How Do Elementary Students in Turkey and the Czech Republic Perceive the Game Concept?
A Phenomenographic Study With Draw and Write Technique

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Abstract

The purpose of this study is to compare the perception concerning game concept of 4th grade students in Turkey and the Czech Republic. 19 fourth grade elementary students in the Czech Republic and 40 fourth grade elementary students in Turkey were selected by criterion and convenience sampling. They responded to a specific question "What is the meaning of game for you?" effectively through writing and drawing. Phenomenographic analysis was used to analyze the data. As a result, it is detected that fourth grade elementary students in Turkey and the Czech Republic perceive the game concept as real games more than digital games. Although the two groups have different cultural characteristics they drew and wrote the same games in some main categories. In addition, students in Turkey drew and wrote digital games less frequently than the students in the Czech Republic.

Keywords: elementary students, real games, digital games, phenomenographic study, draw and write technique

1. Introduction

Real games which inspired by the events of daily life are influenced by the changes in developed societies (Toksoy, 2010). The real games are thought to be beneficial in terms of children's cognitive development (Sibley & Etnier, 2003), moral development (Gibbons, Ebbeck & Weiss, 1995), motor fitness performance (Gipit, Abdullah, Musa, Kosni & Maliki, 2017) and fundamental motor skill development (Akbari, Abdoli, Shafizadeh, Khalaji, Hajihosseini & Ziaee, 2009). We use the concept of real games. Even though the above-mentioned related research treats the game concept as real game, it is useful to consider the game concept as real games or digital games in today's conditions. If we use the game concept as a stand-alone game without distinguishing it as real games or digital games, it represents both digital games and real games. We define real games as games that children can play in the real world in which they can be physically, cognitively, affectively active and far from the digital world. For example, hide and seek, skipping rope, table games, play with any toy and play with friends considered as real games. However the concept of digital games is used to express games that are not real games. For example, playing computer games or playing mobile phone games are considered as digital games.

Industrialization, urbanization, technological advances, capitalism, consumer culture and globalization closely influence children's real games (Solmaz & Yüksel, 2012). However, real children's games pass down culture. It can be useful for children to play different culture's real games in order to recognize those (Aydınlı & Ramazanoğlu, 2016). The rapid development of technology which has affect the real games (Toksoy, 2010), cause to birth of the digital generation. Digital games are programmed with various technologies and provide users to enter with a visual environment (Ocak, 2013). When the literature on the effects of digital games on children is examined, it is seen that there are both positive and negative influences (Bayırtepe & Tüzün, 2007; Bukingham & Willet, 2006; Gürcan, Özhan & Uslu, 2008; Granic, Lobel & Engels, 2014; Griffiths, 2002; İşçibaşı, 2011). According to Chuang and Chen (2009), the use of computer-based video games can facilitate students' cognitive learning process. Besides, according to Green and Bavelier (2006), action gaming enhances visuospatial attention throughout the visual field. Greitemeyer and Osswald (2009) expressed playing a prosocial (relative to a neutral) video game reduced the hostile expectation bias and decreased the accessibility of antisocial thoughts. However Anderson and Bushman (2001) stated that violent video games increase physiological arousal and aggression-related thoughts and feelings. Playing violent video games also

decrease prosocial behavior. Another survey shows that energy expenditure during active video game play is comparable to moderate-intensity walking in children (Graf, Pratt, Hester & Short, 2009). We can understand that the effect of digital games depends on the characteristic of the game.

2. Purpose and Research Questions

The purpose of this study is to compare the perception concerning game concept of elementary students in Turkey and the Czech Republic.

RQ 1: How the elementary students perceive the game concept in Turkey?

RQ 2: How the elementary students perceive the game concept in the Czech Republic?

RQ 3: What are the differences between elementary students' perception concerning game concept in Turkey and the Czech Republic?

RQ 4: What are the similarities between elementary students' perception concerning game concept in Turkey and the Czech Republic?

3. Method

Phenomenography one of the qualitative research method was employed to understand students' perceptions concerning game concept. Phenomenography concept appeared under Marton leadership in 1980s (1981, 1986) and Marton (1986) defined "phenomenography is a research method for mapping the qualitatively different ways in which people experience, conceptualize, perceive, and understand various aspects of, and phenomena in, the world around them" (p. 143). In other word, "phenomenography is an interpretive research method used to investigate and describe the qualitatively in different way in which a group of people experience a particular phenomenon" (Bruce & Ahmed, 2014). "Phenomenography is briefly described as describing conceptions of the surrounding world. Phenomenography is not a system of philosophical assumptions and theses, and it is not derived or deduced from such a system. It is an empirical research tradition" (Svensson, 1997). Phenomography "organizes the basic assumptions regarding human beings and science, and it develops knowledge about the different ways of experiencing the universe by different people" (Assarroudi & Heydari, 2016). Marton (1981) made a distinction between first-order and second-order perspectives. First-order perspective describes various aspects of the world however second-order perspective describe people's experience of various aspects of the worlds.

"Phenomenography is a distinct approach to qualitative research and should not be confused with phenomenology, even though they both aim to reveal human experience and awareness as an object of research" (Barnard, McCosker & Gerber, 1999). There are some differences between phenomenography and phenomenolgy (Marton, 1986). While phenomenology considers first-order perspective, phenomenography considers second-order perspective (Bruce & Ahmed, 2014, p. 58). Phenomenography tries to characterize the variations of experience but phenomenology focuses on the essence of experience (Marton, 1986, p. 152).

> In a phenomenological investigation, we should 'bracket' the latter and search for the former. Phenomenographic invesigations try instead to describe relations between the individual and various aspects of the world around them, regardless of whether those relationships are manifested in the forms of immediate experience, conceptual thought, or physical behavior (Marton, 1986, p.152-153).

3.1 Participants

Convenience sampling and criterion sampling which is one of the purposive sampling methods were employed together. Purposive sampling is defined as "selecting units (e.g., individuals, groups of individuals, institutions) based on specific purposes associated with answering a research study's questions" (Teddlie & Yu, 2007, p.77). "This sampling strategy is broadly intended to facilitate a process whereby researchers generate and test theory from the analysis of their data (sometimes called inductive reasoning), rather than using data to test out or falsify a pre-existing theory (sometimes called deductive reasoning)" (Mason, 2002, p. 138). Criterion sampling "involves searching for cases or individuals who meet a certain criterion..." (Palys, 2008). According to Patton (2002) "the logic of criterion sampling is to review and study all cases that meet some predetermined criterion of importance, a strategy common in quality assurance efforts" (p.238). Convenience sampling which is one of the nonrandom sampling "entails using the most conveniently available people as participants" (Polit & Beck, 2010, p. 309). "As its name implies, convenience sampling refers to the collection of information from members of the population who are conveniently available to provide it" (Sekaran & Bougie, 2016, p. 276).

Selection criteria for participants study in a public school's 4th grade, not to have a disability and volunteer. 2015-2016 academic years fall semester, in 4th grade 8-10 years old 19 students (12 girls 7 boys) selected from Brno Nursery and Primary School in Brno province of the Czech Republic. In 4th grade 9-10 years old 40 students (24 boys and 16 girls) selected from Ulubatlı Hasan Elementary School in Ankara province of Turkey. The necessary permits were obtained from class teachers and school

administrators. The two schools were selected because of their convenient accessibility and proximity.

3.2 Procedures and Measures

Draw and write technique was used to identify participants' cognitive structures concerning the game concept. According to Boddington, King and McWhirter (2014) one of the advantages of the draw and write technique is that "it is an open-ended technique and that children can respond as the y wish and does not 'put ideas in their head'." (p. 70). Besides, draw and write is a useful tool to attract children to work and to remove the obstacles of different languages (Dugdill, Crone & Murphy, 2009, p. 74). Guillemin (2004) stated that, "the drawing as a visual product is a visual record of how the drawer understands his or her condition at that particular place and time. In this way, drawings, like other representations, can be used as ways of understanding how people see their world." (p. 275).

For the students in the Czech Republic and Turkey, the data were collected in the classroom and verbal instructions were given to the children by their class teachers and researchers. Draw a picture "What is the meaning of game for you?" and write a few sentences "What is the meaning of game for you?" questions which include age and sex was asked to students. The data for the participants in the Czech Republic were collected in Czech language, followed by a good level of Czech and English who translated the data into English. For Turkish students form was in Turkish. No equipment constraints were made for writing and drawing. The time was almost 40 minutes for both groups.

3.3 Analytic Strategy

Phenomenographical data analysis was employed for analytic strategy. According to Bruce (1999, p. 22) phenomenographical analysis involve; becoming familiar with the data, identifying relevant parts of the data, comparing extracts to find sources of variation or agreement, grouping similar segments of data, articulating preliminary categories, constructing labels for the categories and determining the logical relationships between the categories.

In order to become familiar with the data all of the drawings and writings were viewed and read. The response papers of the participants were numbered 1 to 19 for students of the Czech Republic and 1 to 40 for students of Turkey. Subsequently, 1 forms belongs to a Czech student 3 forms belongs to a Turkish students papers that are thought to be meaningless by researchers were not included in the analysis. Every step applied for both Czech and Turkish student separately. For identify relevant parts of the data the students' expressions and drawings for the game concept are tabulated by dividing the m into main categories and sub-categories. Writing and drawing data were analyzed separately in terms of no data loss. Drawings and writing examples of the participants are also shown in the study. All the drawings were transcript. With the help of drawing transcripts and writings some codes were indentified. Code frequencies were indicated concerned tables both girls and boys. In "comparing extracts to find sources of variation or agreement" with "grouping segments of data" step, with the help of pooled data preliminary sub-categories were identified. Sub-categories similarities and differentiated helped to design preliminary main categories. In "articulating preliminary categories" step, some preliminary sub-categories and main categories arranged. In "constructing labels for the categories" step, preliminary sub-categories and main categories confirmed. In the last step called "determining the logical relationships between the categories", attention moved to outcome space. The main categories sorted by percentage hierarchically. At the end of the analysis process, Turkish students and Czech students' game perception compared via their main categories and sub-categories.

3.4 Reliability and Validity

> Thick description was used as a validity procedure.

> The purpose of a thick description is that it creates verisimilitude, statements that produce for the readers the feeling that they have experienced, or could experience, the events being described in a study. Thus, credibility is established through the lens of readers who read a narrative account and are transported into a setting or situation (Creswell & Miller, 2000, p. 128-129).

"Establishing credibility in a study is to describe the setting, the participants, and the mess of a qualitative study in rich detail" (Creswell & Miller, 2000, p. 128). In this direction, each drawings and writings were analyzed and presented in rich detail. In addition, to establish validity, peer review/debriefing procedure was employed. Lincoln and Guba (1985) define peer review or debriefing "the review of the data and research process by someone who is familiar with the research or the phenomenon being explored" (as cited by Creswell & Miller, 2000, p. 129). Accordingly, a professor who is familiar with the phenomenon reviewed the data and research process.

"The reliability of the analysis of qualitative data can be enhanced by organizing an independent assessment of transcripts by additional skilled qualitative researchers and comparing agreement between the raters" (Mays & Pope, 1995). The opinions of an in-field expert and an out-of-field expert were consulted as a reliability procedure. The reliability formula proposed by Miles and Huberman (1994) was used to calculate the reliability of the study [Number of agreements / (Total number of Agreements + Disagreements)]. As a result of the calculation, the reliability of the

research was calculated as 92 %. "Intra and inter coder agreement should be up in 90 % range, depending on the size and range of the coding schema" (Miles & Huberman, 1994, p. 64).

4. Results

Table 1. Students' Writing and Drawing Findings Concerning the Game Concept in Turkey

Main Categories	Subcategories	Drawing Frequency		Writing Frequency	
		Girl	**Boy**	**Girl**	**Boy**
Physical Activity Games (%52,91)	Football	2	8	3	8
	Hide and Seek	1	4	8	7
	Blindman's Bluff	4	1	5	3
	Skipping Rope	5	1	5	1
	Volleyball	1	-	2	6
	Play with friends	3	1	2	2
	Play with ball	3	-	3	-
	Basketball	-		-	6
	Playing Tag	-	-	2	4
	Hopscotch	2	-	3	-
	Playing House	1	-	3	-
	High above ground	-	-	2	1
	Tennis	-	-	-	2
	Folk dance	-	-	1	1
	Hockey	-	-	-	1
	Kite-flying	1	-	-	-
	Push in the corner	-	-	1	-
	Handkerchief	-	-	1	
	Dodge ball	-	-	-	1
	Marbles	-	-	-	1
		24	16	43	44
	Total	**40**		**87**	
		Girl	**Boy**	**Girl**	**Boy**
Playground Ambience (%12, 91)	Sun	5	6	-	-
	Cloud	4	4	-	-
	Three	4	3	-	-
	Flower	2	1	-	-
	Bird-butterfly	2	-	-	-
		17	14	-	-
	Total	**31**		**-**	
		Girl	**Boy**	**Girl**	**Boy**
Playground (%10,41)	Outdoor	11	3	-	-
	Children park	4	3	4	-
		15	6	4	-
	Total	**21**		**4**	
		Girl	**Boy**	**Girl**	**Boy**
Emotions about Game (%9,16)	Happiness	-	-	5	4
	Entertainment	-	-	8	-
	Hopelessness	-	-	1	-
	Lucky	-	-	-	1
	Excitement	-	-	-	1
		-	-	16	6
	Total	**-**		**22**	
		Girl	**Boy**	**Girl**	**Boy**
Other Thoughts about Game (%5,41)	Children's fundamental rights	-	-	1	2
	Paint	-	-	1	1
	World	2	-	-	-
	Friendship	-	-	-	1
	Peace	-	-	-	1
	Honesty	-	-	-	1
	Necessity	-	-	-	1
	Imaginary world	-	-	-	1
	Rule	-	-	-	1
		2	-	2	9
	Total	**2**		**11**	
		Girl	**Boy**	**Girl**	**Boy**
Play with toy (%5)	Play with doll	-	1	3	-
	Play with toy car	-	2	1	1
	Play with potty putty	1	-	1	-
	Play with any toy	-		1	1
		1	3	6	2
	Total	**4**		**8**	
		Girl	**Boy**	**Girl**	**Boy**
Digital Games (%4,16)	Computer	-	3	-	3
	Tablet	-	2	-	2
		-	5	-	5
	Total	**5**		**5**	
	Total	**103**		**137**	

According to students' drawing and writing findings in Turkey, seven main categories formed as; Physical Activity Games (52,91%), Playground Description (12,91%), Playground (10,41%), Emotions About Game (9,16%), Other

Thoughts About Game (5,41%), Play with toy (5%), Digital Games (4,16%).

When Table 1 is examined, it is seen that both boys and girls are more dominant in the first main category called as "Physical Activity Games (52.69%)". While girls' drawing and writing findings focus on "skipping rope" sub-category, boys' writing and drawing findings focus on "football" sub-category. The order of subcategories without gender is as follows; "Football (21)", "Hide and Seek (20)", "Blindman's Bluff (13)", "Skipping Rope (12)", "Volleyball (9)", "Play with friends (8)", "Play with ball (6)", "Basketball (6)", "Playing Tag (6)", "Hopscotch (5)", "Playing house (4)", "High above ground (3)", "Tennis (2)", "Folk Dance (2)", "Hockey (1)", "Kite-flying (1)", "Push in the corner (1)", "Handkerchief (1)", "Dodge ball (1)", "Marbles (1)". According to the percentage values, the second main category is "Playground Ambience (%12.91)". Neither boys nor girls have data in writing section. However, in drawing section girls (5) and boys (6) have more drawing findings in the "sun" sub-category. The order of subcategories without gender is as follows; "Sun (11)", "cloud (8)", "tree (7)", "flower (3)" and "bird-butterfly (2)".

"Playground (10.41%)" is the 3rd main category. While girls' drawing frequency value is (11) boys' drawing frequency value is (3) for "outdoor" sub-category. It is determined that only girls have writing findings in the "children park (4)" sub-category.

According to the percentage values, the 4th main category is "Emotions about Game (9.16%)". Neither girls nor boys have drawing results. While girls have more writing data in "entertainment (8)" sub-category than the other sub-categories, boys have more writing data in "happiness (4)" sub-category than the other sub-categories. The order of subcategories without gender is as follows; "happiness (9)", "entertainment (8)", "hopelessness (1)", "lucky (1)" and "excitement (1)".

The 5th main category is "Other Thoughts of the Game". While girls have only drawing finding in "world (1)" sub-category, boys don't have any data in drawing section. However, boys have more writing findings "children' fundamental rights (2)". The order of subcategories without gender is as follows; "Children's fundamental rights (3)", "Paint (2)", "World (2)", "Friendship (1)", "Peace (1)", "Honesty (1)", "Necessity (1)", "Imaginary World (1)" and "Rules (1)".

According to children writing and drawing findings percentage the 6th main category is "Play with Toy (5%)". In this main category, while girls have more writing findings in "play with doll (3)" sub-category, boys have more drawing and writing findings in "play with toy car (3)" sub-category. The order of subcategories without gender is as follows "Play with doll (4)", "Play with toy car (4)", "Play with potty putty (2)" and "Play with any toy (2)".

According to the percentage values, the last category is "Digital Games (4.16%)". In this main category, girls don't have writing and drawing finding. Boys have more writing and drawing findings in "computer (6)" sub-category than "tablet (4)" sub-category.
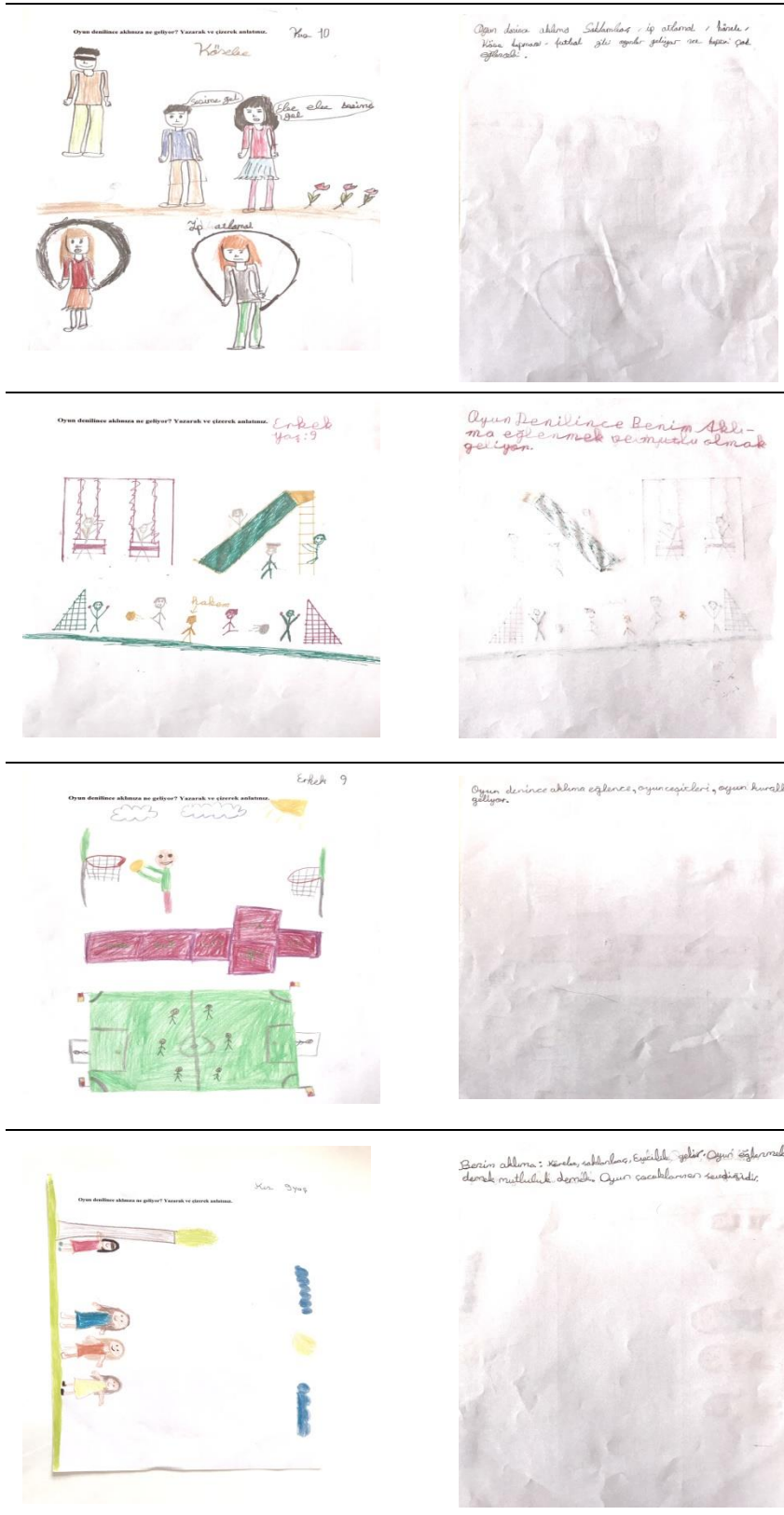
Figure 1. Some Drawing and Writing Examples of Students in Turkey

Table 2. Students' Writing and Drawing Findings Concerning the Game Concept in the Czech Republic

Main Categories	Subcategories	Drawing Frequency		Writing Frequency	
		Girl	Boy	Girl	Boy
Tabletop Games (%36,36)	Ludo	6	-	3	-
	Dice Game	3	-	1	1
	Card games	2	-	2	-
	Tabletop games	1	-	3	-
	Chess	-	2		
	Domino	1	-	1	-
	Word games	-	-	-	1
	Number Games	-	1	-	-
		13	3	10	2
	Total		16		12
		Girl	Boy	Girl	Boy
Digital Games (%24,67)	Mobile phone	3	1	4	1
	Computer	-	3	2	2
	Console Games	-	1	-	1
	Tablet	-	-	1	-
		3	5	7	4
	Total		8		11
		Girl	Boy	Girl	Boy
Other Thoughts about Game (%15,58)	Strategy	-	-	-	3
	Logical Practice	-	-	-	2
	Play any musical instrument	1	-	1	
	Creativity	-	-	-	1
	Watch a movie	-	-	1	-
	Imaginary world	-	-	1	-
	Fly	-	-	1	-
	Weapon	-	-	-	1
		1	-	4	7
	Total		1		11
		Girl	Boy	Girl	Boy
Play with Toy (%11,68)	Play with Doll	1	-	-	2
	Play with Teddy Bear	2	-	-	1
	Play with Lego	-	1	-	1
	Play Any Toy	-	1	-	-
		3	2		4
	Total		5		4
		Girl	Boy	Girl	Boy
Physical Activity Games (%7,79)	Hopscotch	1	-	1	-
	Skipping Rope	1	-	1	-
	Play with friends	1	-	1	-
		3		3	
	Total		3		3
		Girl	Boy	Girl	Boy
Emotions About Game (%3,89)	Entertainment	-	-	-	2
	Happiness	-	-	-	1
		-	-	-	3
	Total	-		3	
	Total		33		44

According to students' writing and drawing findings in the Czech Republic, six main categories formed as; "Tabletop Games (36,36%)", "Digital Games (24,67%)", "Other Thoughts about Game (15,58%)", "Play with Toy (11,68%)" , "Physical Activity Games (7,79%)" and "Emotions about Game (3,89%)".

When the table is examined, it is seen that both boys and girls have more writing and drawing findings in "Tabletop Games (36.36%)" main category. In this main category, while girls have more drawing and writing findings in "Ludo (9)" sub-category, boys have more drawing finding in "Chess (2)" sub-category. The order of subcategories without gender is as follows; "Ludo (9)", "Dice Games (5)", "Card Games (4)", "Tabletop Games (4)", "Chess (2)", "Domino (2)", "Word Game (1)" and "Number Game (1)".

According to the percentage values, the second main category is "Digital Games (24.67%)". While girls have more drawing and writing findings in "Mobile Phone (7)" sub-category boys have more drawing and writing findings in

"Computer (5)" sub-category. The order of subcategories without gender is as follows; "Mobile phone (9)", "Computer (7)" and "Console games (2)".

"Other Thoughts about Game (15.58%)" is the 3rd main category. While boys have more writing findings in "strategy (3) sub-category, girls have more drawing and writing finding in "Play any musical instrument (2)" sub-category. The order of subcategories without gender is as follows; "Strategy (3)", "Logical Practice (2)", "Play any musical instrument (2)", "Creativity (1)", "Watch a Movie (1)", "Fly (1)", Dreams (1) and Weapons (1).

The 4th main category is "Play with toy (11.68%)". In this main category, while girls have more drawing findings in "Play with teddy bear (3)" boys have more writing findings in "Play with doll (2)". Besides, boys have also more drawing and writing finding in "Play with Lego (2)" sub-category. The order of subcategories without gender is as follows; "Play with Doll (3)", "Play with Teddy Bear (3)", "Play with Lego (2)" and "Play with Any Toy (1)".

According to the percentage values, the 5th main category is Physical Activity Games (7.79%). In this main category boys have no data neither drawing section nor writing section. Girls have drawing and writing findings in "Hopscotch (2)", "Skipping Rope (2)" and "Play with Friends (2)".

The last main category is "Emotions about Game (%3.89)". In this main category, while girls have no data neither drawing nor writing sections, boys have writing findings such as "Entertainment (2)" and "Happiness (1)".
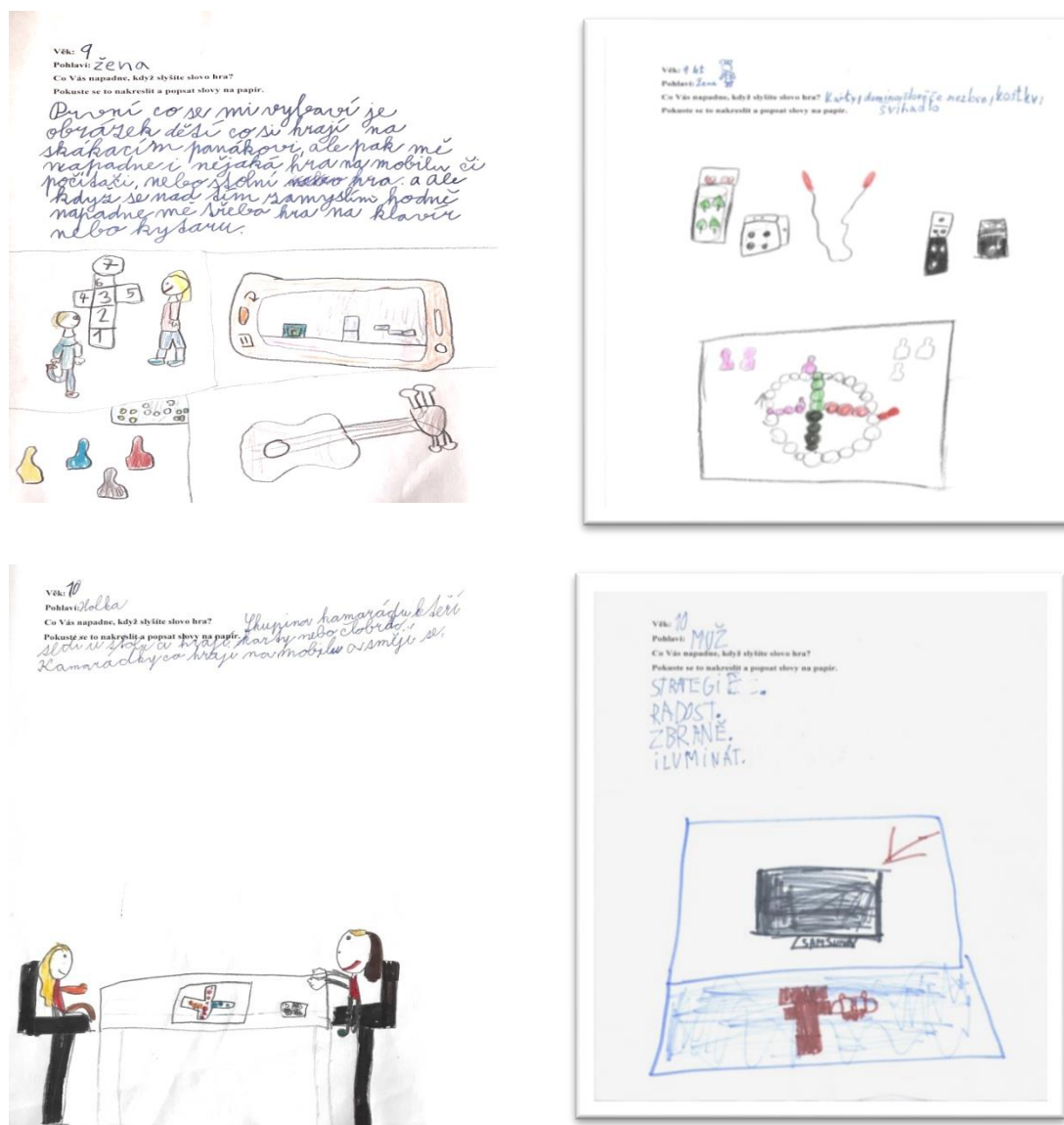

Figure 2. Some Drawing and Writing Examples of Students in the Czech Republic

5. Discussion and Conclusions

According to the drawing and writing results; the main category of "Physical Activity Games (%52.91)" was the most frequently expressions as game by the participants in Turkey. Participants in the Czech Republic have also this main category. But this main category had the lowest percentage (%7.79). However, in this main category it was determined that the two groups had similar subcategories such as "hopscotch", "skipping rope" and "play with friends". The most frequently expressed main category was "Tabletop Games (%36.36)" by participant in the Czech Republic. However, participants in Turkey didn't have this main category. We can explain this discrepancy from cultural effects. Koçyiğit and Baydilek (2015) in their study, they tried to understand preschool children's game concept. According to their results if an activity include toy, fun, action and option it can be called as game. In addition, according to Wong, Wang and Cheng (2011), some 5-7 years old Hong Kong Children regarded play as joyful activities.

While "Playground Ambience (12,91%)" was the second main category for participants in Turkey, it didn't comprised of for the participants in the Czech Republic. Instead of this, the 2nd main category was "Digital Games (24.67%)". This main category had the lowest percentage for students in Turkey. Although students perceived game as more real games, some results show that digital games have taken place in real games (Lieberman et al., 2009; Solmaz & Yüksel, 2012; Yengin, 2012). Although children perceive the game concept as more real games, they can prefer to play digital games.

While "Playground (10.41%)" was the 3rd main category for participants in Turkey, it didn't comprise of for the participants in the Czech Republic. Instead of this, the third category was "Other Thoughts about Game (%15.58)". This main category stated in 5th rank. While "Emotions about Game" main category stated in 4th rank for the participants in Turkey, this main category had the lowest percentage for the participant in the Czech Republic. However, two groups shared some common subcategories such as "entertainment" and "happiness". Pilten and Pilten (2013) reported that the first and fifth grade students in Turkey describe game as funny things that they do. Our results also show 4th grade students in Turkey and the Czech Republic perceive game as entertainment and happiness.

One of the common category "Play with Toy" seen in 6th rank in 7 for participants in Turkey, it was seen that the 4th rank in 6 for participants in the Czech Republic. The two groups shared similar subcategories such as; "play with doll" and "play with any toy". According to Tuğrul, Aslan, Ertürk and Altınkaynak (2014) 6 years old preschool children mostly expressed game as play with someone or something and fun in Turkey.

As a result, it is detected that 4th grade elementary students in Turkey and the Czech Republic perceive game concept as more real games than digital games. Although the two groups have different cultural characteristics they drew and wrote the same games in some main categories. In addition, students in Turkey drew and wrote digital games less frequently than the students in the Czech Republic.

Acknowledgements

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