# Playful physical activity during the break at the Greek primary school

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**Abstract**
*The purpose of the research is to detect, imprint and record the playful and non-playful activities of primary school students during the break in the school premises, to detect the categories and subcategories of these activities arising from the above process, as well as whether there are or not differences in biological sex, age and area. The sample of the research consisted of 53 primary schools from different regions of Greece, which were selected by lot. The research team followed 338 children (166 boys and 172 girls aged 7 to 12 years) randomly selected. Each child was observed five times in a week during one of the first two school breaks, which lasted the longest 20 and 15 minutes, respectively, and a total of 1690 observations were made. A protocol of observing playful and non-playfulactivities was constructed and the recording units for playful (functional, symbolic, creative, etc.) and non-playful situations (active dialogue, reading, observer behavior, stress, etc.) were derived from bibliographic review and from the pilot applications of the research. The normality of the data was checked by the Kolmogorov - Smirnov test. The a-Cronbach reliability test is 0.83 for playful and 0.81 for non-playful activities. Cohen's Kappa agreement check lies between the values (0.87 - 0.93) for playful, while respectively (0.84 - 0.93) for non-gaming activities. Frequency and percentage recording tables were constructed and X2 control was performed. Boys play in functional team play and group rules game significantly more than girls, while girls, on the other hand, are much more involved in creative team play, symbolic team play, creative solitaire and the creative parallel game than boys. Boys are much more involved than girls with fighting game, competitive activities and exploration, while girls are more concerned with reading at break, moving from one area of the space to another and active dialogue. The students of the younger classes are more concerned with the symbolic solo game, the parallel rules game and especially with all kinds of functional game, the students of the middle classes, third and fourth, are more concerned with the symbolic group game, while those of the older classes are much more concerned with more with rules team game, creative team game and symbolic parallel. These findingsverify our hypothesis. Urban students are less involved in group creative play and solitary rule play, and students in semi-urban and rural areas play more group rule games than students in other areas. Playful activities in the school yard are an opportunity to develop motor social, emotional and cognitive skills among peers. A full understanding of the processes involved in peer influence during the game can be the subject of research that examines interactions while playing during the break.*
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# I.    Introduction

The International Play Association (IPA) for the Child's Right to play (2002) considers play to be the child's main preoccupation and points out that: a) play is communication and expression, combining thought and expression. Action and offers satisfaction, b) play is instinctive, voluntary and spontaneous, c) play helps children develop themselves physically, cognitively, emotionally and socially. With the game, the child manifests his/her abilities but also his/her inner world, virtues, social or anti-social tendencies and morals (Metochianakis, 2000: 416).

The school yard of primary schools is that outdoor area of the school building, where children aged six to twelve can be exposed to direct or indirect experiences almost daily during the school year and for about six consecutive school years (Tsakiris, 2013). The open space of the yard enabled the children to play socially and constructively and influenced their behavior and performance in the game (Azlina, Zulkiflee, 2012). The school yard is a place of social gathering, sports, education, physical and mental relaxation from the classroom (Panagiotidou, 2008).

In education, the break is the planned time for children to experience physical, cognitive, social, emotional benefits and to cooperate with peers. According to Pellegrini and Smith (1993: 51) the school break is defined as "a period during which children are (usually) outdoors". Compared to the rest of the school day, the break is a time when children have more freedom to choose what they want to do and with whom. In addition, the break can take place either indoors or outdoors and should include the free choice of activities and teammates by the children themselves, with minimal guidance from teachers, whose role should be to supervise the safety of children. . The break is one of the most dynamic times of school, providing opportunities for children to enjoy physical exercise and themselves, to communicate with the physical world, to interact with peers and to practice basic social skills (Matsagouras, 2001). The break seeks to develop children's social skills and cultivate their imagination, while satisfying their need for safety, movement and fun. The break is also vital for the children's development; because it gives them time for free play. Free play seems to be a genetically resistant human need that children must meet in order to gain social experiences, and break is one of the few opportunities in the daily lives of many children (Wood & Freeman-Loftis, 2011: 173).

Empirical studies support the multiple benefits of break during school education in children (Phillippo, 2016). Active play during breaks positively affects children's self-regulation and consequently improves their academic performance (Becker, McClelland, Loprinzi, Trost, 2014). Free play at break contributes to socio-emotional development and the prevention of their inappropriate behavior (Veiga, Neto, Rieffe, 2016). Organized and free physical activities such as functional play during breaks contributed positively to the increase of children's physical activity compared to the game controlled by the teacher and all this in combination with the participation and abilities of each child (Frank, Flynn, Farnell, Barkley, 2018). A rich environment works encouragingly for the development of a variety of games (Berkhout, Bakkers, Hoekman, Goorhuis-Brouwer, 2013). The open space of the yard enabled the children to play socially and constructively and influenced their behavior and performance in the game (Azlina, Zulkiflee, 2012). A number of empirical studies support the multiple benefits of break during school education in children (Phillippo, 2016; May, 2010). Active play during breaks positively affects children's self-regulation and consequently improves their academic performance (Becker, McClelland, Loprinzi, Trost, 2014). Free play at break contributes to socio-emotional development and the prevention of their inappropriate behavior (Veiga, Neto, Rieffe, 2016). Blatchford et al. (1990) in their study of eleven-year-olds in London primary schools  recording the type of games students preferred to play during the break concluded that the most popular games were football, chasing and ball games and that traditional games accompanied by a song or using yard lines were played less frequently.

The children's sedentary behavior and their lack of physical activity during the break in kindergarten is a worrying phenomenon. According to studies, the levels of preschoolers' physical activity are low and this is the reason they try, through interventions to increase them (Cardon, Van Cauwenberghe, Labarque, Haerens, De Bourdeaudhuij, 2008; Escalante, Garcia-Hermoso, Backx, Saavedra, 2014).

The small number of research papers in the specific pedagogical field of playful activity in the Greek primary school and the relevant research findings to minimize the physical activity of students during the break was the motivations for the elaboration of the present research.

## Purpose and cases of the research

The purpose of this research is to observe record and evaluate the playful and non-playful activity of primary school students, during the long break in the daily operation of primary schools in Greece. The aim is also to find any significant differences in play activity with respect to gender factors, age and district which is proportional to the students' grades in the primary school and the school area.

I. Playful situations appear in all game categories.

II. There is a difference in the playful situations that appear depending on the gender of the students, the class and depending on the areas of distribution of the comments (urban, suburban, semi-urbanand rural).

III. Non-playful situations appear during the break.
IV. There is a difference in the non-playful situations that occur depending on the gender of the students, the class and depending on the distribution areas of the comments (urban, suburban, semi-urban, and rural).

## II. Research Methodology

**Sample**

Primary schools (f = 53 100%) from different regions of Greece were selected by lot to observe the playful activity. The research team observed and recorded the playful behavior of 338 children (166 boys and 172 girls aged 7 to 12 years) randomly selected. Each child was observed and their playful behavior was recorded at five breaks, over a period of one week. The observation - recording was done in one of the first two breaks of the school that had the longest duration from 20 to 15 minutes respectively. A total of 1690 observations were made. The characteristics of the sample in terms of schools by region and number of students are shown in Table 1 while in terms of gender and classes of the sample are shown in Table 2.

**Table 1:** table of frequencies and percentages of the sample on the school area factor and the corresponding number of students

| AREA OF SCHOOL | Urban | | Sub-Urban | | Semi-Urban | | Rural | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *f* | % | *f* | % | *f* | % | *f* | % | *f* | % |
| **Schools** | 17 | 32.2 | 12 | 22.8 | 12 | 22.8 | 12 | 22.8 | 53 | 100 |
| **Students** | 85 | 25.1 | 85 | 25.1 | 84 | 24.9 | 84 | 24.9 | 338 | 100 |

**Table 2:** table of frequencies and corresponding percentages for the characteristics of the sample in terms of gender and class at school which also determines the age

| CLASS | GENDER | | | | | |
| | Boys | | Girls | | TOTAL | |
| | *f* | % | *f* | % | *f* | % |
|---|---|---|---|---|---|---|
| **First** | 28 | 8.3 | 28 | 8.3 | 56 | 16.5 |
| **Second** | 29 | 8.6 | 27 | 8.2 | 56 | 16.5 |
| **Third** | 27 | 8.2 | 29 | 8.6 | 56 | 16.5 |
| **Fourth** | 28 | 8.3 | 28 | 8.3 | 56 | 16.5 |
| **Fifth** | 27 | 8.2 | 30 | 8.9 | 57 | 17 |
| **Sixth** | 27 | 8.2 | 30 | 8.9 | 57 | 17 |
| **TOTAL** | 166 | 49.8 | 172 | 50.2 | 338 | 100 |

**Research method and means of data collection**

Direct and structured observation was used as a means of data collection, which is systematic and organized. Direct observation can be that of free observation, which does not focus on a specific subject or structured observation, which presupposes strict standardization of specific events and facts. The function of structured observation focuses mainly on the frequency with which certain things occur and less on the reasons why they occur.

*Observation protocols for playful and non-playful activities*

The observation protocols of the playful and non-active activities of the research team record frequencies of display of the data. The recording units for playful and non-playful situations, as they emerged from the literature review (Rubin, 2001; Karadimitriou, 2007; Rubin, 2008) and from the pilot applications of the research, are shown in Tables 3, 4 and are as follows:

**Table 3:** observation protocol for recording playful activities (Rubin, 2008)

| | Functional | Symbolic | Creative | Rules |
|---|---|---|---|---|
| Lonely | | | | |
| Parallel | | | | |
| Grouporcollaborative | | | | |

*Lonely*: the child plays independently, with different toys from the other children while he is at a distance that he/she can talk to them. But he/she makes no effort to approach them, nor does he/sheshow any interest in what others around him/her are doing.
*Parallel*: the child plays independently but his/her activity develops among other children. He/she plays with games similar to other children's or uses the same as other children but does not try to influence or interfere with their play. In addition there is no attempt to control who comes or goes from the team.

*Collaborative or group*: the child plays in a group that is organized for a purpose, to dramatize a situation, to play a well-known group game. There is a pervasive sense of belonging or not to the group. One or two children usually lead the situation in a leadership role. The common goal as well as the method for its success presuppose the division of roles and work so that one member of the team supports the efforts of the other's.

**Table 4:** observation protocol for recording non - playful activities

*Fighting game*: Non-genuine fight, physical contact, fake fights(rough and tumble play).
*Competition*: Shows intense competitive behavior to another child, threatens him.
*Anxiety*: Eating his nails looks scared.
*Active dialogue*: The child talks to someone or in a group and looks at them.
*Jump*: The child moves from one activity to another.
*Observer Behavior*: The child observes the behavior of other children.
*Non-aligned activities*: The child looks somewhere in the space, not specifically, walks aimlessly, does something mechanically, e.g. with his finger teases his hair or his nose.
*Reading*: Reads or flips through a publication, book, and notebook.
*Exploration*: The child examines an object or space to identify its properties.
*Non-playful situation*: The child is sitting, doing absolutely nothing.

**Statistical analysis of data**

Initially, the checks were performed: a) on the normality of the values of the variables by applying the Kolmogorov - Smirnov test, b) on the reliability check with the alpha coefficient and c) on the agreement between the evaluators-Assessors (Cohen's Kappa). The regularity check of the value of the variables with the Kolmogorov - Smirnov test showed that there is no smooth distribution (p <.05) for both playful and non-playful activities. The a-Cronbach reliability test is 0.83 for playful and 0.81 for non-playful activities. The scale of measurements resulting from the values of the two observation protocols is of good reliability. The agreement check between the evaluators-estimators(Cohen's Kappa) lies between the values (0.87 - 0.93, p = .036) for the playful, while for the non-playful activitiesrespectively lies between the values (0.84 - 0.93, p = .041) This was followed by the analysis of data at two levels of univariate analyzes, where the averages, standard deviation and frequencies were calculated and then those of the bivariate analyzes, where the means were compared and their difference was checked. The x2 test was used to study the relationship between quality variables.

## III. Research Results

*Playful activities during the school break of primary schools*

The observations of the research team for the twelve categories of playful activities by gender, region, class and in total are shown in Tables 5 and 6 (frequencies and percentages), respectively, and in Graphs 1 and 2, as shown by the comparison of 1690 observation protocols of recording. It is found that 1838 observations have been made (f = 1838, 100%), of playful activities. Looking at tables 5 it appears that: 908 observations (49.5%) concerned boys and 930 (51.5%) girls, 619 observations (33.7%) were made in urban schools, 432 (23.5% ) in schools in the suburbs, 430 (23.3%) in schools in the suburbs and 357 (19.5%) observations were made in schools of rural areas. From table 6 for the class attended by the primary school children it seems that the following were made: 381 (21.6%) remarks for the first grade, 307 (16.3%) remarks for the second grade, 314 (16.9% ) comments for the third grade, 261 (14%) comments for the fourth grade, 249 (13.5%) comments for the fifth grade and 326 (17.7%) comments for the sixth grade.

**Table 5**: table of frequencies and percentages of playful activities in terms of gender and school distribution areas for the whole sample (f = 338 students 100%; 53 primary schools) during the break of the Greek primary school.

| CATEGORIES OF PLAYFUL ACTIVITIES DURING THE SCHOOL BREAK (POS, Rubin, 2001) | GENDER | | | | | | AREA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | | Girls | | Total | | Urban | | Sub-urban | | Semi-urban | | Rural | | Total | |
| | f | % | f | % | f | % | f | % | f | % | f | % | f | % | f | % |
| I.PA | 30 | 1,6 | 29 | 1,6 | 59 | 3,2 | 21 | 1,1 | 17 | 0,9 | 12 | 0,7 | 9 | 0,5 | 59 | 3,2 |
| II.PA | 86 | 4,7 | 84 | 4,4 | 170 | 9 | 68 | 3,7 | 30 | 1,6 | 43 | 2,3 | 29 | 1,6 | 170 | 9,2 |
| III.PA | 218 | 11,9 | 196 | 10 | 414 | 22,3 | 104 | 9,6 | 104 | 5,7 | 103 | 4 | 103 | 3,3 | 414 | 22,6 |
| IV.PA | 12 | 0,7 | 39 | 2 | 51 | 2,7 | 21 | 1,1 | 13 | 0,7 | 11 | 0,6 | 6 | 0,3 | 51 | 2,7 |
| V.PA | 88 | 4,8 | 85 | 4,6 | 123 | 9,4 | 60 | 3,7 | 29 | 1,6 | 12 | 0,6 | 22 | 1,2 | 123 | 7,1 |
| VI.PA | 85 | 4,6 | 116 | 6,3 | 201 | 10,6 | 51 | 3,9 | 50 | 2,9 | 50 | 2,1 | 50 | 2 | 201 | 10,9 |
| VII.PA | 26 | 1,4 | 37 | 2 | 63 | 3,4 | 30 | 1,7 | 8 | 0,4 | 17 | 1 | 8 | 0,4 | 63 | 3,5 |
| VIII.PA | 34 | 1,8 | 50 | 2,5 | 84 | 4,3 | 27 | 1,9 | 11 | 1,6 | 31 | 1,7 | 15 | 0,8 | 84 | 4,3 |
| IX.PA | 70 | 3,8 | 119 | 6 | 189 | 9,8 | 79 | 4,2 | 33 | 1,8 | 44 | 2,4 | 33 | 1,8 | 189 | 10,2 |
| X.PA | 25 | 1,4 | 41 | 2,2 | 66 | 3,4 | 9 | 0,5 | 24 | 1,3 | 15 | 0,8 | 18 | 1 | 66 | 3,6 |
| XI.PA | 69 | 3,8 | 58 | 3 | 127 | 6 | 48 | 2,6 | 26 | 1,4 | 33 | 1,8 | 20 | 1 | 127 | 6,8 |
| XII.PA | 165 | 9 | 126 | 6,9 | 291 | 15,9 | 101 | 5,6 | 87 | 4,7 | 59 | 3,2 | 44 | 2,4 | 291 | 15,9 |
| TOTAL | 908 | 49,5 | 930 | 51,5 | 1838 | 100 | 619 | 33,7 | 432 | 23,5 | 430 | 23,3 | 357 | 19,5 | 1838 | 100 |

I.PA: Functional solo
II.PA: Functional parallel
III.PA: Functional team or co-operative
IV.PA: Creative solo
V.PA: Creative parallel
VI.PA: Creative team or co-operative
VII.PA: Symbolic solo
VIII.PA: Symbolic parallel
IX.PA: Symbolic team or co-operative
X.PA: Rules solo
XI.PA: Rules parallel
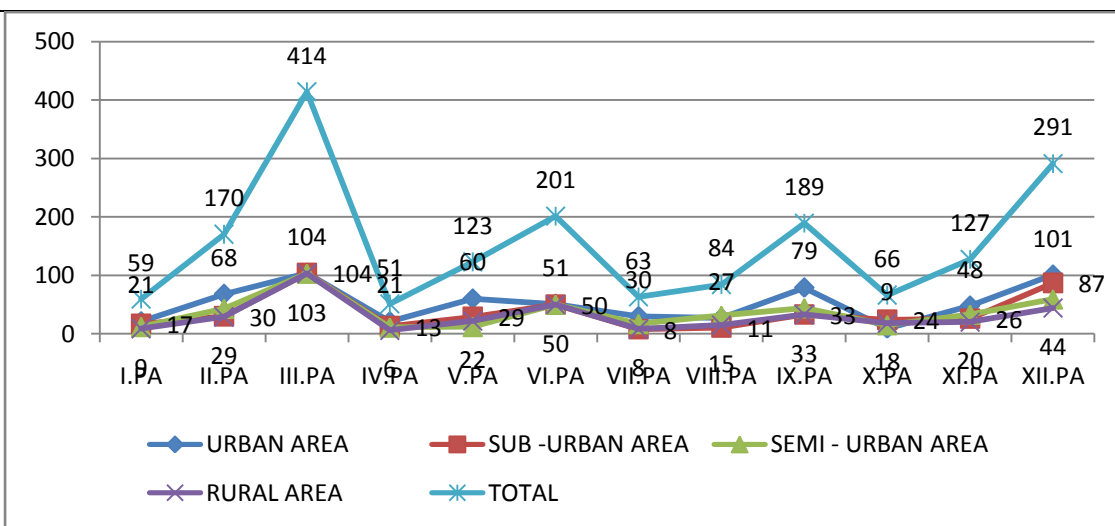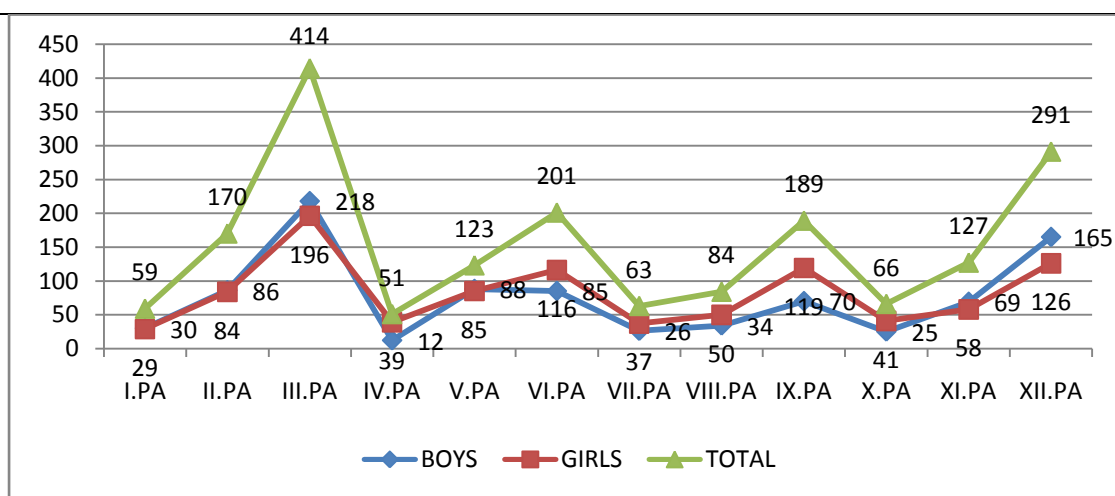XII.PA: Rules team or co-operative

**Table 6**: table of frequencies and percentages of play activities in relation to the grades of the primary school for the whole sample(f = 338 students 100%; 53 primary schools) during the break of the Greek primary school.

| | | 1ST Class | | 2ND Class | | 3RD Class | | 4TH Class | | 5TH Class | | 6TH Class | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ƒ | % | ƒ | % | ƒ | % | ƒ | % | ƒ | % | ƒ | % | ƒ | % |
| CATEGORIES OF PLAYFUL ACTIVITIES DURING THE SCHOOL BREAK (POS, Rubin, 2001) | I.PA | 30 | 1,6 | 9 | 0,5 | 9 | 0,5 | 6 | 0,3 | 0 | 0 | 5 | 0,2 | 59 | 3,2 |
| | II.PA | 49 | 2,6 | 23 | 1,2 | 31 | 1,7 | 15 | 0,8 | 18 | 1 | 34 | 1,9 | 170 | 9 |
| | III.PA | 68 | 3,7 | 73 | 4 | 52 | 2,9 | 55 | 3 | 79 | 4,5 | 87 | 4,9 | 414 | 22,3 |
| | IV.PA | 9 | 0,5 | 15 | 0,8 | 15 | 0,8 | 9 | 0,5 | 3 | 0,1 | 0 | 0 | 51 | 2,7 |
| | V.PA | 32 | 1,7 | 23 | 1,2 | 20 | 1,1 | 15 | 0,8 | 11 | 0,6 | 22 | 1,2 | 123 | 9,4 |
| | VI.PA | 24 | 1,6 | 30 | 1,6 | 40 | 2,1 | 42 | 2,3 | 23 | 1,2 | 42 | 2,3 | 201 | 10,6 |
| | VII.PA | 23 | 1,2 | 14 | 0,7 | 14 | 0,7 | 0 | 0 | 12 | 0,6 | 0 | 0 | 63 | 3,4 |
| | VIII.PA | 21 | 1,1 | 6 | 0,3 | 8 | 0,4 | 13 | 0,7 | 9 | 0,5 | 27 | 1,4 | 84 | 4,3 |
| | IX.PA | 18 | 1 | 26 | 1,4 | 42 | 2,2 | 42 | 2,2 | 30 | 1,6 | 31 | 1,6 | 189 | 9,8 |
| | X.PA | 20 | 1 | 5 | 0,2 | 11 | 0,5 | 15 | 0,8 | 0 | 0 | 15 | 0,8 | 66 | 3,4 |
| | XI.PA | 26 | 2 | 36 | 1,9 | 20 | 1,1 | 9 | 0,5 | 12 | 0,6 | 24 | 1,3 | 127 | 6 |
| | XII.PA | 61 | 3,6 | 47 | 2,5 | 52 | 2,9 | 40 | 2,1 | 52 | 2,8 | 39 | 2,1 | 291 | 15,9 |
| | TOTAL | 381 | 21.6 | 307 | 16,3 | 314 | 16,9 | 261 | 14 | 249 | 13.5 | 326 | 17.7 | 1838 | 100 |

I.PA: Functional solo     IV.PA: Creative solo     VII.PA: Symbolic solo     X.PA: Rules solo
II.PA: Functional parallel     V.PA: Creative parallel     VIII.PA: Symbolic parallel     XI.PA: Rules parallel
III.PA: Functional team or co-operative     VI.PA: Creative team or co-operative     IX.PA: Symbolic team or co-operative     XII.PA: Rules team or co-operative
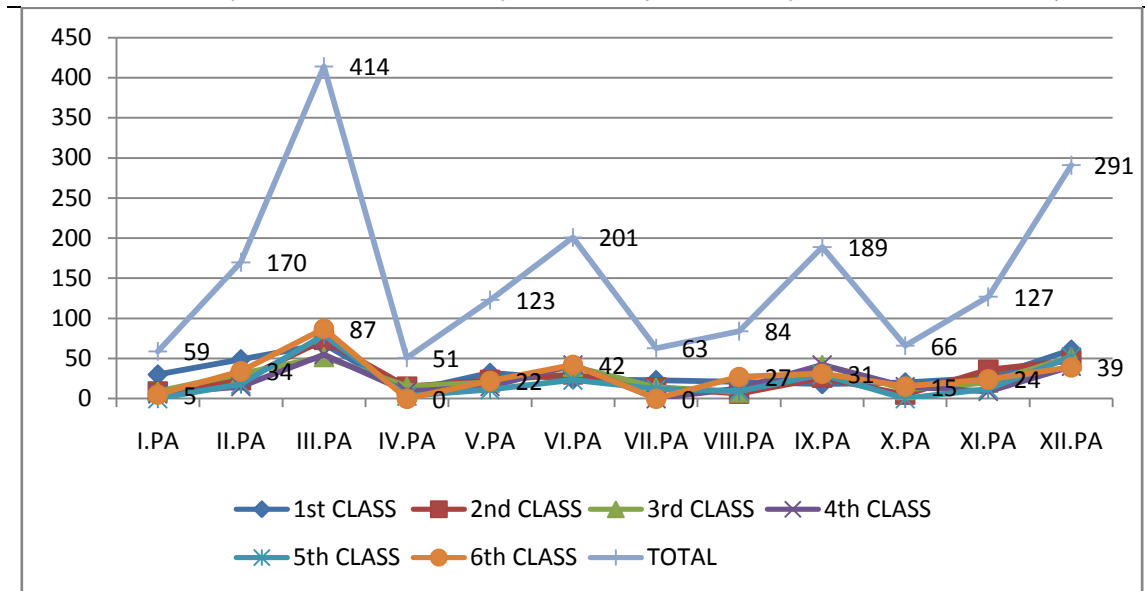


After applying the $x^2$ control to the categories of games played during the break by gender, area located in the school and the children's classroom, the following statistics emerged, as shown in the following table 7.

**Πίνακας 7:** control $x^2$(chi square) categories of playful activities by gender, region and class

| | | I.PA | II.PA | III.PA | IV.PA | V.PA | VI.PA | VII.PA | VIII.PA | IX.PA | X.PA | XI.PA | XII.PA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENDER | $X^2$ | ,000 | ,641 | 14,118 | 5,551 | 13,531 | 13,898 | 0,891 | 1,600 | 8,799 | 1,875 | 0,933 | 31,344 |
| | df | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 3 |
| | p | 1,000 | ,75 | ,001 | ,001 | ,001 | ,001 | ,312 | ,192 | ,001 | ,137 | ,406 | ,001 |
| AREA | $X^2$ | 7,468 | 1,235 | 1,254 | 2,05 | 4,63 | 49,583 | 1,65 | 7,88 | 1,063 | 28,564 | 19,188 | 32,247 |
| | df | 3 | 6 | 6 | 3 | 6 | 9 | 3 | 3 | 3 | 3 | 6 | 9 |
| | p | ,063 | ,975 | ,488 | ,561 | ,264 | ,001 | ,689 | ,064 | ,079 | ,001 | ,008 | ,001 |
| CLASS | $X^2$ | 42,33 | 43,92 | 77,89 | 16,68 | 30,33 | 69,87 | 28,97 | 19,85 | 49,55 | 19,25 | 37,32 | 75,95 |
| | df | 5 | 10 | 15 | 5 | 10 | 15 | 5 | 5 | 10 | 5 | 10 | 15 |
| | p | ,001 | ,001 | ,001 | ,006 | ,001 | ,001 | ,001 | ,001 | ,001 | ,004 | ,001 | ,001 |

I.PA: Functional solo     iV.PA: Creative solo     VII. PA: Symbolic solo     X.PA: Rules solo
II.PA: Functional parallel     V.PA: Creative parallel     VIII.PA: Symbolic parallel     XI.PA: Rules parallel
III.PA: Functional team     VI.PA: Creative team     IX.PA: Symbolic team     XII.PA: Rules team

*Categories of playful activities in relation to gender*
The statistical analyzes of Tables 5 and 6 revealed significant differences in the frequency with which boys and girls play in the various categories of playful activities. More specifically, differences are presented in the game categories "functional team" ($x2 = 14,118$, df = 3, p <0.001), "creative solitary" ($x2 = 5,551$, df = 1, p = 0.001), "creative parallel" ($x2 = 13,531$, df = 2, p <0.001), "creative group" ($x2 = 13,898$, df = 3, p <0.001), "symbolic group" ($x2 = 8,799$, df = 2, p <0.001) and "rules" group »($x2 = 31,344$, df = 3, p <0.001). In more detail, each category that differs with its observations is as follows:
• Boys were more involved in functional group play than girls were.
• Girls were more involved in creative solitary play than boys were.
• Girls have more records than boys who played a creative side game.
• Girls were more involved in creative team play than boys.
• In the symbolic group game category, girls are more involved than boys.
• In the category of group rule game the boys are much more involved, having more comments than the girls.

*Categories of play activities in relation to the school area*
From the statistical intersections of the variables, differences emerged in the recordings of the observations concerning the categories of playful activities in relation to the distribution area of the schools. More specifically, from Tables 5 and 7, differences are presented in the game categories "creative team" ($x2 = 49,583$, df = 9, p <0.001), "lonely rules" ($x2 = 28,564$, df = 3, p <0.001), "Parallel rules" ($x2 = 19,188$, df = 6, p = 0.008) and "group rules" ($x2 = 32,247$, df = 9, p <0.001). In more detail, each category that differs with its recordings is as follows:
• Students in urban areas are much less involved in creative team play than students in schools in other areas, while students in schools in rural areas are more involved.
• Urban students do not engage in solitary rule play
• Students in urban and semi-urban areas are less involved in playing the rules in parallel than students in other areas and especially in rural areas.
• The group rule games are played more by the students of the semi-urban and rural area than by those of the urban and suburban area.

*Categories of playful activities depending on the class*
From the statistical intersections of the variables, differences emerged in the recording of observations concerning the categories of playful activities in relation to the students'class. Looking at Tables 6 and 7 we notice that there are statistically significant differences in all categories of games in terms of student class. More specifically, differences are presented in the game categories "functional solitary" ($x2 = 42.33$, df = 5, p <0.001), "functional parallel" ($x2 = 43.92$, df = 10, p <0.001), "functional group "($x2 = 77.89$, df = 15, p <0.001)," creative solitary "($x2 = 16.68$, df = 5, p = 0.006)," creative parallel "($x2 = 30.33$, df = 10, p = 0.001), creative group "($x2 = 69.87$, df = 15, p <0.001)," symbolic solitary "($x2 = 28.97$, df = 5, p <0.001)," symbolic parallel "($x2 = 19.85$, df = 5, p = 0.001), "symbolic group" ($x2 = 49.55$, df = 10, p <0.001), "lonely rules" ($x2 = 19.25$, df = 5, p = 0.004) , "Parallel rules" ($x2 = 37.32$, df = 10, p <0.001) and "group rules" ($x2 = 75.95$, df = 15, p <0.001). In more detail, each category that differs with its recordings is as follows:
• First graders in elementary school engage in functional solitary play more than students in other grades.
• The majority of first graders are involved in functional parallel play more than students in other grades.
• In the category of functional group play, as we observe from tables 6 and 7, the students of all classes perform with the greater participation of those of the second grade and then those of the first and third grade.
• The creative solitary game is mainly played by the students of the first four grades of school.
• In the category of creative parallel play, as we observe from tables 6 and 7, the students of all grades perform, with the greater participation of those of the first grade and then those of the second grade.
• Older students prefer creative team play to younger students.
• The symbolic solitary game is preferred by the students of the younger -mainly- grades, first, second and third, as can be seen from tables 6 and 7.
• In the category of symbolic parallel play, the students of the first and sixth grade seem to perform more than the students of the other grades.
• Most of the recordings in the category of symbolic team play are from students, mainly middle school students.
• Most of the records in the solitary rules game category are from students in the first, third and sixth grades.
• In the category of parallel rule game we have the students of the first three grades, mainly, to deal with it more than the students of the other grades.
• The group rule game category, as shown in Tables 6 and 7, is preferred by students, mainly, of the three oldest classes.

*Non-play activities in the school break of primary schools*

From Tables 8 and 9 we find that the research team recorded a total of 1437 observations (100%) of non-play activities, which were made by the students of these schools during the break. 724 observations (50.6%) concerned boys and 713 girls (49.4%), another 592 observations (41.8%) were made in urban schools, 280 (18.7%) in suburban schools, 360 (25.1%) in semi-urban schools and 205 (14.4%) in rural schools. For the first class 188 (13.1%) comments were made, for the second class 170 (11.6%), for the third class 271 (18.8%), for the fourth class 255 (15.9) %), for the fifth grade 304 (212.3%) were made and for the sixth grade 279 observations were made (19.3%).

**Table 8**: table of frequencies and percentages of non - play activities in terms of gender and school distribution areas for the whole sample(f = 338 students 100%; 53 primary schools) during the break.

| | | GENDER | | | | | | AREA OF PRIMARY SCHOOLS | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | Boys | | Girls | | Total | | Urban | | Sub-urban | | Semi-urban | | Rural | | Total | |
| | | f | % | f | % | f | % | f | % | f | % | f | % | f | % | f | % |
| CATEGORIES OF NON PLAY ACTIVITIES DURING THE SCHOOL BREAK (POS, Rubin, 2001) | I. NPA | 77 | 5,5 | 19 | 1,3 | 96 | 6,8 | 42 | 2,9 | 19 | 1,3 | 21 | 1,5 | 14 | 1 | 96 | 6,7 |
| | II.NPA | 98 | 7 | 37 | 2,6 | 135 | 9,6 | 55 | 3,8 | 30 | 2,1 | 29 | 2 | 21 | 1,5 | 135 | 9,4 |
| | III.NPA | 71 | 5 | 75 | 5,3 | 146 | 10,3 | 67 | 4 | 19 | 1,3 | 42 | 2,9 | 18 | 1,3 | 146 | 9,5 |
| | IV.NPA | 54 | 3,8 | 127 | 8,8 | 181 | 12,6 | 81 | 5,6 | 33 | 2,3 | 43 | 3 | 24 | 1,7 | 181 | 12,6 |
| | V.NPA | 63 | 4,4 | 136 | 9,5 | 199 | 13,9 | 81 | 5,6 | 41 | 2,8 | 57 | 4 | 20 | 1,4 | 199 | 13,8 |
| | VI.NPA | 78 | 5,4 | 61 | 4,2 | 139 | 9,6 | 42 | 2,9 | 30 | 2,1 | 43 | 3 | 24 | 1,7 | 139 | 9,7 |
| | VII.NPA | 45 | 3,1 | 64 | 4,5 | 109 | 7,6 | 48 | 3,3 | 24 | 1,7 | 22 | 1,5 | 15 | 1 | 109 | 7,5 |
| | VIII.NPA | 44 | 3 | 77 | 5,4 | 121 | 8,4 | 60 | 4,2 | 13 | 0,9 | 34 | 2,4 | 14 | 1 | 121 | 8,5 |
| | IX.NPA | 92 | 6,4 | 19 | 1,3 | 111 | 7,7 | 54 | 3,8 | 23 | 1,6 | 19 | 1,3 | 15 | 1 | 111 | 7,7 |
| | X.NPA | 41 | 2,8 | 54 | 3,5 | 95 | 6,3 | 33 | 2,3 | 15 | 1 | 27 | 1,9 | 20 | 1,4 | 95 | 6,6 |
| | XI.NPA | 71 | 4,2 | 44 | 3 | 115 | 7,2 | 49 | 3,4 | 23 | 1,6 | 23 | 1,6 | 20 | 1,4 | 115 | 8 |
| | TOTAL | 724 | 50.6 | 713 | 49.4 | 1437 | 100 | 592 | 41.8 | 280 | 18.7 | 360 | 25.1 | 205 | 14.4 | 1437 | 100 |

I. NPA: Fighting game, II. NPA: Competition, III. NPA: Anxiety, IV. NPA: Active dialogue, V. NPA: Transition, VI. NPA: Observer behavior, VII. NPA: Non- aligned activities, VIII. NPA: Reading, IX.NPA: Exploration, X.NPA: Non playful situation, XI.NPA: Nothing, co-operative with teacher
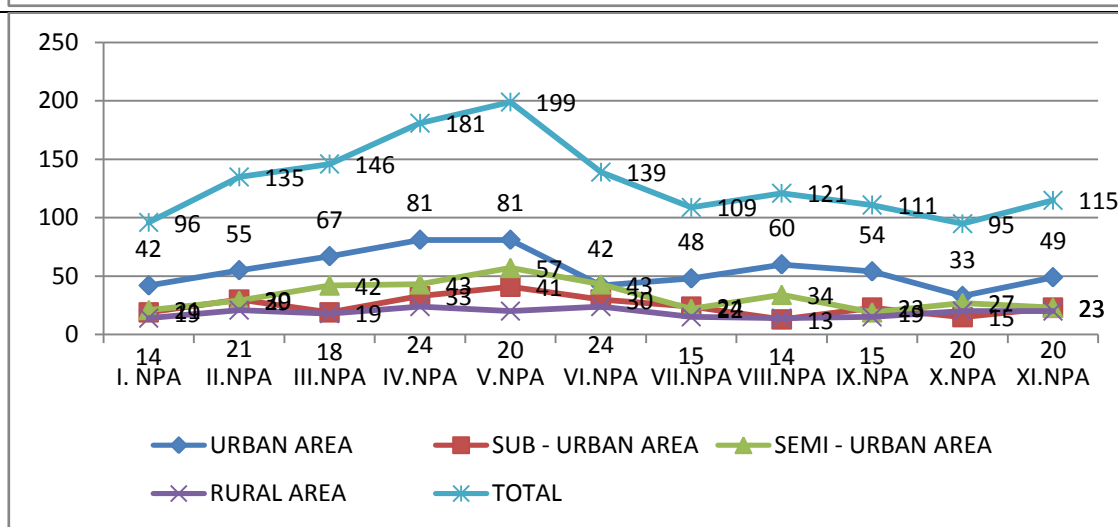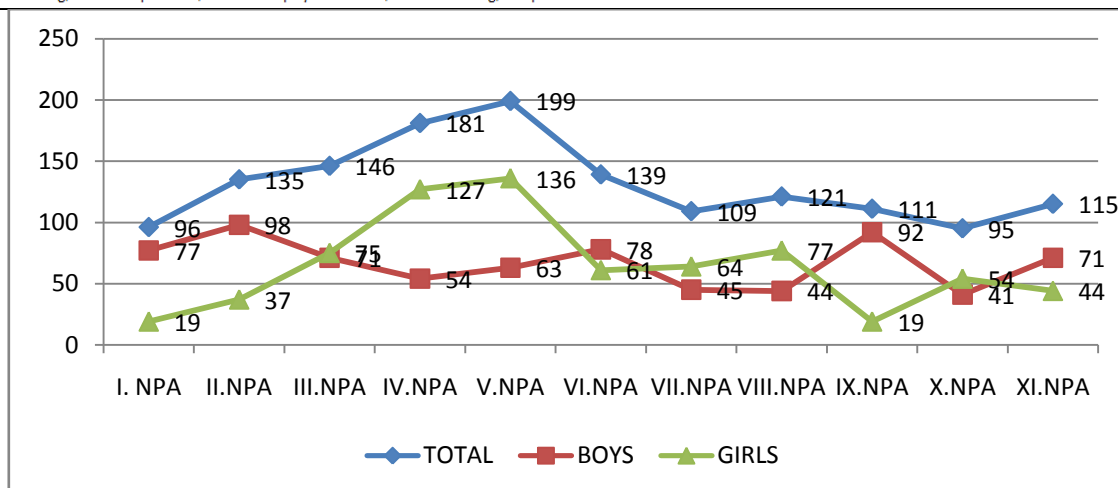
**Table 9**: table of frequencies and percentages of non-play activities in relation to the grades of the primary school for the whole sample(f = 338 students 100%; 53 primary schools) during the break of the Greek primary school.

| | | 1ST Class | | 2ND Class | | 3RD Class | | 4TH Class | | 5TH Class | | 6TH Class | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | f | % | f | % | f | % | f | % | f | % | f | % | f | % |
| CATEGORIES OF NON PLAY ACTIVITIES DURING THE SCHOOL BREAK (POS, Rubin, 2001) | I. NPA | 14 | 1 | 23 | 1,6 | 28 | 1,9 | 9 | 0,6 | 13 | 0,9 | 9 | 0,6 | 96 | 6,6 |
| | II.NPA | 17 | 1,3 | 19 | 1,3 | 37 | 2,7 | 25 | 1,8 | 20 | 1,4 | 18 | 1,2 | 135 | 9,7 |
| | III.NPA | 24 | 1,7 | 28 | 1,9 | 29 | 2 | 10 | 0,7 | 34 | 2,4 | 21 | 1,5 | 146 | 10,2 |
| | IV.NPA | 18 | 1,2 | 6 | 0,4 | 29 | 2 | 37 | 2,7 | 46 | 3,2 | 45 | 3,1 | 181 | 12,6 |
| | V.NPA | 20 | 1,4 | 12 | 0,8 | 41 | 2,8 | 35 | 2,4 | 43 | 3 | 48 | 3,3 | 199 | 13,7 |
| | VI.NPA | 20 | 1,4 | 16 | 1,1 | 35 | 2,4 | 21 | 1,5 | 28 | 1,9 | 19 | 1,3 | 139 | 9,6 |
| | VII.NPA | 8 | 0,5 | 12 | 0,8 | 9 | 0,6 | 21 | 1,5 | 30 | 2,1 | 29 | 2 | 109 | 7,5 |
| | VIII.NPA | 0 | 0 | 0 | 0 | 12 | 0,8 | 29 | 2 | 38 | 2,8 | 42 | 2,9 | 121 | 8,5 |
| | IX.NPA | 28 | 1,9 | 18 | 1,2 | 21 | 1,5 | 14 | 1 | 19 | 1,3 | 11 | 0,8 | 111 | 7,7 |
| | X.NPA | 24 | 1,7 | 13 | 0,9 | 9 | 0,6 | 13 | 0,9 | 24 | 1,7 | 12 | 0,8 | 95 | 6,6 |
| | XI.NPA | 15 | 1 | 23 | 1,6 | 21 | 1,5 | 11 | 0,8 | 9 | 0,6 | 25 | 1,8 | 115 | 7,3 |
| | TOTAL | 188 | 13,1 | 170 | 11,6 | 271 | 18,8 | 225 | 15,9 | 304 | 21,3 | 279 | 19,3 | 1437 | 100 |

I. NPA: Fighting game, II. NPA: Competition, III. NPA: Anxiety, IV. NPA: Active dialogue, V. NPA: Transition, VI. NPA: Observer behavior, VII. NPA: Non- aligned activities, VIII. NPA: Reading, IX.NPA: Exploration, X.NPA: Non playful situation, XI.NPA: Nothing, co-operative with teacher
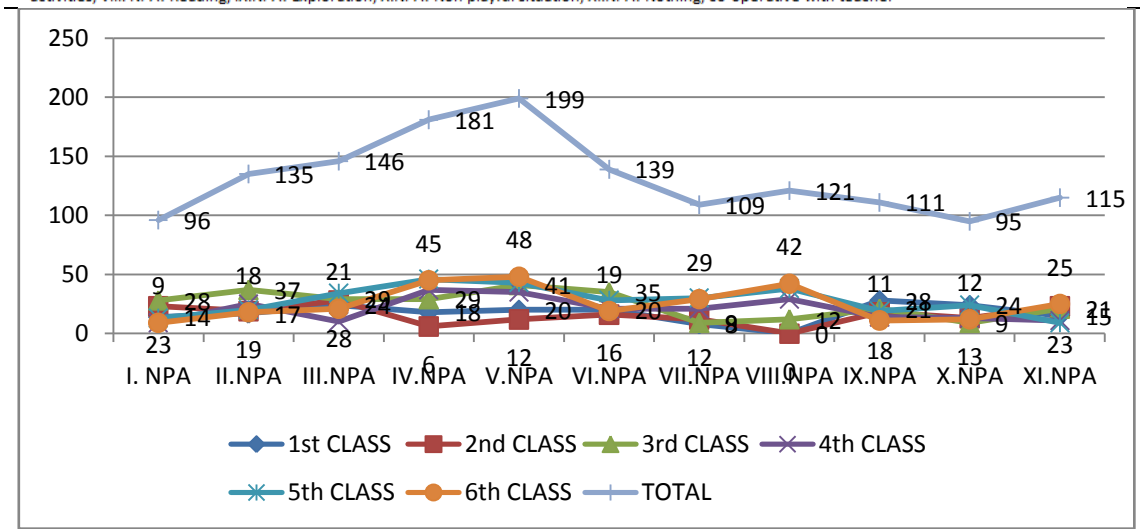


After applying the x2 control to the categories of games played during the break by gender, area located in the school and the children's classroom, the following statistics emerged, as shown in the following table 10.

**Table 10:**control x$^2$(chi square) categories of non-play activities by gender, region and class

| | | I.PA | II.PA | III.PA | IV.PA | V.PA | VI.PA | VII.PA | VIII.PA | IX.PA | X.PA | XI.PA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENDER | X² | 34,08 | 29,86 | 0,04 | 43,07 | 50,38 | 2,99 | 2,55 | 12,94 | 46,79 | 1,04 | 3,53 |
| | df | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 3 | 2 | 1 | 1 |
| | p | ,001 | ,001 | ,952 | ,001 | ,001 | ,223 | ,110 | ,005 | ,001 | ,307 | ,060 |
| AREA | X² | ,793 | 3,40 | 3,89 | 10,91 | 23,18 | 17,42 | 2 | 13,05 | 8,85 | 3,46 | 4,11 |
| | df | 3 | 3 | 3 | 6 | 6 | 6 | 3 | 9 | 6 | 3 | 3 |
| | p | ,851 | ,333 | ,279 | ,091 | ,001 | ,008 | ,572 | ,160 | ,180 | ,326 | ,249 |
| CLASS | X² | 12,23 | 11,40 | 16,93 | 88,75 | 73,71 | 16,97 | 28,23 | 115,31 | 11,74 | 6,20 | 7,50 |
| | df | 10 | 10 | 5 | 10 | 10 | 10 | 5 | 15 | 10 | 5 | 5 |
| | p | ,060 | ,289 | ,005 | ,001 | ,001 | ,075 | ,001 | ,001 | ,303 | ,287 | ,156 |

I. NPA: Fighting game, II. NPA: Competition, III. NPA: Anxiety, IV. NPA: Active dialogue, V. NPA: Transition, VI. NPA: Observer behavior, VII. NPA: Non- aligned activities, VIII. NPA: Reading, IX.NPA: Exploration, X.NPA: Non playful situation, XI.NPA: Nothing, co-operative with teacher

*Categories of non-playful activities related to gender*
Tables 8 and 10 show significant differences in the frequency with which boys and girls engage in non-playful activities. More specifically, differences are presented in the activities "fighting game" (x2 = 34.080, df = 1, p <0.001), "competition" (x2 = 29.866, df = 1, p <0.001), "active dialogue" (x2 = 43.072 , df = 2, p <0.001),

"transition" ($x2 = 50.387$, df = 2, p <0.001), "reading" ($x2 = 12.943$, df = 3, p = 0.005) and "exploration" ($x2 = 46,797$, df = 2, p <0.001). More detailed from the observation of Tables 8 and 10, it appears that:
• Boys are much more involved in a fight game than girls are.
• In competitive situations boys have more participation than girls.
• Girlsare more engaged than boys in the "active dialogue" category.
• Girls are more involved in the activity of moving from one area to another than boys.
• Girls are more involved in reading activity during the break than boys.
• Exploration is the activity in which boys are more engaged than girls.

*Categories of non-play activities in relation to the area of the students' school*
From the above table 10 there is a significant difference in the records of observations concerning the activity of the transition from one area to another of the space ($x2 = 23.180$, df = 6, p = 0.001) and the activity of behavior as an observer ($x2 = 17.429$, df = 6, p = 0.008), as to the distribution area of the observed schools. More specifically, the differentiation is as follows:
• The students of the urban area, mainly and secondarily the students of the semi-urban area, are more engaged in the activity of moving from one area to another during the break than the students of the other school areas.
• The students of the semi-urban area, mainly, have an observer's behavior during the break to a greater extent than the other students of the other areas.

*Categories of non-play activities depending on the class of children in school*
Differences are presented in the activities "active dialogue" ($x2 = 48.012$, df = 10, p <0.001 and $x2 = 88.754$, df = 10, p <0.001), "transition" ($x2 = 38.533$, df = 10, p <0.001 and $x2 = 73.714$, df = 10, p <0.001), "non-engaging activities" ($x2 = 20.691$, df = 10, p = 0.023 and $x2 = 28.237$, df = 5, p <0.001), and "reading" ($x2 = 59.316$, df = 15, p <0.001 and $x2 = 115.310$, df = 15, p <0.001), as observed in Table 10. Significant variation is also recorded in the "stress" activity ($x2 = 16.932$, df = 5, p = 0.005).

**Case control**
In the present study, four hypotheses were made as initial assumptions, which had to be investigated and verified.In the first case we consider that playful situations appear in all categories of play. During the investigation, from the researchers' observations, playful situations were recorded in all categories of play, thus verifying the specific hypothesis.The second hypothesis speaks of a difference in the playful situations that occur according to the gender of the students, which was verified by the research, as boys were found to play significantly more in functional team play and group rules play than girls, while, on the contrary, girls are much more involved with creative team play, symbolic group play, creative solitary play and creative parallel play than boys. Continuing in the second hypothesis, we consider that there is no differentiation in the playful situations that occur depending on the distribution areas of the schools. Although our hypothesis has been substantiated to a large extent by research and statistical analysis, there has been little difference in the fact that urban students are less involved in group creative play and solitary rule play and semi-urban and rural student's area play more than students from other areas group rule games. In this case we consider these findings to be random and that their presence is due to unforeseen factors that in some way affected specific records, such as e.g. the weather conditions that prevailed at the specific time of the observation in a specific place, which forced the students to spend their break indoors and not in the yard. In the second hypothesis we consider that there is a difference in the playful situations that appear depending on the class of the students. Research has shown that students in the lower grades are more involved in symbolic solitaire, parallel rule games, and especially all types of functional play while those of the older classes are more involved in rule group play, creative team play, and symbolic parallel,findings which verify our hypothesis.During the investigation, non-playful situations were recorded from the researchers' observations during the break, thus verifying the third hypothesis.

In the fourth hypothesis we assume that there is a difference in the non-playful situations that occur depending on the gender of the students. A hypothesis that was verified, after the research showed that boys are much more involved in fighting game, competitive activities and exploration than girls, while girls are more interested in reading during the break, moving from one area of the space in another and the active dialogue.Following the fourth hypothesis, we consider that there is no differentiation in the non-playful situations that occur depending on the distribution areas of the schools. In this case, too, the hypothesis is verified to a great extent, since, from the research and the analysis of the findings, it was found that from the eleven non-playful situations, in one of them (transition from one area to another of the area during students in one of the four areas (urban) performed more than students in the other three areas, and in another (observer's behavior) students in schools in the semi-urban area performed more than the students of the schools of the other three districts. In this case, too, we consider these findings to be coincidental and that their presence is due to unforeseen factors, as mentioned above. According to the fourth hypothesis, there is a difference in the non-

playful situations that occur depending on the class of the students. The statistical analyzes showed that the students of the upper classes of the primary school - fourth, fifth and sixth -are engaged in the activities of active dialogue, reading, moving from one area to another and in non-aligned activities much more than the students of the first three school classes. Also, the students of the third and fifth grade showed more anxiety manifestations than the other students.

## IV. Discussion, conclusions, suggestions

Many studies to date (Fjørtoft, 2004; Dyment, O 'Connell, 2013; Brussoni, Ishikawa, Brunelle, Herrington, 2017; Storli, Hansen Sandseter, 2019) have used a game typology to investigate the categories of children's play engagement in relation to the ecological space, that is, external, cultural, social, space where the games take place. Many of the above studies often use a previously developed game type scale (or some adaptation of it) and the most common of these is the Rubin Monitoring Scale (Roubin, 1989 & 2001; Karadimitriou, 2007; Roubin 2008). The Rubin observation scale is the standardization of game forms that has been used or adapted most frequently in recent studies to categorize the observed game types. According to Rubin himself (1989) he states that it is based on the four categories of cognitive game originally set by Smilansky (1968) (functional game, creative game, dramatic game and rule games) but functions to place these game categories more specifically within the hierarchy of social play developed by Parten (1932) to describe the successive evolution of social participation or peers among preschool children. Parten (1932) described how very young children moved from solitary play and spectator's behavior to parallel play with peers around the age of 2 ½ to 3 ½, and finally to companionship and cooperative play before the age of 5. The Rubin Game Observation Scale (POS / Play Observation scale, 2001) was designed in part to be able to study children's socio-emotional development and to identify children who are socially or aggressively withdrawn and may be at risk for future psychological difficulties.

From the recordings of the observations of the research team regarding the playful activities of the elementary school students during the break in the school yard, it is observed that the functional group game is the one that gathers the most recordings followed by the group rule game, the creative group game and the symbolic team game. Following is the parallel game of all categories, functional, rules, and creative, symbolic and follows the solitary game, rules, symbolic, functional and creative one.

This type of functional game imprints the physical activity of play that is mainly physical and intense motor in nature, that is, thechildren's physicaltest as well as their physical abilities, basic motor and athletic skillswhich are decisive factors in both the manifestation and the successful realization of the game. Sometimes these games are categorized as motor game or movement games (hunting, running, climbing, traditional games, dance, etc.).This form of play allows children to explore and improve their physical abilities, to understand their body and develop strength, dexterity, agility, balance and flexibility (Campbell & Frost, 1985; Frost, Wortham& Stuart, 2012; Yogman, et al. 2018). Functional game features activate large muscle systems, or functional games that involve fine movements and hand-eye coordination through gripping, grasping and flying, moving and handling small objects and tools, activating smaller muscle groups (Haibach-Beach, Reid & Collier 2018). An important role in this type of game is played by the involvement of the vestibular instrument (ear), for skills of balance, rotation and displacement. Through such play, children feel and explore their position and movement in space and time and improve balance and motor control (Kampas, 2019). The functional game with the participation of movements that strongly activate the vestibular organ (rotations, displacements) have been associated with the development and basic evolution of knowledge - skills concepts related to orientation in space (Wiener-Vacher, Hamilton & Wiener, 2013). According to Brown (2009) research on brain development confirms that motor play enhances learning, creativity, flexibility, adaptability and resilience.

In terms of gender, functional team play comes first in the preferences of both boys and girls. The results of the present study are consistent with those of other studies (Michailidou, 2019; Christidou, et al. 2013; Bundy, et al. 2009; Thomson, 2007; Verstraete, et al. 2006; Boulton, 1992; Blatchford, et al. 1990 ) which have as a common factor the selection of the functional team game that has to do with running, chasing, variations of the chase, variations of sports activities, such as football, basketball and handball (with the object of plastic bottles, clothes, pieces of wood, etc. .). Functional group play (chasing, running, athletic variations) causes participants to have fluctuations in heart rate and respiratory function, procedures that strengthen physical and mental health as well as social adequacy and cognitive development (Baquet, Aucoufurier, Gamel&Berthoin, 2018).

This is followed by the rules team game, the creative team game and the symbolic team game. The group rule game which was found second in the students' ranking in the present study confirms Boulton's (1992) research, according to which eleven-year-olds participated more in rule games, rarely in other mass games and never in fantasy games. Some activities, such as football, started from the first break and continued until the end of the last break. As in the present study, children spent most of their break time playing games with rules, followed by social activities.

According to many scholars (Whitebread, et al. 2017; Baquet, Aucoufurier, Gamelin&Berthoin, 2018), rules playis defined as any play activity by two or more children, where there is an agreed set of rules governing the activity. Children from a very young age seek and try to feel both their physical and social world, and so their attention to the game goes through the establishment and observance of rules, which then constitute an important factor in the outcome of the game (Whitebread, et al. 2017) This type of game can often take the form of conventional games, such as football, handball, volleyball and variants of them, thieves and cops, where there is a predetermined set of rules that is understood by all players. However, it also includes variation scenarios that children invent, constantly negotiate, and modify the rules of the game. For example, a group of children may collectively decide to play policemen or thieves and establish a complex set of rules that dictate how and where police officers can chase and catch the bad guys. While this game is also fantastic, thebasic element captured by this type of game is the process of negotiating and complying with a set of game parameters.

The creative team game follows third in line in the children's break. The creative play type is used to describe playful interactions with the environment where the child explores or manipulates the properties of an object or environment, either in a learning ability based more on aesthetic purposes or on a goal set in children. Children have an innate tendency to be curious about objects and the world around them (Kieff, Casbergue, 2017). Early and late childhood children are attracted to them and learn through their interaction with them motivated by their curiosity (Kieff, Casbergue, 2017). The child actively builds or forms something from environmental materials, such as a sand castle or a fortress. Through such exploratory activities children learn not only about the physical and spatial properties of their environment, but also about their own ability to manipulate objects or environments towards an inherent goal or to solve a problem (Pellegrini, Smith, 2001; Brown, 2009 · Kieff, Casbergue, 2017). A feature of this type of game is that children use as play equipment, useless materials such as cardboard, cardboard boxes, wooden boards. The children used this material in many new ways, increasing their levels of physical activity and many times have touched the functional game by running, jumping, lifting, and handling the object. In this game many children participated became more flexible and social. These characteristics that were presented in the creative team game are described by Bundy et al., (2009) in their research. Skills developed during creative play, such as sensory observation, understanding of cause-and-effect relationships, are important for cognitive development, stimulate creative thinking, spatial reasoning and problem solving, which are also considered, important in the learning of logic-mathematics, natural concepts and the sciences in general (Vygotsky, 1978; Burdette, 2005; Pellegrini, Smith, 2005; Nath, Szücs, 2014).

In the symbolic game, a child can takea real object in the environment as a substitute, as a transport of a pretense object and "animate" it in a way, as an example of a chair being the cockpit of a racing car. The symbolic game can also be a socio-dramatic game. A child imitates a social, domestic or interpersonal role that could be experienced as an adult, such as a girl pretending to be a mother who tidies up, cooks,and takes care of the children. This form of play allows children to enter the adult world, experiment with social tools and the roles of culture, and safely try on different roles to understand their nature and appropriateness (Frost, Wortham&Reifel, 2012; Kieff, Casbergue, 2017). Children often incorporate into the symbolic game various narratives, fictional stories that support the development of impending knowledge and language skills (Nikolopoulou, McDowell &Brockmeyer, 2006; Kieff, Casbergue, 2017).

But what makes the significant difference is the percentage of boys and girls who play games. Thus, the functional group game, which comes first in the preferences of both sexes, is played by boys and girls, as well as the group rule game, the creative group game and the symbolic group game. Significant differences are also observed in the solitary creative game, and in the creative parallel game, which is played by 5% of boys and 9% of girls.

As for the area in which the schools are located, the picture does not differ, with the group functional game occupying the first place here, followed very closely by the group rules game, and subsequently the creative group game and the symbolic group game. The statistical analysis showed that students in the urban area are less involved in group creative play, as well as solitary rule play, students in semi-rural and rural areas play group rule games more than students in other areas, while students in the rural area play less rule games. Urban and semi-urban areas are less involved than other students with parallel rule play. A study (Thomson, 2007), conducted on students in urban, semi-urban and rural schools in England, found that during their play, children used irrelevant things in the yard environment as equipment for their toys, such as benches, boxes, clothes etc., something that was also observed in the functional game of the children in the present research.

As for the class, the research group records and statistical analyzes showed that the students of the younger classes are more involved in the symbolic solitary game, the parallel game of rules and especially with all kinds of functional game with those of the first class being more concerned with the functional solitary and functional parallel. Middle, third, and fourth graders are more concerned with symbolic group play and creative solitude than other students, while seniors are more concerned with creative group play and symbolic parallel.

For non-playful activities, according to the observations of the research team, the non-playful activity with the highest record is that of moving from one area of the space to another, followed by active dialogue, the presence of stress, behavior as that of an observer, the competition, reading, non-engaging activities, other non-playful situations, exploration, fighting game (rough and tumble) and, finally, something else that is not part of the non-playful situations. Research in the Greek scientific field has to do with the non-playful activity (Rubin, 2001), the fight, or the wild-hardgame (rough and tumble) during the break in the kindergarten according to them (Koustourakis, Rompola, &Asimaki (2015), also with the specific non-playful activity in the elementary school (Robola, 2018). Boys were more likely to engage in harsher forms of fighting games, while there was no gender difference in the milder forms of hard and dynamic games.The fighting game observed by the research team involved children's actions, such as physical contact games most often and blows without force (punches and kicks), pushing and pulling between children without force and with laughter, fighting and fighting games until the teammate falls to the ground, the children are stacked on top of each other, creating a pile of games that include slaps with open palms in the air or a light touch on the other child's face. This type of playful activity according to Robola (2018)'s work is recorded in the Roubin (2001) game typology as a non-playful activity. The non-playful activity of the fighting game in the present study ranges from 3% to 10% of the total occurrence of non-playful activities during the break, which is in line with Robola (2018) research on the Greek reality during elementary school break. The importance of this non-playful activity for some researchers (Pellis, Pellis, Bell, 2010; Brussoni, et al. 2015) lies to the fact of enhancing the social development of the participating children.

In terms of gender, the activity of competition occupies the first place for boys, followed by exploration, student behavior as an observer, fighting game, the manifestation of stress, the transition from one area of space to another, another occupation that is not recorded as non-playful, active dialogue, non-engaging activities, reading and, finally, other non-playful activity. In girls, the first place is occupied by the transition from one area of the space to another, followed by active dialogue, reading, stress, non-engaging activities and behavior as an observer, other non-playful activity, competition, exploration and fighting game. The statistical analyzes showed that boys are much more involved in fighting game, competitive activities and exploration than girls, while girls are more interested in reading at break, moving from one area of space to another and active dialogue. In the Greek scientific field, the research of Michailidou, (2019) showed that the boys were obviously more mobile than the girls, who remained in the periphery of the yard talking or walking and what's more that the children, in addition to playing, were engaged in other activities such as discussion, walking in the yard, reading books and exchanging collections. The results of the research of Michailidou (2019) are in complete agreement with the results of the present research.

Regarding the area where the schools are located, there was no difference in the distribution of non-play activities compared to the general distribution as described in the first paragraph of this subsection, but it was observed that students in the urban area are more engaged in the transition activityfrom one area to another during the break in relation to the students of the other areas, as well as that the students of the schools of the semi-area have the observer's behavior to a greater extent than the students of the schools of the other areas.

In terms of the classroom and the statistical analyzes, it was shown that the students of the upper grades of primary school - fourth, fifth and sixth - engage in activities of active dialogue, reading, moving from one area to another and in non-aligned activities, such as looking at the space, walking aimlessly, doing something mechanical, etc. much more than the students of the first three grades of school. Third- and fifth-graders also had more anxiety than other students, which may have to do with thinking about their lessons or with upcoming lesson tests the next hour in the classroom, as third and, above all, the fifth grade are considered as "the most difficult grades" for students because of the subjects they are called tobe taught for the first time.

Playful activities in the school yard are an opportunity to develop social, emotional and cognitive skills among peers (Pellis, Pellis, Bell, 2010; Brussoni, et al. 2015). In addition, the shape of the school yard, the politics and the morals of the school influence the play and the relations between the peers. A full understanding of the processes involved in peer influence during the game can be the subject of research that examines interactions during the game during the break. Playful situations also play an important role in children's relationships, the functioning of groups, friendships and are situations in which children can discover things about their friends, classmates and themselves. The ways and conditions under which group friendships are established, their characteristics, their management in terms of their support and maintenance are another important and topical subject of study.

The present research was deemed necessary to examine the degree of development of playful activity, quantitatively and qualitatively, during the school break in the formal educational program. The contribution of the aforementioned activity to the motor, social development and emotionality through strengthening the children's self-esteem and self-confidence, but also the supply of knowledge is important and crucial, as well as the pedagogical action and its approach by the teacher. Despite the extensive literature on play and its contribution to students' social development (Gallahue, 2002; Zimmer, 2007; Zaragas, 2012; Zaragas, 2016), the

relationship between school break and play activity in it remains a matter of research for the various types of play and the correlations between playful activity and the teachers' pedagogical action. In addition, with motor activities and skills (functional play) occupying a large part of children's performance and daily life in the school yard, they should be examined with more research tools that they will offer opportunities to identify motor, social difficulties and problems. The schoolyard is the school space, which provides more opportunities for free play compared to the classroom (Pellegrini, Huberty& Jones, 1995; Pellegrini &Bjorklund, 1997; Blatchford, 1998), is a "social welfare classroom" (Pellegrini, Huberty& Jones, 1995). Children through play during the break in the school yard through a specific space-time and at the same time essential school context learn to handle situations of conflict, anger, aggression (Couper, 2011).All this can be taught and strengthened with the school yard to be the ideal place for monitoring these behaviors.

Taking into account the limitations of the research, the varied contribution of the play activity and the research gaps identified, it is proposed a further investigation and exploitation of these aspects during the school break. In particular, the implementation of educational programs should include studies on playful activity during school education, propose new ways of approaching student activity during the break, study in more detail the method of classical observation by practicing teachers during the break while research should focus on aspects that have not been studied as thoroughly as the elements of motor development, social competence and children's emotionality. It is necessary to bring to the surface more and more views, studies and material related to the activity of students during the school break as it is a rich resource that can be used pedagogically and contribute to thechildren's holistic development.

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