Metaphoric Perceptions of the Teacher Candidates Regarding to the Concepts of Reinforcement, Hint, Feedback-Correction, Active Participation and Punishment Used in the Teaching-Learning Process

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Abstract

The aim of this research is to determine the metaphoric perceptions of the teacher candidates regarding the concept of reinforcement, hint, feedback-correction, active participation and punishment used in the teaching-learning process. The study group of this research consisted of students of Education Faculty who studying at Kafkas University in the 2018-2019 academic year. A semi-structured interview form used to determine teacher candidates' perceptions of the concepts in the teaching-learning processes such as "reinforcement, hint, feedback-correction, active participation and punishment". Content analysis was used for the data analysis in the research. As a result of the findings obtained from the research, it could be said the most metaphors produced by prospective teachers; metaphor of chocolate in the concept of reinforcement, metaphor of puzzle in the concept of hint, the most metaphors of easer in the concept of feedback-correction, the most metaphors of amusement park and game in the concept of active participation, the most metaphors of hot pepper in the concept of punishment.

Keywords: Teaching-Learning Process, Teacher Candidates, Metaphor

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INTRODUCTION

There are some differences in the learning of learners. Some of these differences may be due to the individual characteristics of the students, while others may be due to activities in the teaching-learning process. The reasons for the learning differences between the following individuals include "students' pre-learning of the course, their interest in the course, attitude towards the course, belief towards academic self-design/success and quality of teaching service" (Akınoğlu, 2013, p. 141). Hint (sign-comments), reinforcement, (student) active-efficient participation and feedback correction (Akınoğlu, 2013; Can, 2005; Özçelik, 2014; Saracaloğlu, Evin Gencel & Çengel, 2011) are the factors that affect the nature of the teaching service defined as "management of student-teaching status interaction" (Özçelik, 2014, p. 117) in the teaching-learning process. These four elements should be used effectively in all methods and techniques used in teaching-learning processes (Sünbül, 2014). In addition, these elements can be "placed in very different ranks in the learning-teaching processes, as well as simultaneously being employed" (Saracaloğlu, Evin Gencel & Çengel, 2011, p. 79). In addition to these four elements, the punishments used in the teaching-learning process can affect the learning of individuals at different levels.

Reinforcement used in the reinforcement process is the stimulant stimulating the possibility of a behavior in the future (Erden & Akman, 2017; Göl, 2003 and Sönmez, 2014). The concept of reinforcement, which is often used in education, can be defined as "stimulants that are introduced or removed from the environment at the end of a behavior" (Kendirci, 1999, p. 7). In this context, if a stimulant is added to the environment to increase the likelihood of behavior, positive reinforcement occurs, and negative reinforcement occurs if a stimulant is withdrawn from the environment (Sönmez, 2014). The primary positive reinforcements are "which serve the continuation of the biological existence of the organism" (Hamarta, Arslan&Yılmaz, 2014, p. 137), while secondary (conditional) are "the positive association of any neutral stimulant with positive primary reinforcements consolidating stimulants" (Senemoğlu, 2018, p. 157). Teachers can shape student behavior using different reinforcements in the courses (Göl, 2003). However, they should be careful when using reinforcements and be assured of the right behavior (Erden & Akman, 2017).

Signs (explanations-hints), which are one of the main elements of the teaching service, are a set of messages, signs, traces and messages that show the learner what they need to learn, why and how in the teaching-learning process (Akınoğlu, 2013; Can, 2005; Özçelik, 2014; Senemoğlu, 2018). Hints "oral signs and explanations, written signs and explanations, picture, diagram, example of goods, status, gesture, mimic, dramatic or real event, etc. or may be in the form of compositions containing a few of them" (Özçelik, 2014, p. 119). According to Bloom (1976, p. 62-86), the hints should be used in "attracting attention and perpetuation, informing the student of the target, presenting preliminary learning about target behaviors, ensuring student participation, facilitating learning" (as cited in Sönmez, 2014, p. 275-276).

Feedback is an important concept that has a role in student success (Çetinkaya &Köğce, 2014). It is most generally that "feedback is information provided by an agent (e.g., teacher, peer, book, parent, experience) regarding aspects of one's performance or understanding" (Hattie &Timperley, 2007, p. 102). The correction may be defined as "verifying wrongs, completing incomplete and half-baked learning" (Sönmez, 2014, p. 272). Feedback used by teachers as external stimuli in the teaching-learning process (Beydoğan, 2018), should also be put to work in addressing the learning deficiencies and difficulties that occur in the learning process (Akınoğlu, 2013). According to Senemoğlu (1987, p. 29), "the most important factor determining the quality of teaching service and the level of learning is feedback and correction". In addition, different classifications can be made in the feedback given to the individuals who are learning. Oral (2013, p. 416), for example, groups feedback as "intended for information and motivation", while Tunstall and Gipps (1996) "divide into two groups as evaluator and descriptive. The evaluator feedback has been divided into 4 types as rewards, punishment, approval and disapproval; and descriptive feedback as specifying success, specifying development, explaining about success and guiding it towards development" (as cited in Odabaşı Çimer, Bütüner & Yiğit, 2010, p. 519).

Active participation can be defined as "the degree to which students participate in the learning-teaching process, either explicitly or implicitly" (Sönmez, 2014, p. 276). "The participation element, which is the best indicator of the quality of the teaching service, is to interact with the hints provided to the student in order to gain the desired behavior." (Senemoğlu,1987, p. 29). However, not all participations need to be open (Bloom, 2016). It can also be said that the learning of students who are actively participating in the course is faster and more resistant to forgetting than the learning of students who are passive participating in the course (Akınoğlu, 2013). Consequently, it may be said that "learning cannot take place without participation" (Güven, 2013, p. 16).

The punishment is the inclusion of a stimulant that the individual does not want or dislike, or the removal of a stimulant that he or she likes (Ersanlı, 2014; Senemoğlu, 2018). The first type punishment is to give an unpleasant or negative stimulant that disliking by the individual after a behavior, while the second type punishment is the withdrawal of a positive or pleasant stimulant that liking by the individual (Erden & Akman, 2017). As a matter of fact, Pehlivan, Köseoğlu & Şen (2018) mentions that the punishments in adversely affect individuals both directly and indirectly. The punishments given to the students cause "coldness, apathy towards the teacher, the lecture, the school, and a sense of inferiority, anger, and anger towards his friends may develop" (Hatunoğlu & Hatunoğlu, 2005, p. 106). The same undesirable behavior may be observed again after the release of the penal environment (Senemoğlu, 2018).

Consequently, teachers' directions and guidance to students in the teaching-learning process are among the important roles in the process. They can perform these roles by giving hints and reinforcements to students according to their time and place in the courses, by giving feedback and corrections and by providing their active participation in the course (Saracaloğlu, Evin Gencel &Çengel, 2011). Because of the use of reinforcement, hints, feedback-correction, punishment and the active participation of students in the lesson directly or indirectly affect the teaching-learning process, how these concepts are perceived by students is an important issue.

The metaphor used to determine perceptions for any concept (Budak & Kula, 2017; Kaya, 2018), is to express a concept with a different notion that resembles (Girmen, 2007). "Metaphors are one of the most powerful mental tools that structure, direct and control our thoughts about the formation and functioning of events" (Saban, 2004, p. 1). In this study, the aim is to make clear how reinforcement, hints, feedback-correction, active participation and punishment which are concepts that affect learning in the teaching-learning process through metaphors are perceived by the teacher candidates. In the literature on these concepts, there are studies such as 4th class students' perceptions of punishment (Akar &Öğretir, 2017), teachers and students' perceptions of metaphors related to reward, punishment concepts (Turhan & Yaraş, 2013), the teacher candidates' views on reward and punishment concepts implemented in their learning environments (Pehlivan, Köseoğlu &Şen, 2018), prospective biology teachers' perspectives of reward and punishment in education (Pehlivan ve Köseoğlu, 2017), the role of hints and reinforcements in teaching-learning (Can, 2005), the place of reward and punishment in education and alternative approaches to these (Gündüz & Balyer, 2011), physical punishment practices in secondary schools (Mahiroğlu & Buluç, 2003) awards and punishments, an important concept that affects the motivation level of students (Yaman & Güven, 2014). How the teacher candidates who will be the teachers of the future perceive the concepts of reinforcement, hint, feedback and correction, active participation and punishment used in the teaching-learning processes is an important issue that needs to be examined. Therefore, this study will contribute to the literature of the field.

Purpose of the Research

The aim of this research is to determine the perceptions of the teacher candidates regarding the concept of reinforcement, hint, feedback-correction, active participation and punishment used in the teaching-learning process. Accordingly, the problem sentence of the research is "What are the perceptions of the teacher candidates regarding the concepts of reinforcement, hint, feedback-correction, active participation and punishment?"

Sub-Problems of the Research

What are the metaphors developed by the teacher candidates regarding the concepts of reinforcement, hint, feedback-correction, active participation and punishment?

Which conceptual categories are the teacher candidates' metaphors related to the concepts of reinforcement, hint, feedback-correction, active participation and punishment when their common characteristics are taken into consideration?

METHOD

In this part of the research, the model of the research, the working group, the data collection tool and the data collection and analysis of the data are included in the sub-headings respectively.

Model of the Research

Phenomenology pattern, which is one of the qualitative research models in the research, is used in order to reveal the perceptions of the teacher candidates for the concept of reinforcement, hint, feedback-correction, active participation and punishment used in teaching-learning processes. "Phenomenology is a research design based on philosophical and psychological perspective" (Ersoy, 2017: 82). Also, phenomenology "focuses on facts that we are aware of but do not have an in-depth and detailed understanding" (Yıldırım &Şimşek, 2018, p. 69). In phenomenology, "metaphors and conceptual connections can be used as an analytical tool" (Kabakçı Yurdakul, 2016, p. 5).

Workgroup

One of the important considerations when selecting participants in the study is the group to be included in the sampling. Qualitative research is essentially " it is to purposeful choosing participants or workplaces for purposes to help the researcher understand the research problem and research questions in the best way" (Creswell, 2013, p.189). For this reason, convenience sampling method was used from purposeful sampling methods when selecting participants in the study (Yıldırım &Şimşek, 2018). This research was carried out in the 2018-2019 academic year with the voluntary participation of students from 3 different programs who had taken the "Teaching Principles and Methods" course of Kafkas University Faculty of Education. Demographic information of the working group is presented in Table1.

Table 1 Demographic Information of Students in the Study Group of the Research

Concepts		Reinforcement		Hint		Feedback-correction		Active participation		Punishment	
	Variable	N	%	N	%	N	%	N	%	N	%
Gender	Female	56	61.54	32	55.17	30	55.56	28	54.90	49	62.82
	Male	35	38.46	26	44.83	24	44.44	23	45.10	29	37.18
The program studied	Social Sciences	30	32.96	19	32.76	16	29.63	16	31.37	29	37.18
	Turkish	37	40.65	22	37.93	18	33.33	20	39.22	28	35.90
	Primary School Mathematics	24	26.37	17	29.31	20	37.04	15	29.41	21	26.92
Total		91	100	58	100	54	100	51	100	78	100

Data Collection Tool and Collection of Data

In the research, a two-part form was used by the researcher in collecting the data obtained from the teacher candidates. In the first part of the form, personal information containing variables of the program and gender for the teacher candidates is given. In the second part of the form, there appears a semi-structured interview form with sentences in the form of "Reinforcement... is similar/like.......; because ...";" Hint... is similar/like.......; because ...";" Feedback-correction... is similar/like.......; because ...";"Active participation... is similar/like.......; because ..." and "Punishment... is similar/like.......; because ...". The teacher candidates are asked to complete the gaps left in the sentences according to their own perceptions.

Analysis of Data

Content analysis is used in the analysis of the collected data. The main thing done in this analysis process is to "bring together similar data within the framework of specific concepts and themes and interpret them in a way that the reader can understand" (Yıldırım & Şimşek, 2018, p. 242). In this context, according to Altheide (1987, p. 68), content analysis is "a keyword of events, venues, styles, images, meanings and nuances" (as cited in Merriam, 2013, p. 196).

In the research, the analysis stages determined by Saban (2008, p. 464) are used: "(1) coding and extraction, (2) compiling sample metaphor imagery, (3) category development, (4) ensuring validity and reliability, and (5) the process of transferring data to SPSS for quantitative data analysis"

1."Coding and Extraction Phase"

The metaphor forms filled out by the teacher candidates involved in the study are carefully examined. At this stage, the metaphors created by the students are encoded individually and incompletely filled out, empty left, and unspecified forms are extracted and not included in the study. As a result of this extraction, temporary metaphors (metaphors, justifications and reasons for similarity) and category lists have been prepared. Developed metaphors and the reasons specified, the gender and order of the teacher candidates are encoded in letters and numbers "the first row letter is the teacher candidates (PST); the second row letter is the gender of the students (F: Female; M: Male); the third row letter is the program in which they are studying (S: Social Sciences, T: Turkish and PM: Primary School Mathematics Teaching); the number is the pre-service teacher's turn in the research". In the study, for female teacher candidates PSTFS5, PSTFPM6,...., for male teacher candidates, PSTMT1, PSTMS2, ...codes were used respectively.

2."Sample Metaphor Image Compilation Phase"

At this stage, a sample metaphor image compilation is implemented with the aim of "(a) using metaphors as a reference source in the collection of them under a certain category and (b) to validate the data analysis process and interpretations of this research" (Saban, 2008, p. 465). After the extraction stage, a new list is obtained by reorganizing the remaining metaphors for each concept that is the subject of research. Thus, the data has been reviewed again a second time. Consequently, "Sample metaphor list" was arranged by examining the participatory forms assuming to best represent student metaphor images individually for each of the metaphors produced by the teacher candidates.

3."Category Development Phase"

Metaphors developed by the teacher candidates are examined in terms of the subject matter of the metaphor, its origin and the relationship between them (Saban, 2008). During the category development phase, the relationships between the metaphors stated by the teacher candidates and the reasons they have written are examined firstly. Taking into account their common features, a category

list has been arranged for each concept. During this review, the reasons for the metaphors were examined and different conceptual categories were formed.

4."The Stage of Ensuring Validity and Reliability"

The validity and reliability of measuring tools in both quantitative and qualitative research are among the important issues that need to be examined. According to Krefting (1991), "it is more accurate to talk about statements such as credibility, accuracy of results and competence of the researcher in qualitative research, rather than the expressions of validity and reliability used in the quantitative research" (as cited in Başkale, 2016, p. 23). In this context, according to Gibbs (2007), "validity in qualitative research refers to researcher control for the accuracy of findings through specific processes, while qualitative reliability indicates the consistency of the researcher's approach for different researchers" (as cited in Creswell, 2013, p. 201). Therefore, "the detailed reporting of the collected data and researcher's explanation of how his or her reached the conclusions are among the important criteria of validity in a qualitative study" (Yıldırım & Şimşek, 2018, p. 270).

Therefore, to ensure the results of the research are both valid and reliable, respectively.

1. It is explained in detail by the process of data analysis.

2. In the process of analysing the data obtained in the research, direct excerpts were given from the statements created by the teacher candidates.

3. Metaphor (metaphor, justification, category name) and category lists were edited for each metaphor created by the teacher candidates for each concept, and this category lists were presented in a detailed way under each title in the findings section.

4. In order to increase the reliability of the research, metaphors and category lists are presented to the opinion of two experts and these experts are asked to re-categorize the metaphors and justifications of concepts. After the incoming opinions, consensus is reached for each concept.

5."The Process of Transferring Data to the SPSS Package Program for Quantitative Data Analysis"

Data collected from the teacher candidates are entered into the SPSS statistics program and the number of students (f) and percentage (%) representing each metaphor and category for each concept are calculated.

FINDINGS

In this section of the research, the findings of the metaphors of the teacher candidates for the concepts of "reinforcement, hint, feedback-correction, active participation and punishment" used in the teaching-learning process are given in order respectively.

Metaphors Produced for the Concept of Reinforcement

Metaphors which have been created for the concept of "Reinforcement" of the teacher candidates, categories of these metaphors and the findings of the frequency of each metaphor in these categories are presented in Table2.

Table2 Distribution of Metaphors Created by the Teacher Candidates for the Concept of "Reinforcement" by Categories

Categories	Metaphors	N	f	%
Happy-Motivating	Candy (3), Soft Candy (1), Chocolate (21), Chocolate Milk (1), Chocolate and Tea (1), Cake (2), Ice Cream (1), Honey (1), Baklava (3), Jellybeans (1), Sweet (2), Tea (1), Turkish Delight (1), Döner Kebab (1), Coffee (1), Alcohol (1), Souffle (1), Toy (2), Flower (2), Gift (2), Ornament (1), Newly Purchased Shoes (1), Ribbon (1), Book (1), Toy Panda (1), Playing Games (1), Shopping (1), Discount on Sale (1), Winning the Lottery (2), Playing Football (1), Gaining profits (1), Laughing (1), Food (1), Treasure (1), Sun (1), Candle (1), Power (1), Drug (1), Power Supply (1), Blood (1), Father (1), Happiness (1), Hope (1), Love (3), Appreciation (1), Feast (1), Loving the Cat (1)	47	79	86.81
Labor-Required	Success (1), Memorization (1), Money (2), Cup (1)	4	5	5.50
Indispensible	Finding water in the desert (1), Gasoline (1), Water (2)	3	4	4.40
Harmful in excessive usage	Confectionery (1), Kadayıf (1), Water given to plant (1)	3	3	3.30
	Total	**57**	**91**	**100**

When Table2 is examined, it is observed that metaphors created by the teacher candidates for the concept of "reinforcement" are; Chocolate"(f=21), "Candy"(f=3), "Baklava"(f=3), "Love"(f=3), "Cake"(f=2), "Sweet"(f=2), "Toy"(f=2), "Flower"(f=2), "Gift"(f=2), "Winning the lottery"(f=2), "Money"(f=2), "Water"(f=2) and the remaining 45 metaphors are created by only one teacher candidate. Also, when the metaphors and justifications of the teacher candidates for the concept of "Reinforcement" are examined, they are divided into four different conceptual categories. Below are presented some of the statements of the teacher candidates in these categories:

Category 1: Happy-Motivating Reinforcements

"Reinforcement is like *chocolate.* Because as you eat, it dissipates in the mouth and it makes you happy." (PSTFS15)

"Reinforcement is like *book* because the more I read, the happier I'll be. I'll be more positive about life and avoid stress." (PSTFT56)

Category 2: Labor-required Reinforcement

"Reinforcement is like *money* because when there's money, people try to get to it." (PSTFT70)

"Reinforcement is like *success* because it's a situation that everybody wants and it takes effort." (PSTMT81)

Category 3: Indispensible Reinforcement

"Reinforcement is like *water* because it's essential to live." (PSTMPM86)

"Reinforcement is like *water* because it relaxes you and is essential" (PSTMT84)

Category 4: Harmful in Excessive Usage Reinforcement

"Reinforcement is like *confectionery* because the excessive is harmful although it is good and beautiful." (PSTMS88)

"Reinforcement is like *kadayıf* because it gives pleasure as you eat, but more makes you nauseous" (PSTMS89)

Metaphors Produced for the Concept of Hint

Metaphors which have been created for the concept of "Hint" of the teacher candidates, categories of these metaphors and the findings of the frequency of each metaphor in these categories are presented in Table3.

Table3 Distribution of Metaphors Created by the Teacher Candidates for the Concept of "Hint" by Categories

Categories	Metaphors	N	f	%
Guiding-enlightening	The first piece of a puzzle (2), First step (1), Road sign (2), Paint book (1), Teacher (1), Credit card (1), Reminder (1), Example (1), Dark cloud (1), Light (2), Candlelight (1), Light Bulb (3), Google (1), Cheating (2), Moon at night (1), Human (1), Sky (1), Lantern (1), Food Scent (2), Flower (1), Puzzle (4), Trailer (2), Compass (2), Map (2), Reminder (2), Assistant (1), Lighthouse (1), Music (1), Pillow (1), Friend (1)	30	44	75.86
Concluding	Vitamins (1), Food (1), Key (2), Sock rip (1), Pieces of the Puzzle (1)	5	6	10.34
Facilitating	Leverage (1), Stairs (1), Cologne (1), Elevator (1)	4	4	6.90
Motivating	Gift (1), Sweet (1), Hope (1), Assistant (1)	4	4	6.90
	Total	**43**	**58**	**100**

When Table3 is examined, it is observed that metaphors created by the teacher candidates for the concept of "hint" are; "Puzzle" (f = 4), "Light Bulb" (f = 3), "The First Piece of a Puzzle"(f = 2), "Road Sign "(f = 2), "Light "(f = 2) , "Cheating" (f = 2), "Trailer" (f = 2), "Compass" (f = 2), "Map" (f = 2), "Reminder" (f = 2), "Food Scent" (f=2), "Key" (f = 2) and the remaining 31 metaphors are formed by only one teacher candidates. Also, when the metaphors and justifications of the teacher candidates for the concept of "hint" are examined, they are divided into four different conceptual categories. Below are presented some of the statements of the teacher candidates in these categories:

Category 1: Guiding-Enlightening Hint

"The hint is like *food scent* because after that smell, you know what food to eat." (PSTFT21)

"The hint is like *trailer* because we get a little bit of information about the film. We'll have an idea." (PSTMPM26)

Category 2: The Concluding Hint

"The hint is like *key* because it opens our way and allows us to reach the treasure." (pstmt47)

"The hint is like *vitamins* because it makes us strong and it allows us to reach conclusions." (PSTMS45)

Category 3: Facilitating Hint

"The hint is like *an elevator.* Because, it makes our tasks easier for us instead of making it harder for us." (PSTFPM55)

"The hint is like *leverage.* Because, it makes our lives easier." (PSTMPM52)

Category 4: Motivating Hint

"The hint is like a *sweet*. Because it gives pleasure, desires, encourages." (PSTMPM57)

"The hint is like *hope.* Because every time we're at an impasse, it helps to find a solution and gives us hope along the way." (PSTMT58)

Metaphors Produced for the Concept of Feedback - Correction

Metaphors which have been created for the concept of "Feedback - Correction" of the teacher candidates, categories of these metaphors and the findings of the frequency of each metaphor in these categories are presented in Table4.

Table 4 Distribution of Metaphors Created by Teacher Candidates for the Concept of "Feedback-Correction" by Categories

Categories	Metaphors	N	f	%
Directing-Revising	Teacher (6), Family (2), Parents (2), Slap of Life (1), Smile (1), Taste of Food (1), Mother (2), Labyrinth (1), Shopping (1), Holy Books (1), Mother's Word (1), Advice (1), Examination (1), Compass (1), Eraser (10), Restoration (2), Hope (1), Medicine (1), Slap (1), Message (SMS)(1), Warning (1), Correction Fluid (1), Filter (1), Call Center (1), Washing Machine (1), Dictionary (1), Gossip (1)	27	45	83.33
The needed one	Wi-Fi (1), Recycling (1), Band-Aid (1), Seat Belt (1), Sugar (1)	5	5	9.26
The Mutual One	Sandbag (1), Boomerang (2), Phone Call (1)	3	4	7.41
	Total	**35**	**54**	**100**

When Table 4 is examined, metaphors created by the candidates for "feedback-correction" are; "Eraser"(f=10), "Teacher"(f=6), "Restoration"(f=2), "Family"(f=2), "Parents"(f=2), "Mother"(f=2), "Boomerang"(f=2) and the remaining 28 metaphors were created by only one teacher candidate. Also, when the metaphors and justifications of the teacher candidates for the concept of " feedback-correction" are examined, they are divided into three different conceptual categories. Below are some of the statements of the teacher candidates in the category of these categories:

Category 1: Feedback-Correction for Directing-Revising

"Feedback-correction is like *an eraser.* Because it erases and corrects the wrong ones." (PSTMS2)

"Feedback-correction is like *a slap.* Because when we are slapped, we recognize our mistakes and correct ourselves." (PSTMS9)

Category 2: Feedback-Correction as a Need

"The feedback-correction is like *a seat belt.* Because feedback-corrections where necessary prevents many mistakes, hazards (misinformation, ignorance). It is an important necessity, just like a seat belt." (PSTFPM50)

"Feedback-correction is like *recycling.* Because when it is recycled, it is for the benefit of nature and it is a need for nature. Feedback-correction has a similar effect." (PSTFT47)

Category 3: The Mutual Feedback Correction

"Feedback-correction is like a *sand bag.* Because how fast you hit, it will come back to you with that force. (PSTFPM51)

"Feedback-correction is like *boomerang.* Because when you throw it away, it comes back. (PSTFPM52)

Metaphors Produced for the Concept of Active Participation

Valid metaphors which have been created for the concept of "Active Participation" of the teacher candidates, categories of these metaphors and the findings of the frequency of each metaphor in these categories are presented in Table5.

Table 5 Distribution of Metaphors Created by Teacher Candidates for the Concept of "Active Participation" by Categories

Categories	Metaphors	N	f	%
The Situation Required by the Process	Debate (1), Dancing (1), Station Approach (1), Fight (2), Wedding (2), Chat (1), Fans (1), Clown (1), Eating Hall (1), Footballer (1), Football Match (1),	11	13	25.49
The Inevitable-Necessary One	Petroleum (1), Rummikub (1), Book (1), Tree (1)	4	4	7.84
The One Requiring Unity	Forest (1), Football (1), Wheel (1), Halay (1), Cut common sacrificing animal in the feast of sacrifice (1), Body metabolism (1), construction worker (1), Big family dinner (1), Team play (1), Family (1)	10	10	19.61
The one which makes contented	Amusement Park (3), Playing game (2), Sports (1), Disco party (1), Joy party (1), New Year's Lottery (1), Tea (1), Success (1), Concert (1), Doing the job that one loves (1), Itching (1), Game (3), Theatre (1), Laugh (1), Course (1), Food (1), Picnic area (1), Sun (1), Meeting (1)	19	24	47.06
	Total	**44**	**51**	**100**

When Table 5 is examined, metaphors created by teacher candidates for the concept of active participation; "Amusement Park"(f=3), "Game"(f=3), "Fight"(f=2), "Wedding"(f=2), "Playing Games"(f=2) and the remaining 39 metaphors were created by only one teacher candidate. The metaphors and their reasons created by teacher candidates for the concept of "active participation" are divided into 4 different conceptual categories. Below are presented some of the statements of the teacher candidates in these categories:

Category 1: Active Participation, the situation required by the process

"Active participation is like *a wedding.* Because they both have the same process. Everyone participates in the process" (PSTFPM9)

"Active participation is like *a fan.* Because the fans are always active throughout the match" (PSTMT7)

Category 2: Inevitable-Necessary Active Participation

"Active participation is like *rummikub.* Because if you don't play in both, you lose." (PSTMS15)

"Active participation is like a *tree.* Because the tree yields fruit when it's watered. For more fruit, irrigation is essential. It is more permanent if you participate actively in active participation in the same way and this is needed." (PSTMPM16)

Category 3: Active Participation Requiring Unity

"Active participation is like *halay.* Because the more people who join the halay, the more effective and eye-catching the halay will be." (PSTFT21)

"Active participation is like *football.* Because the more assistance there is, such as active participation in halay, the more effective it is" (PSTMS19)

Category 4: Active Participation which makes one contented

"Active participation is like *a game.* Because it is fun and it's going well" (PSTFPM4)

"Active participation is like *itching.* Because if you itch, it will continue to itch sweeter" (PSTMPM40)

Metaphors Produced for the Concept of Punishment

Valid metaphors which have been created for the concept of "Punishment" of the teacher candidates, categories of these metaphors and the findings of the frequency of each metaphor in these categories are presented in Table6.

Table 6 Distribution of Metaphors Created by Teacher Candidates for the Concept of "Punishment" by Categories

Categories	Metaphors	N	f	%
The food that is bitter or makes you unhappy	Hot pepper (7), Spinach (1), A dish which I like is salty (1), Onion (1), Unripen dates (1), Milk (1)	6	12	15.38
A Depriving situation	A toy's being broken (1), Deprivation (1), Accident (1), Sleep (1), Being Restricted (2), Staying at home in sunny weather (1), Lesson (1), Being without money (1).	8	9	11.54
Persuasive-stimulant	Bitter (1), Liver roasting (1), Court (1), Scold (1), Red Light in Traffic (1), Fear (1), Stove (1)	7	7	8.97
A negative element	Cold Weather in Kars City (2), Last minute goal (1), Mathematics (2), Poison (3), Dark (4), Fire (4), Bad Smell (1), School (2), Beating (4), Long lesson (2), Cold (1), Torture (2), Distressed Friend (1), Hate (1), Insult (1), Platonic love (1), Friend You Don't Like (1), A Broken Thing (1), Disrespect (1), Nail (1), Cliff (1), Wild Animal (1), Silence (1), Black (1), Eating A Lot of Chocolate (1), Last Minute lesson (1).	26	42	53.85
The Punishment with Positive Results	Electric shock (1), painful treatment process (1), Sword (1), Pencil sharpener (1), Death (1)	5	5	6.41
Reflection	Relegation (1), Mirror (1), Gaining Weight Gain (1).	3	3	3.85
	Total	55	78	100

When table 6 is examined, metaphors created by teacher candidates for the concept of "punishment" were; "Hot Pepper"(f=7), "Dark"(f=4), "Fire"(f=4), "Beating"(f=4), "Poison"(f=3), "Restricted"(f=2), "Cold weather in Kars city"(f=2), "Mathematics"(f=2), "School"(f=2), "Long Lesson"(f=2), "torture"(f=2) and the remaining 44 metaphors were created by only one teacher candidate. Also, when the metaphors and justifications of the teacher candidates for the concept of "Punishment " are examined, they are divided into four different conceptual categories. Below are presented some of the statements of the teacher candidates in these categories:

Category 1: Punishment as food that is bitter or makes you unhappy

"Punishment is like **hot pepper**. Because it's just as bitter as it is. Every punishment is like a pepper that leaves bitterness in the mouth. Pepper ends but its bitterness is unforgettable" (PSTMS4)

"Punishment is like **a dish which I like is salty**. Because if you don't eat it, it stays in you. If you eat it, it creates a bitter feeling in your throat and you can't eat it" (PSTFPM8)

Category 2: Punishment as a Depriving situation

"Punishment is like **an accident**. Because its result is bad. There is a deprivation of something" (PSTFS15)

"Punishment is like **staying at home in sunny weather**. Because everybody wants to go out and walk around. But if you stay at home, you'll be unhappy" (PSTFPM19)

Category 3: Persuasive-Stimulating Punishment

"Punishment is like a **court**. Because it is a deterrent (PSTFS22)

Punishment is like a **stove**. Because it's hot, it hurts when we touch it and we don't want to do it again" (PSTFT25)

Category 4: Punishment as a negative element

"Punishment is like a **fire**. Because they both hurt you" (PSTMS35)

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"Punishment is like a **dark**. Because a dark environment scares and upsets you" (PSTMS41)

"Punishment is like **beating**. Because they both make you feel bad" (PSTFS39)

"Punishment is like *a friend you don't like.* Because when he comes to you, you're restless and unhappy. You'd be uncomfortable with his presence. That's the punishment. It makes you unhappy and uneasy " (PSTFPM57)

Category 5: The Punishment with Positive Results

"Punishment is like **a pencil sharpener**. Because it can be used to fix something when it's necessary. For example, the tip of the pencil disturbs us and we want to thin it" (PSTFPM74)

"Punishment is like *a painful treatment process.* Because sometimes it's needed and should be taken. Even if there is improvement as a result, that process can cause distress" (PSTMPM72)

Category 6: Punishment as Reflection

"Punishment is like *being relegated.* Because in both, you pay the price for failure" (PSTMT76)

"Punishment is like a **mirror**. Because when we look in the mirror, we see reflection. Punishment is a reflection of our bad behavior" (PSTFPM77)

DISCUSSIONS AND CONCLUSIONS

The aim of the research is to identify the metaphors created by the teacher candidates for the concepts of "reinforcement, hint, feedback-correction, active participation and punishment" used in the teaching-learning process. The metaphors of the teacher candidates for this concepts used in the teaching-learning process are given below.

A total of 57 different metaphors were found for 91 teacher candidates for the concept of "reinforcement" used in the teaching-learning process. The concept of reinforcement is categorized by taking into account the relationship between the metaphor created by teacher candidates and the stated justification of the metaphor. These categories are "reinforcement making happy-motivating, labor-intensive reinforcement, indispensable reinforcement and reinforcement which is harmful when excessive". In addition, the teacher candidates for the concept of reinforcement most created the metaphors of Chocolate"(f=21), "Candy"(f=3), "Baklava"(f=3), "Love"(f=3), "Cake"(f=2), "Sweet"(f=2), "Toy"(f=2), "Flower"(f=2), "Gift"(f=2), "Winning the lottery"(f=2), "Money"(f=2), "Water"(f=2). In the study, it can be said that teacher candidates generally view the concept of reinforcement positively. In a study in which the reward is investigated as an important variable affecting the motivation level of the students (Yaman & Güven, 2014), students perceive the reward as a symbol of happiness, ambition/desire and success in line with the results of this research. In addition, some of the students believe that the rewards are deserved and that the award is satisfactory, while some students stated that rewards are given to those who do not deserve. In addition, in a study conducted with teacher candidates (Pehlivan, Köseoğlu and Şen, 2018), participants stated that teachers were mostly rewarding students' academic behaviors and that they used financial, psychological and social rewards. Furthermore, in the study conducted by Turhan & Yaraş (2013), it was observed that teachers and students perceived the concept of reward as reinforcement, while metaphors produced by students were sweet and sweet foods such as chocolate.Also, in the study conducted by Pehlivan ve Köseoğlu (2017), biology pre-service teachers perceived the reinforcements as positive element.

A total of 43 different metaphors were developed by 58 teacher candidates for the concept of "hint" used in the teaching-learning process. The concept of hint is categorized by taking into account

the relationship between the metaphor created by teacher candidates and the stated justification of the metaphor. These categories are "guiding-enlightening, concluding, facilitating, motivating" hints. In addition, teacher candidates most developed the metaphors the concept of "hints" as; "Puzzle"(f=4), "Light Bulb"(f=3), "the First Piece of a Puzzle"(f=2), "Road Sign"(f=2), "Light"(f=2), "Cheating"(f=2), "Food Scent"(f=2), "Trailer"(f=2), "Compass"(f=2), "Map"(f=2), "Reminder"(f=2), "Key"(f=2). It can be said in this that the teacher candidates perceive the concept of hint as auxiliary elements in the teaching-learning process.

A total of 35 different metaphors were developed by 54 teacher candidates for the concept of "feedback-correction" used in the teaching-learning process. The relationship between the metaphors created by teacher candidates and their stated justifications of the metaphors for the concept of "feedback-correction" was taken into consideration and categorizations were made. These categories were feedback-correction as "Directing- Revising, the needed one, the mutual one". In addition, teacher candidates most produced the metaphors for the concept of "feedback-correction" as; "Eraser" (f=10), "Teacher" (f=6), "Restoration" (f=2), "Family" (f=2), "Parents" (f=2), "Mother" (f=2), "Boomerang" (f=2).

A total of 44 different metaphors were developed by 51 teacher candidates for the concept of "active participation" used in the teaching-learning process. The categorizations for the concept of "active participation" were made by taking the relationship between the metaphors created by teacher candidates and their stated justifications of these metaphors. These categories for the concept of "active participation" are "the situation required by the process, the inevitable-necessary one, the one requiring unity, the one which makes contented". Additionally, the teacher candidates most developed the metaphors for the concept of "active participation" as; "amusement park"(f=3),"Game"(f=3),"Fight"(f=2),"Wedding"(f=2),"Playing Games"(f=2).

A total of 55 different metaphors were found for the concept of "punishment" used in the teaching-learning process by 78 teacher candidates. The concept of punishment is categorized by taking into account the relationship between the metaphor created by the teacher candidates and the stated justification of the metaphor. These categories are "A Food That Makes bitter or make you unhappy, Depriving Situation, Persuasive-Stimulating, Negative Element, Positive Results and Reflection" punishment. In addition, teacher candidates m most developed the metaphors for the concept of "punishment" as; "Hot Pepper"(f=7), "Dark"(f=4), "Fire"(f=4), "Beating"(f=4), "Poison"(f=3), "Restricted"(f=2), "Cold weather in Kars city"(f=2), "Mathematics"(f=2), "School"(f=2), "Long Lesson"(f=2), "Torture"(f=2). In the study, it can be said that the teacher candidates generally view the concept of punishment negatively. In connection with this result of the study, in the study of Akar & Öğretir (2017), when the metaphors of the 4th class students for the concept of punishment were examined, it was determined that they mostly developed the metaphors such as obstruction (prison), balloon, hot pepper, sports and bad. In addition, in the study which investigated the punishment as an important concept affecting the motivation level of the students (Yaman & Güven, 2014), it has been identified that students who generally have negative judgments about punishment are perceived as beating, leaving them in class, scolding, insulting, throwing them out of the class, and perceiving as practices that alienate the students from the school climate and student identity. These results are in parallel with the results of the study. In addition, Pehlivan, Köseoğlu & Şen (2018) mentioned that physical, psychological and social punishments are most commonly applied in the classroom environment. Also, in the study conducted by Turhan & Yaraş (2013), they concluded that teachers and students viewed punishment as a negative factor.

Consequently, the teacher candidates who participated in the study perceived the reinforcements as positive element. In addition, the majority of the participants (86.81%) stated that the reinforcements make them happy and motivated, while others stated that it requires labor and that more is harmful. For the concept of hints, the majority of the teacher candidates (75.76%) who participated in the study mentioned that the hint leads-illuminates, while others said that it brings results, facilitates and motivates them. For the concept of feedback-correction, the majority of respondents (83.33%) mentioned that feedback-corrections are directed-revised, while others mentioned that they are needed and reciprocal. For the concept of active participation, about half of

the participants (47.06%) said that they were satisfied with them, while others mentioned that it was inevitable because the process required it, because it requires unity. The teacher candidates who participated in the study perceived the punishment as negative element. About half of the teacher candidates (53.85%) who participated in the study said that the concept of punishment was a negative element, while others had a food that made it painful or unhappy, depriving it of its persuasive-stimulating side, and sometimes the results of the punishment were positive.

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