), pottery (T25-F), Fred Flintstone's car (S102-M), multi-purpose furniture (L245-M), logos (L247-F), manhole cover (S90-M), ladder (S104-M), toy (L280-F), money (P146-M), balloon (P154-M), torch (L258-F), dough (S81-F), construction project (L289-M), key shop (L294-M)	30	10
Creativity as an artistic element	15	10.2	Drawing (T42-F, P109-F, L278-F, I13-M), art (P156-F, L266-F, L267-F, B194-M), colors (I9-F, S79-F, S74-M), sculptor (L281-F, L282-M, L283-M), painter (L261-M, L276-F), pottery (P161-M), canvas (I2-F), woodworking (P176-M), screenwriting (B197-F), painting (T28-F), sculpture (L248-F), paint (L256-F), song (L273-F), cinema (L279-F), artist (L286-M)	26	8.7
Creativity as a cosmic element	12	8.1	Universe (T59-F, S65-F, P130-F, L228-F, L232-F, P173-M), sun (P153-F, L208-F, L250-F, S69-M, P111-M), sky (I15-F, P127-F, P129-F, P148-F, P165-F), space (P115-F, P138-F, L231-F),	29	9.7

			black hole (T29-F, S76-F), earth (L212-F, L269-F), cosmos (P110-M), Milky Way (L211-F), meteor (L230-F), star (S99-F), shadow (P166-F), light (S77-F)		
Creativity as a figurative expression	11	7.4	Newborn baby (I7-M, T36-M, T44-F), rebirth (S106-F, L201-F, S107-M), dancing with words (P118-M), sun rising after darkness (T22-M), sailing a ship in the desert (P183-F), magic wand (P133-F), flower blooming in the desert (L239-M), fingerprint (T19-F), giving life to a log (T40-M), superhero (P142-F), seeing more than meets the eye (P123-M)	15	5
Creativity as an educational element	8	5.4	Scientist (T31-F, P179-F), teacher (S63-F, L259-F), book (S64-F, L227-M), writing (S108-F), dot (P177-F), four operations (I11-F), technology (L219-M), equation (L272-M)	11	3.6
Creativity as a spiritual and cultural value	8	5.4	Child (S92-F, S94-F, P128-F, P150-F, P152-F, L218-F, L235-F, L251-F, L257-F), human (S68-F, S71-F, P113-F, P140-F, L202-F, P122-M), mother (I1-F, P120-F, P119-M), food (I3-F, S93-F, S103-M), individualization (B200-F), breakthrough in civilization (T24-F), talent (B196-F), tale (L216-F)	25	8.3
Creativity as an image expressing uncertainty	7	4.7	Different path (I39-F, T41-F), impossibility (L237-F, L274-M), obstacles that we face (S101-M), surprise (S85-M), a surprise gift (L241-F), acne (P124-M), bakery products (T21-M)	9	3
Creativity as a being from the animal kingdom	7	4.7	Bird (P126-F, P149-F, P168-F), butterfly (I10-F, L262-F, L217-F), egg (T35-F, L296-M), chameleon (L205-F), peacock (L207-F), ant (S87-M), horse (L290-M)	12	4
Creativity as a means of transport and communication	5	3.4	Road (S95-F, P181-M), kite (P158-M), firework (P171-F), telephone (L285-M), locomotive (P139-M)	6	2
TOTAL	147	100		298	100

Descriptive statements provided by participants regarding the created metaphors in these 12 conceptual categories are given below.

Creativity as a part of nature: This category contained 13.6% (*f*=20) of the total metaphors created by the teacher candidates. The metaphors included in this category were expressed by 45 teacher candidates. Some relevant statements are as follows:

"It is similar to a rainbow, because when the sky is like a blank canvas, it rains, the sun comes out, and that canvas becomes colorful with the reflection of sunlight" (L226-M).

"It is similar to a sprout, because the things in a person's mind first start with a small spark and then get big" (T33-F).

"It is similar to water, because it is fluid like water. Ideas can be generated constantly" (S73-F).

"It is similar to a flower, because when there is nothing yet and there are no colors in the soil, it emerges with a magnificent smell and in thousands of colors, without any flaws" (I5-F).

Creativity as an abstract concept: Of all metaphors created by the teacher candidates, 12.9% (f=19) were in this category. The metaphors in this category were expressed by 63 teacher candidates. Some relevant statements are as follows:

"It is similar to imagination, because we dream of things we cannot reach and we strive to achieve them. What we have achieved on this path determines the level of our creativity" (L223-M).

"It is similar to the brain, because it creates something other than existing things and this differs from person to person" (P164-F).

"It is similar to nothingness, because it can exist if it makes sense to others, but it is nothing otherwise" (P191-F).

"It is similar to a miracle, because something that has not been thought of or something that has not been seen before is revealed" (L213-F).

Creativity as work, action and behavior: This category included 12.2% (f=18) of the total metaphors created by teacher candidates. The metaphors in this category were expressed by 27 teacher candidates. Some relevant statements are as follows:

"It is similar to improvisation, because what can be done depends on the person and can reveal what goes through the mind of the person" (P117-F).

"It is similar to birth, because it is revealing something in yourself" (P137-F).

"It is similar to productivity, because it brings things to life that no one has discovered before" (P144-M).

"It is similar to a journey, because new things always emerge" (S62-F).

"It is similar to wearing different glasses, because it is to see and think differently from other people" (T58-M).

"It is similar to seeing an oasis in the desert, because when you are thirsty and want to cool off, you see an oasis. You walk toward that illusion and you will eventually find a water source while walking" (S100-F).

Creativity as a tool: This category included 11.5% (*f*=17) of the total metaphors created by teacher candidates. The metaphors in this category were expressed by 30 teacher candidates. Some relevant statements are as follows:

"It is similar to inventing, because you find it by exploring" (L255-F).

"It is similar to play dough, because it is to shape an amorphous thought and make it something new" (L284-F).

"It is similar to a clock, because it works all the time" (I6-F).

"It is similar to Fred Flintstone's car, because it doesn't appear without doing anything. It takes effort to bring it out" (S102-M).

"It is similar to a manhole cover, because just as it is not clear when the water will pour down from the manhole cover, it is not clear when the creative thought will come to one's mind" (S90-M).

"It is similar to money, because you never know who has it and when they will show it" (P146-M).

Creativity as an artistic element: Of all of the metaphors created by the teacher candidates, 10.2% (*f*=15) were in this category. The metaphors in this category were expressed by 26 teacher candidates. Some relevant statements are as follows:

"It is similar to colors, because it has different types and tones" (I9-F).

"It is similar to a painter, because different and crazy ideas emerge like the mind of a crazy painter" (L276-F).

"It is similar to a pottery master, because the same materials take different forms in the hands of each master" (P161-M).

"It is similar to a painting, because all individuals have their own painting and that is shaped according to their characteristics. Some are colorful while some are black and white" (T28-F).

Creativity as a cosmic element: This category included 8.1% (*f*=12) of the total metaphors created by the teacher candidates. The metaphors in this category were expressed by 29 teacher candidates. Some relevant statements are as follows:

"It is similar to the universe, because it is a place that has no end, where everyone sees something else and perceives different things" (L232-F).

"It is similar to the sun, because it allows us to illuminate our surroundings" (S69-M).

"It is similar to the sky, because it is endless and limitless like it" (P148-F).

"It is similar to a black hole, because it emerges from the depths of our minds and its discovery would be a big event" (S76-F).

"It is similar to a meteor, because the more you add to it, the bigger and better it gets. What comes out becomes valuable like a meteor" (L230-F).

Creativity as a figurative expression: Of all the metaphors created by the teacher candidates, 7.4% (*f*=11) were in this category. The metaphors in this category were expressed by 15 teacher candidates. Some relevant statements are as follows:

"It is similar to a newborn baby, because it is the emergence of something that does not exist" (I7-M).

"It is similar to sailing a ship in the desert, because it gives the power to achieve even the most impossible thing" (P183-F).

"It is similar to a magic wand, because it reveals the things that only exist in our dreams" (P133-F).

"It is similar to a flower blooming in the desert, because it is rare and valuable" (L239-M).

"It is similar to a fingerprint, because it is unique, different, and new" (T19-F).

Creativity as an educational element: This category included 5.4% (*f*=8) of the total metaphors formed by the teacher candidates. The metaphors in this category were expressed by 11 teacher candidates. Some relevant statements are as follows:

"It is similar to a scientist, because it creates something different and unique" (P179-F).

"It is similar to books, because it expands people's horizons by constantly offering new ideas" (S64-F).

"It is similar to four [mathematical] operations, because new numbers are generated with each new operation" (I11-F).

Creativity as a spiritual and cultural value: This category included 5.4% (*f*=8) of the total metaphors created by the teacher candidates. The metaphors in this category were expressed by 25 teacher candidates. Some relevant statements are as follows:

"It is similar to a child, because it makes something unexpected and surprises at an unexpected moment" (S92-F).

"It is similar to a human, because it has the power to end an era and start a new one" (P140-F).

"It is similar to food, because food makes people stronger and more energetic" (I3-F).

Creativity as an image expressing uncertainty: Of all metaphors created by the teacher candidates, 4.7% (*f*=7) were in this category. The metaphors in this category were expressed by 9 teacher candidates. Some relevant statements are as follows:

"It is similar to a surprise, because it generates a product by making it possible to think differently than others" (S85-M).

"It is similar to acne, because you never know when or where it will appear" (P124-M).

Creativity as an entity from the animal kingdom: This category included 4.7% (*f*=7) of the total metaphors created by the teacher candidates. The metaphors in this category were expressed by 12 teacher candidates. Some relevant statements are as follows:

"It is similar to a bird, because it is bound to freedom and trusts its own wings" (P168-F).

"It is similar to a horse, because the better you take care of it, the longer it will provide its company" (L290-M).

Creativity as a means of transportation and communication: This category included 3.4% (*f*=5) of the total metaphors created by the teacher candidates. The metaphors in this category were expressed by 6 teacher candidates. Some relevant statements are as follows:

"It is similar to a firework, because it appears unexpectedly in an unusual way" (P171-F).

"It is similar to a kite, because you cannot determine its direction" (P158-M).

Table 5. Conceptual categories of the metaphors of academicians describing the concept of creativity

Categories (*f*=6)	*f*	%	Metaphors (*f*=33)	*f*	%
Creativity in the context of originality	12	36.3	Childhood (P10-M, S20-F), an empty glass (T2-F), soil (T3-F), cooking (O4-M), dream (L13-M), processing raw materials (O18-F), talent (T23-M), art (T24-M), artwork (F1-M), innovation (I34-M), pomegranate (O19-F), Einstein (S33-M)	13	37.1
Creativity as a value	5	15.1	Book pages (L8-M), being brave (L9-M), treasure (S27-M), carpenter (I30-M), friend in need (P35-M)	5	14.2
Creativity as a form of renewal	5	15.1	Tree (L15, I29-F), DNA (E11-M), newborn child (P16-M), food (F6-F), factory (B28-F)	6	17.1

Creativity as an element of uncertainty and obscurity	4	12.1	Ghost (P5-M), human life (S21-F), incubation (F25-M), cat (Y26-M)	4	11.4
Creativity as a field of discovery	4	12.1	Uncharted island (E12-M), pi (I14-F), numbers (I7-M), sky (O17-F)	4	11.4
Creativity as a happy ending	3	9	Champion (S22-M), pink (I31-F), bittersweet (T32-M)	3	8.5
TOTAL	33	100		35	100

Descriptive statements from these participants regarding the metaphors in the 12 identified conceptual categories created are given below.

Creativity in the context of originality: This category included 36.3% (f=12) of the total metaphors created by the academicians. The metaphors in this category were expressed by 13 academicians. Some relevant statements are as follows:

"It is similar to childhood, because there are no limitations and patterns. It is open to innovation" (S20-F).

"It is similar to soil, because you can shape it any way you want" (T3-F).

"It is similar to processing raw materials, because each person has their own processing methods" (018-F).

"It is similar to artwork, because it requires different thinking skills" (F1-M).

"It is similar to a pomegranate, because when viewed from the outside, the inside is invisible and mysterious. It appears as a whole, but it consists of thousands of grains that make up the whole. When you squeeze the pomegranate, it turns into different forms. It also leaves a mark on things, like [the pomegranate] leaves on clothes..." (O19-F).

Creativity as a value: Of all the metaphors created by the academicians, 15.1% (f=5) of them were in this category. The metaphors in this category were expressed by 5 academicians. Some relevant statements are as follows:

"It is similar to being brave, because it requires being able to do something without someone to guide or a way to follow" (L9-M).

"It is similar to a friend in need, because it illuminates your path when you need it most, regardless of self-interest" (P35-M).

"It is similar to treasure, because individuals who have this skill in both business and social life are always considered valuable" (S27-M).

Creativity as a form of renewal: This category contained 15.1% (*f*=5) of the total metaphors created by the academicians. The metaphors in this category were expressed by 6 academicians. Some relevant statements are as follows:

"It is similar to a tree, because while it contains a deep meaning like the root of a tree, it includes different ideas and thoughts like its branches" (I29-F).

"It is similar to DNA, because when the codes change, a new structure and behavior emerges" (E11-M).

"It is similar to food, because it keeps the body fit by nourishing both the soul and the mind" (F6-F).

Creativity as an element of uncertainty and obscurity: This category included 12.1% (*f*=4) of the total metaphors created by the academicians. The metaphors in this category were expressed by 4 academicians. Some relevant statements are as follows:

"It is similar to a ghost, because, in general, its existence is known, but what exactly it turns into is not known. It comes into being and becomes reality depending on the perception, cognition, and experiences of the person" (P5-M).

"It is similar to a cat, because it comes to your mind whenever it wants; otherwise, it will not occur to you no matter how hard you think" (Y26-M).

Creativity as a field of discovery: This category included 12.1% (*f*=4) of the total metaphors created by the academicians. The metaphors in this category were expressed by 4 academicians. Some relevant statements are as follows:

"It is similar to pi, because it has hundreds of orders that do not repeat themselves and have not yet been discovered (calculated)" (I14-F).

"It is similar to an uncharted island, because with every discovery attempt, new products emerge" (E12-M).

Creativity as a happy ending: Of all metaphors created by the academicians, 9% (*f*=3) were in this category. The metaphors in this category were expressed by 3 academicians. One example is as follows:

"It is similar to a champion, because success, that is, breaking a record, can only come after talent, effort, struggle, and patience" (S22-M).

Discussion and Conclusion

Teacher candidates studying in an education faculty developed 147 different metaphors for the concept of creativity while academicians working in the same faculty developed 33 different metaphors. The reasons for teacher candidates to develop a larger number of diverse metaphors may be the characteristics of the cosmopolitan structure of their lives and the effect of the cultural values that they hold on creativity (Güvenç, 2016; Memduhoğlu, Uçar, & Uçar, 2020). Robinson (2008) noted that creativity is not just an individual process; the cultural dimension is also important in the development of creative skills. Similarly, Glăveanu (2017) stated that the concepts of culture and creativity are interrelated. These findings also show parallelism with the metaphors expressed by the academicians participating in the present study.

The most metaphor variety was observed for teacher candidates in the category of "Creativity as a part of nature," with comparisons to things such as rainbows, trees, flowers, oceans, clouds, and plants. The vitality of nature and the diversity that it offers cause the concept of creativity to be identified with nature in people's minds, and the inspiration of nature in the perception of creativity should not be forgotten. Blockley (2021) stated that connecting with nature will help creativity. Wilson (2012) similarly described the connections among the concepts of environment, nature, and creativity and the effects of these connections on individuals. This may show that human beings have a strong connection with nature in their perception of creativity. The teacher candidates expressed creativity as an abstract concept by associating it with other abstract concepts, such as infinity, thoughts, dreams, hope, and time. Furthermore, teacher candidates had a tendency to explain the concept of creativity with elements from life, frequently encountered objects, actions, and facts, such as playing football, ladders, clocks, movies, and songs.

It was observed that the perceptions of creativity among the teacher candidates were shaped by concepts that generate positive feelings and thoughts, except for the examples of impossibility, floods, and black holes. The reason for this situation is most likely the academic resources that students use during the educational process and educators' affirmations about creativity (Orhon, 2014; Memduhoğlu, Uçar, & Uçar, 2020; Yazgın & Yazgın, 2020), as well as the effects of social awareness studies on creativity.

While defining the concept of creativity, concepts such as dream worlds (Gaudet, 2014; Robinson, 2016) or diversity and originality (Amabile, 1997; Fraley, 2007; Duda, 2009) are used. It was seen that the key expressions (e.g., originality, diversity, and imagination) included in the definitions of the concept of creativity coincided with the perceptions of creativity in the minds of the teacher candidates who participated in this study. These key expressions about the concept of creativity were the metaphors that were first mentioned by most of the teacher candidates. In this

study, a similar way of thinking emerged among the participating academicians. However, in addition to the metaphors of the academicians regarding the stages of creativity, such as innovation and originality, it is noteworthy that they also offered results-oriented expressions and evaluated creativity as a "happy ending." The metaphors revealing the perceptions of creativity among these academicians had a certain depth. They aimed to present different and striking aspects of their own perceptions while creating original metaphors that were carefully thought out and introduced a time dimension to the process of answering the question. Furthermore, it was concluded that the conceptual images in the minds of the academicians were shaped by their specific fields of study (e.g., DNA, pi, child, and book pages).

Perceptions of creativity can change according to the individual's affective characteristics, cultural structures, motivations, and gender (Robinson, 2011; Glăveanu, 2017). In this regard, it was seen that concepts reflecting certain feelings, dreams, and values (e.g., child, cooking, food, pink, birth, flower, and dough) were used in the metaphors created by female academicians and teacher candidates. A similar pattern of gender-specific responses was seen among male participants (e.g., football, coal, mountain climbing, locomotive, champion, and carpenter). The category of creativity as an element of uncertainty and obscurity was used by both academicians and teacher candidates. This highlights the nature of creativity as an exciting and surprising process for both academicians and teacher candidates.

Policy Implications

This study aimed to analyze the data collected from preservice teachers and academicians. The article focused on evaluating the perceptions and expressions of the education parties, whose education is in process and completed, regarding the concept of creativity, one of the central issues in education. Hence, it is likely to predicate that this article will provide an opportunity to assess educators' potential future instructional practices. Yet, considering the education policy, the environmental diversity and developmental conditions of the individual who will educate in the desired direction will be directly related to the educator's perspective on basic educational concepts. The data, subject to content analysis, provided by the analyzed study group will shape the educational environment of those who assume the role of educators consciously or unconsciously and address their training strategies.

The analysis of the acquired data reflected the shift in the 'Creativity' concept, an original and imaginary term, through the variables, such as department, gender, et cetera, from the perspective of individuals who received education and worked in different disciplines. The study utilized reliable and supportive data collection tools throughout the research and analysis process, and experts tested the reliability of these tools. Adhering to the conceptual framework and supporting analysis and

interpretation is crucial in the context of the validity and reliability issues. In light of the findings, therefore, the conclusions of this study will anticipatingly contribute to the change and development of education strategies and policies.

Conflict of Interest

The author declares that she has no conflicts of interest.

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