

Case study report 1: Make a Game (for) 2

1. Partner

Partner name: FORTH

Objectives: To study:

- (a) If a very long, intensive and fast-paced design workshop can be engaging and fun for children.
- (b) Various aspects of the collaboration between parents and their children in such a context.
- (c) If (and how) such an experience differs between adults and children.
- (d) If there is any correlation between the profile of a child as measured by the Science Capital questionnaire and the perceived fun and engagement as measured by the FUNQ questionnaire.

Case selection: The topic of the workshop (introduction to board game design) was used as a means to introduce and enhance "computational thinking", which allows analysing, understanding and solving complex problems in a systematic, scientific way. Furthermore, board games support learning and also exercise several cognitive, visual and motor skills. They also actively help to develop the so-called "soft" or 21st century skills (collaboration, teamwork, adaptability, flexibility, time organization and management, determination, creativity, critical thinking, patience and persistence, curiosity, imagination, etc.).

2. Abstract

Contribution: Adults and children can have equally highly fun and engaging shared educational experiences. Creative activities and fun play a catalytic role in sustaining the constant attention of participants of any age, irrespectively of the (long) duration, fast pace and high mental demand of an educational activity.

Background: This case study covers a 3-hour workshop conducted in the context of the "Computing At school Festival 2019" in Heraklion, Crete, Greece. The Festival (www.digifest.info) is organized all over Greece and comprises several activities, including student presentations of their projects, workshops and lectures. The workshop was entitled "Make a Game (for) 2" and was targeted to groups consisting of one parent / adult and 1-2 children 9+ years old. Participants, were introduced (through creative activities and a lot of playing) to the basic elements and steps for designing a 2-player board game and designed their own game, while at the same time trained their soft skills and computational thinking.

Research Areas/Questions: *See the Objectives in previous section.*

Methodology: Observation and field notes, photographing of creative outcomes, Science Capital questionnaire and FUNQ questionnaire including fun-o-meter.

Findings: A 180'-minute learning activity without any break can be designed to be engaging and fun both for children and adults and manage to keep the participants' focus and undivided attention until its very last minute.

3. Method

3.1. Overview and context

When the study was done: 13 April 2019

Where: Heraklion, Crete, Greece

Setting: Non-formal (see Figure 1 below); a space in a cultural center which is used for lectures and experimental theatrical plays; chairs and large tables were placed in the ground area of the space for the participants, while people who wanted just to observe could freely come in or leave at any time and sit on the wooden stairs or chairs located around the ground area. In front of the tables there was a big projection

screen used by the presenter / facilitator. Each table could accommodate up to 6 participants, who were working in pairs.



Figure 1. Setting of the activity

Type of activity: Making & playing using only physical materials.

3.2. Participants

Participants: 20 children / 20 parents/ 1 facilitator

Age of children: 9 – 15 (all parents were in the range of 41 – 50 years old)

Gender of children: 11 male, 9 female (parents were 5 male, 10 female)

Language: Greek

Background of participating children: No particular background. There were no prerequisites (other than the minimum age).

Background of facilitator(s): The facilitator is also the creator of the workshop, as well as of a methodological approach for introducing creative thinking and fun in learning activities. Using this approach, in the past five years he has developed and delivered workshops and events that introduce the concepts and practice of creativity, design, and design thinking to children, parents, teachers and the general public. Up to now, he has run more than 60 workshops in 5 different countries with a total of about 3500 participants, in venues ranging from small classrooms to auditoriums with audiences from 10 to 300 people, including students of all ages, parents, educators and the general public.

Selection process: There was an open call for participation. People who would like to participate filled in a web form. Participants were selected on a first come first serve basis.

3.3. Procedure

Number of occurrences: One time workshop.

Duration: 3 hours, no break.

Phases and schedule: The workshop was structured as follows.

- In the first 10 minutes, the topic of the workshop was introduced, the materials and the way that participants will work.
- During the next 40 minutes, participants learned about the history of board games and actively engaged (using the printouts and design kit materials) with two ancient games. In this context, they also learned about different types of dice (and created some) and came up with ideas and solution for some problems they identified while playing.
- The next 20 minutes were dedicated to having participants “discover” (through a guided exploratory experience) what makes a “game”. They were also introduced to key components of a board game, as well as to some high-level guidance related to what makes a ‘good’ game.
- Then, a very fast-paced 70 minute session was held, which included a series of prompting presentations lasting 2-3 minutes, followed by design sessions of 4-5 minutes and subsequently 2-3 minutes of group presentations and discussion. Participants started with a trivial boring racing game comprising a single path with 5 tiles and evolved it, step by step (while learning about concepts such as obstacles, conflict, luck, surprise, strategy, asymmetrical powers, etc.) to a complex, interesting and unique board game.
- In the next 30 minutes, alternative movement mechanisms to dice were introduced, experienced and experimented with, as well an alternative genre of board game.
- The last 10 minutes were dedicated to a recap of the key points of the workshop, advice, pointers to activities and materials for those wishing to further learn about the topic and a request to fill in the questionnaires.

Group work / individual work: Participants were working in pairs (parent/child), but were also allowed and encouraged to interact with other people around their table (or anywhere in the room).

Type of facilitation: The facilitator has several roles. He is presenting information and sets tasks to be undertaken by the participants. While participants are working on a particular task, he acts as a helper walking around the room, answering to questions, making suggestions and vocalizing prompts or supportive comments. When a task is completed, the facilitator mediates a quick session during which participants present their ideas, comments, observations, etc.

Instructions to participants: The workshop includes 17 hands on activities, including playing ancient board games, experimenting basic board game mechanisms, and designing a new board game. Depending on the type of the activity appropriate (but always very brief) instructions were given (e.g., in case of a board game, the rules; in case of a design problem, a starting condition and a question to explore; in case of ideation, a design context).

Use of research instruments: During and after the workshop the facilitator kept field notes regarding several aspects including audience participation, reactions, collaboration, questions or problems raised, comments and conversations after the end of the workshop, follow-up feedback by the parents and the organizers. During the workshop creative outcomes of the activities were photographed.

At the end of the workshops children filled in a printed Greek version of the Science Capital questionnaire, as well as a printed Greek version of the FUNQ questionnaire (created in cooperation with Technische Universiteit Eindhoven) which also included a “fun-o-meter” (Figure 2) where they had to draw a line at the level of fun they had (it goes from 'Boring' to 'A Lot of fun').

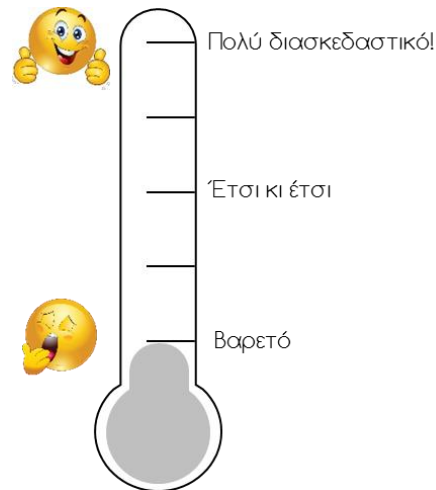


Figure 2. “Fun-o-meter” included in FUNQ questionnaires (goes from 'Boring' at the bottom, to 'A Lot of fun' at the top).

Parents also filled in the FUNQ questionnaires with 2 minor changes:

- Instead of exact age, the age range was asked.
- Question 22 'I forgot about school.' was adapted to 'I forgot about work'.

3.4. Resources

What materials were used and why were they chosen:

The facilitator used a laptop, a projector, a large projection screen, speakers and a microphone. A wireless microphone was also available for audience participation.

Each (parent/child) team was provided with:

- (a) A set of printed pages (see Figure 3) which included:
 - 4 ancient board games boards (2 Egyptian, 1 Greek, 1 Roman).
 - A printed Greek version of the Science Capital questionnaire and a printed Greek version of the FUNQ questionnaire (annotated with the word KIDS).
 - A printed Greek version of the FUNQ questionnaire (annotated with the word PARENTS).
 - Information about the COMnPLAY Project and the app, and related links.
 - Workshop notes to be used for reminding key points of the workshop (to be used at home, not during the workshop).

All questionnaires of the same set were numbered with the same id, in order to be able to anonymously correlate the data collected from all 3 of them.

- (b) A mini board game design kit (Figure 4), which included the following materials:

40 tiles 5 x 5cm from thick white cardboard

40 tiles 5 x 5cm from thick grey cardboard

20 cards 6 x 9cm from white cardboard

1 white + 1 black wooden die

8 black + 8 white + 1 red + 1 blue pawn

5 red + 5 green wooden cubes 10mm

1 wooden cube 2cm

- 4 crafts sticks 11.8 cm
- 7 shells
- 2 sticks 1.5 x 1.5 x 8 cm
- 1 knucklebone
- 5 white beans
- 1 pen
- 1 pencil
- 1 eraser
- 1 sharpener

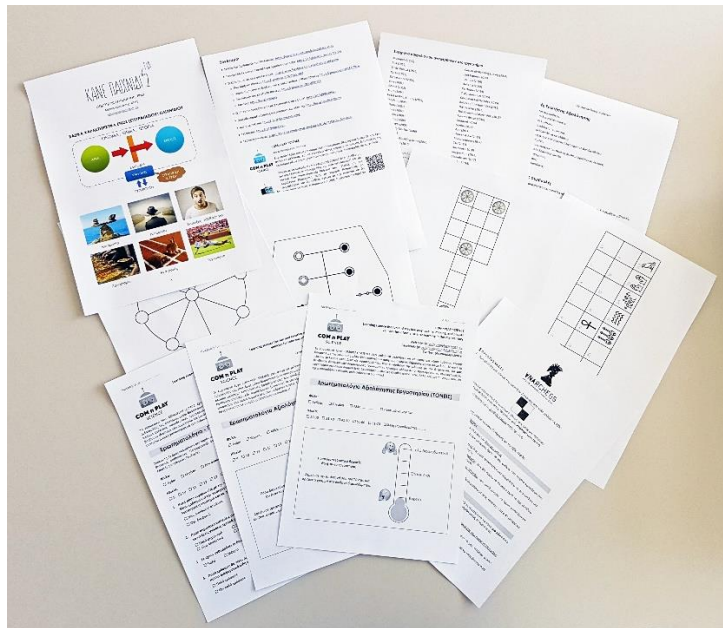


Figure 3. Set of printed pages given to participants



Figure 4. Mini board game design kit and its contents

How the materials were used:

The ancient board games were used to introduce and discuss key board game concepts and ideas. The contents of the kit were used to introduce (through creative activities and a lot of playing) in a step-by-step scaffolding / constructive way the basic elements and steps for designing a 2-player board game. After the end of the workshop, teams took their design kits home, so that they could play the games that they learned or created during the workshop, as well as, an incentive to design their own board games.

3.5. Data collection

What kind of data was collected: During and after the workshop field notes were kept based on observations, vocalizations and discussions. During the workshop creative outcomes of the activities were photographed. At the end of the workshops children filled in a printed Greek version of the Science Capital questionnaire, as well as a printed Greek version of the FUNQ questionnaire which also included a “fun-o-meter” (Figure 2) where they had to draw a line at the level of fun they had (it goes from 'Boring' to 'A Lot of fun').

Why this data: These data were the maximum possible (and meaningful) to collect in this particular context. For example, due to the long duration of the workshop and to the fact that it was taking place in the context of a broader event where participants were also taking part in other activities before and after the workshop, follow up interviews were not possible. Also, due to personal data-related restrictions, video recording was not an option.

How much data was collected: 5 teams left a few minutes before the end of the workshop, thus 15 delivered the questionnaires. One of the Science Capital questionnaires was not completed. Additionally, there are hand-written pages with notes and observations, as well as photographs.

3.6. Data analysis

Descriptive analysis was used for the questionnaires and qualitative analysis for the observation field notes.

4. Results

4.1. Science Capital questionnaire

A descriptive analysis of the 14 Science Capital questionnaires collected (Appendix I) shows that most children that participated in the workshop shared quite similar profiles, having parents working in a job that relates to a science, with positive view about science and its potential impact on their lives and doing very well in school subjects that are related to sciences.

All children, except one that felt neutral about it, agreed or strongly agreed that scientific knowledge is useful for their everyday living and for their future (**Q1**). Furthermore, they all (except the aforementioned child who 'did not know') came from families where parents/guardians believe that scientific knowledge is important for their children's future (**Q2**).

On the other hand, the degree to which their teachers encouraged them to study sciences (**Q3**) varied a lot, covering the whole range from 'very much' to 'not at all'.

All children related scientific knowledge and skills to job finding (**Q4**) considering them useful (9 children, 64%) or very useful (5 children, 36%).

11 children (79%) knew someone that has a job that relates to a science (**Q5**) and 3 (21%) were not sure if they did.

The parents / guardians of 12 children (86%) work in a job that relates to a science (Q6), 3 of them had also members of their extended family, 5 of them also knew other people, while only 1 child (7%) knew no one.

When not in school, children *sometimes* (7 children, 50%) or *rarely* (6 children, 43%) discuss scientific matters (including computer programming) with other persons (Q7). Only 1 child does that very often (7%). These discussions are done (Q8) mostly with their parents / guardians (8 children, 57%), friends (7 children, 50%), or extended family members (5 children, 36%).

4 children (29%) frequently read scientific books or magazines or I search for scientific content/subjects over the Internet (Q9a), 6 children (43%) do it sometimes, 2 (14%) rarely and 1 never (1 child did not answer).

4 children (29%) frequently visit museums, science centers, zoos or aquariums (Q9b), 6 children (43%) do it occasionally, 2 (14%) sometimes and 1 rarely (1 child did not answer).

2 children (14%) occasionally participate in a programming/science/robotics/3D printing or other, related group, club or workshop (Q9c), 4 children (29%) do it sometimes, 2 (14%) rarely and 5 (36%) never (1 child did not answer).

All children, except one that 'did not know' and one that did not answer the question, reported that they do very well (i.e., selected the highest possible value) in school subjects that are related to sciences (Q10).

4.2. FUNQ questionnaire

A descriptive analysis of the 15 (children) + 15 (parents) FUNQ questionnaires (Appendix II) shows that both children and adults regarded the workshop as a positive and fun experience.

Fun-o-meter

The Fun-o-meter is rated in a scale from 0 to 10.

11 out of the 15 children (73%) gave to the workshop a score of perfect 10/10, 1 child (7%) a 9, 1 (7%) an 8 and 2 children (13%) a 7.5. There were also 11 adults (73%) who scored a perfect 10, 1 adult (7%) a 9.5, 1 (7%) an 8, 1 (7%) a 7.5 and 1 (7%) a 5.

Rated Questions

Questions were rated on a Likert scale 1 -5. For questions 1 – 6 the score ranged from *Totally disagree* to *Totally Agree*, while for questions 7 – 30 from *Never* to *All the time*.

According to the combined answers to questions Q1, Q2, and Q9, both children and their parents participated to the workshop and its activities because they wanted to (and not because either of them was forced to). This fact implies a potential positive attitude towards it.

Participants did not find the activity difficult (Q4), while most parents seemed to find it easier than their children (Q3). They also (Q7, Q8) felt quite autonomous and knowing what they were doing. Almost everyone felt that they were good at the activity (Q10) with the exception of 1 child and 1 adult (not in the same group) who reported that they never felt good at it. Curiosity (Q11) varied considerably (but this may also due to the fact – which was revealed in other studies – that a lot of respondents did not know how to interpret the question).

The questions related to **fun and enjoyment** were very highly rated by almost all participants. In Q6 (**I enjoyed doing this activity**) 11 children responded that they strongly agreed, 3 that they agreed and just 1 disagreed. The adults' answers followed the exact same distribution, but the persons who gave the lower scores were not the parents of the children who also did so. In Q13 (**I had fun**) 13 children and parents responded that they had fun all of the time, 2 children and 1 parent often and 1 parent sometimes. Results were quite similar for Q14 (**I was happy**), Q15 (**I had a lot of energy**), Q16 (**I was excited**), and Q17 (**I felt good**) with the vast majority of participants giving the maximum score. Interestingly there was 1 child that in Q15 scored a 2 (Never) and 1 that in Q16 scored 2 (Rarely). Also, an adult in Q17 scored 1 (Never) which contradicts the rest of the scores in the same questionnaires, but since there were no follow up interviews and the questionnaires were anonymous this case could not be further investigated.

In accordance to the above, **Q18 (I was bored)** was scored low (Never or Rarely) by most of the participants. In the case of children, there were 2 that scored *All the time*, but taking into account their answers to the previous questions which are all positive and also rated with 5/5, there is a fair possibility that this was done by mistake. This error has been verified in subsequent uses of the questionnaire, where there was the possibility to discuss with the respondents.

Additionally, the indicators of stress were very low for all respondents (except one child) who responded that they rarely or never felt bad, irritated, angry, or sad (**Q27, Q28, Q29, Q30**).

The *Immersion* factors (**Q19, Q20, Q21, Q22**) varied a lot, thus they do not provide concrete evidence towards a specific conclusion. An interesting finding was that 67% of the adults felt that the workshop made them forget about work, which was higher than the percentage of the children (60%) that felt that they forgot about school.

Results related to the *Loss of Social Barriers* (making new friends, talking to others, etc.; **Q23, Q 24, Q25, Q26**) were mixed, but this was expected since the design of the workshop highly focuses on parent-child collaboration and does not require any cross-team collaboration (but the facilitator encourages participants to interact with other people around their table or anywhere in the room). In both cases of children and adults, about 1/3 of the participants made new friends and talked to people that they have never met before.

Almost all children and adult participants agreed that they did something new (**Q12**) and would like doing something similar again (**Q5**). The only exception was a child who gave of a neutral answer (3) in both questions.

There was just one single person (female adult, ID 12) who obviously did not enjoy much the activity. Interestingly, she agreed that she wants to do something like this again (Q5, score 4/5).

Finally, a comparison between the questionnaires of the children and their parents (see Appendix II) shows that, although there were several differences in how participants of the same group scored each answer, the average scores for each question were quite close.

4.3. Observation

Observation data confirm the findings from the questionnaires. All teams have been engaged in the various tasks that were assigned and all completed of them. Participants kept their attention to the facilitator and the activities and were smiling and laughing very often. Several times the answers of the participants also included humor. Participants were very productive. All teams would come up with ideas for all the design tasks, problems and questions posed. Some of them were particularly interesting and creative. In 3 occasions, participants for more time for the task at hand. Two of them had to do with playing a game (one ancient game, and one of their later prototypes) because they were having fun, and one was during a design task in order to refine and complete their ideas. In all cases, the allocated time was prolonged until there was common agreement to move on. During idea sharing and discussions sessions all children wanted to participate. Adults were more reluctant, or would let their children verbalize the team's ideas and results.

Parents actively collaborated with their children. In most cases observed, they would leave the leading role to their children and follow along, providing help or constructive comments when needed. During the last hour of the workshop in 3 of the tables, all teams (especially the children) would discuss and share their ideas, or (when they had the time) play together. This fact is probably reflected to the answers of the FUNQ questionnaire (see above) that indicated that about 1/3 of participants made new friends and talked to people that they have never met before.

Despite the long duration (180 minutes, with no break) and the numerous tasks that constantly required creative thinking and active experimentation (including several rounds of playtesting the various versions of the games being created), until the very end participants were in a very good mood, were highly focused on their tasks and their attention was kept undivided to the presenter.

After the end of the workshop several children would approach and congratulate the facilitator, while four of them expressed their newly founded interest in the presented topic and their wish to further pursue learning about it. Three of the parents expressed their surprise regarding the fact that their child's attention and focus was kept for so long and without being tired, while some parents expressed the same surprise regarding themselves.

5. Lessons learned

In general: In short, the following conclusions were drawn regarding the 4 objectives described at the beginning of this document:

(a) If a very long, intensive and fast-paced design workshop can be engaging and fun for children.

- The study results emphatically show that this is possible.

(b) Various aspects of the collaboration between parents and their children in such a context.

- When interested in the subject, parents and children can smoothly collaborate and have fun together.

(c) If (and how) such an experience differs between adults and children.

The questionnaire results (taking also into account observation data) suggest that both groups had an equivalent learning and entertaining experience.

(d) If there is any correlation between the profile of a child as measured by the Science Capital questionnaire and the perceived fun and engagement as measured by the FUNQ questionnaire.

The fact that all children's reported profiles through the Science Capital questionnaire did not have significant differences did not allow to make any speculations or correlations between the two.

Implications (for practice, research or theory): Instructors should try to participate in such workshops assuming the role of the learners in order to have a first-hand experience and also be convinced that learning and fun is a very powerful and successful combination and that creative thinking is a useful tool to this end. Furthermore, appropriate research tools need to be devised which will be able to extract practical knowledge from such experiences in a form which is shareable, understandable and reusable.

Limitations: According to the analysis of the Science Capital questionnaires, most children that participated in the workshop shared quite similar profiles, reportedly doing very well in school subjects that are related to sciences and having parents working in a job that relates to a science, with positive view about science as well as about its potential impact on their lives. Thus, they (as well as, their parents who were in the same team) do not constitute a representative sample of the wider population.

Reflections for the next phase of the project: Results verify that the workshop constituted an engaging and fun learning experiences (although the learning aspect was not evaluated). In this respect, a key question is what can we do as a project to extract practical knowledge in a form which is shareable, understandable and reusable so that educators can enhance their own practices?

A more practical issue is related to FUNQ. As mentioned in the related section two issues emerged from its use. First, several respondents were not sure how to interpret the question about Curiosity (Q11). The second issue is that some of the questions posed have a positive connotation while other negative and so, in some cases, respondents accidentally scored a high value thinking it means a good thing, while it was exactly the opposite. This was especially noted in Q18 (I was bored) which comes after a series of positive questions.

6. Notes

A purpose statement for the research: Educational workshops created by the specific facilitator have been repeatedly assessed as being very engaging and fun by participants of all ages, irrespectively of their topic. In the context of the COMnPLAY project we aim to study a range of such workshops, in order, on the one hand to objectively measure and validate their engagement and fun value, while on the other hand to

investigate how this is achieved, so that this knowledge can be codified and reused to introduce such aspects in formal and informal education.

Appendix I: Science Capital questionnaire

At the top there were 2 questions regarding the gender and the age of the participant. Then, the questionnaire included the following questions and answers (in Greek):

1. Mark how much you are in agreement with the following statement:

It is useful for my everyday living and for my future to have scientific knowledge

1. Yes, I strongly agree
2. Yes, I agree
3. I cannot decide
4. No, I disagree
5. No, I strongly disagree

2. How important do your parents/guardians believe it is for your future to have scientific knowledge?

1. Very important
2. Moderately important
3. They don't have an opinion
4. Somewhat important
5. Not important at all
6. I don't know

3. Have your teachers encouraged you to study sciences when you grow older?

1. Very much
2. Moderately
3. Only a little bit
4. Not at all
5. I am not sure

4. How useful will having scientific knowledge and skills be in helping you find different types of jobs?

1. Very useful
2. Useful
3. Moderately useful
4. Of little use
5. Not useful at all

5. Do you know anyone that has a job that relates to a science?

1. Yes
2. No
3. I am not sure

6. Who do you know that works in a job that relates to a science?(choose all that apply)

1. Parent/Guardian
2. Extended family (aunt/uncle, cousin, grandfather/grandmother)
3. Friends' parents
4. Neighbor
5. Other
6. No one

7. When you are not in school, do you discuss scientific matters (including computer programming) with other persons?

1. Very often
2. Sometimes

3. Rarely
4. Very rarely
5. Never

8. If you do discuss scientific matters when you are not in school, with whom do you discuss them?

1. Parents/Guardians
2. Friends
3. Siblings
4. Extended family (uncles/aunts, cousins, grandfather/grandmother)
5. Other

9. How often do you do any of the following activities outside of school?

a. I read scientific books or magazines or I search for scientific content/subjects over the Internet

1. All the time (at least every couple of days)
2. Frequently (at least once a week)
3. Sometimes (approximately once a month)
4. Rarely (a few times per year)
5. Never

b. I visit museums, science centers, zoos or aquariums

1. Frequently (at least once a month)
2. Occasionally (at least once a trimester)
3. Sometimes (approximately once a year)
4. Rarely (at least once every two years)
5. Never

c. I participate in a programming/science/robotics/3D printing or other, related group, club or workshop

1. Frequently (at least once a month)
2. Occasionally (at least once a trimester)
3. Sometimes (approximately once a year)
4. Rarely (at least once every two years)
5. Never

10. How well do you do in school subjects that are related to sciences?

1. Very well
2. Well
3. Adequately
4. Not very well
5. Very poorly
6. I don't know

The data collected using the Science Capital questionnaire are presented below:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ID	1	2	3	5	8	9	10	12	13	14	15	20	22	23
Gender	B	G	B	G	G	B	B	G	B	B	B	G	B	G
Age	9	12	12	9	11	15	9	9	12	9	10	9	10	10
1	2	2	2	1	1	1	2	1	2	2	2	3	1	1
2	2	1	1	1	1	1	2	1	1	2	1	6	1	1
3	4	2	5	3	2	1	4	5	1	3	4	1	3	3
4	1	2	1	1	1	2	2	1	2	2	2	2	2	2
5	1	1	1	3	1	1	1	3	1	1	3	1	1	1
6	3	1,5	1	6	1	1,2	1	1	1,2,5	1,2,5	1	1,5	1	1
7	3	2	2	2	3	2	2	1	2	2	3	3	3	3
8	1,4	2	1,2	2	5	1,4	1,2,4	1,3	2	1,2,4,5	2	1,3	-	1,3,4
9a	3	4	3	2	3	2	2	5	3	2	3	4	-	3
9b	2	1	2	1	2	2	2	3	1	2	4	1	-	3
9c	4	4	3	3	2	3	2	5	5	5	3	5	-	5
10	1	1	1	1	1	1	1	1	1	1	1	6	-	1

Appendix II: FUNQ questionnaire

At the top there were 2 questions regarding the gender and the age of the participant. Then, a “fun-o-meter” was included (Figure 2) where they had to draw a line at the level of fun they had (it goes from 'Boring' to 'A Lot of fun'). FUNQ for parents had 2 minor changes:

- Instead of exact age, the age range was asked.
- Question 22 'I forgot about school.' was adapted to 'I forgot about work'.

The questionnaire included the following questions and answers (in Greek):

Note:

Questions 1 – 6 were rated in a 1 – 5 scale where:

1 = Totally disagree

2 = Disagree

3 = Cannot decide

4 = Agree

5 = Totally Agree

Questions 7 – 30 were rated in a 1 – 5 scale where:

1 = Never

2 = Rarely

3 = Sometimes

4 = Often

5 = All the time

1. I did this activity because I had to.
2. I did this activity because I wanted to.
3. This activity was easy for me.
4. The activity was difficult for me.
5. I want to do something like this again.
6. I enjoyed doing this activity.

During the workshop...

7. I knew what to do.
8. I could do what I wanted to.
9. I felt like I had to do this activity.

10. I felt I was good at this activity.
11. I was curious.
12. I did something new.
13. I had fun.
14. I was happy.
15. I had a lot of energy.
16. I was excited.
17. I felt good.
18. I was bored.
19. I forgot everything around me.
20. I felt that time flew.
21. I forgot where I was.
22. I forgot about school.
23. I made new friends.
24. I talked to others easier than usual.
25. I felt closer to others more than usual.
26. I talked to others to whom I had never before.
27. I felt bad.
28. I felt irritated.
29. I felt angry.
30. I felt sad.

The data collected from the children using the adapted FUNQ questionnaire are presented below (a red X means that this item was not scored):

CHILDREN																	
ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	AVG	STD
Gender	B	G	B	G	X	G	B	B	G	B	B	B	G	B	G		
Age	8	12	12	10	12	11	15	9	11	12	9	10	9	10	10		
Score	10	10	10	7,5	10	10	10	10	10	9	10	10	7,5	8	10	9,5	0,9
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1,1	0,3
2	5	4	5	4	5	5	3	5	5	5	5	4	5	5	4	4,6	0,6
3	3	3	3	4	3	3	3	5	5	4	5	4	4	5	X	3,9	0,8
4	3	2	2	2	3	3	4	1	1	1	1	2	2	1	X	2,0	0,9
5	5	4	5	5	4	5	3	5	5	5	5	5	5	5	4	4,7	0,6
6	5	4	5	5	4	5	2	5	5	5	5	5	5	5	4	4,6	0,8
7	3	4	4	5	3	2	3	5	1	5	5	5	4	5	4	3,9	1,2
8	5	3	5	4	4	5	2	5	4	5	5	4	5	5	5	4,4	0,9
9	1	1	1	2	4	1	4	1	1	1	1	1	5	1	1	1,7	1,3
10	4	5	5	X	5	3	1	5	4	5	5	5	5	5	5	4,4	1,1
11	1	4	4	2	5	5	4	1	5	4	2	3	1	1	3	3,0	1,5
12	5	4	4	5	5	5	3	5	5	5	5	5	5	5	5	4,7	0,6
13	5	5	5	4	5	5	4	5	5	5	5	5	5	5	5	4,9	0,3
14	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	4,9	0,2
15	5	4	5	3	5	5	1	5	5	5	5	4	5	5	4	4,4	1,1
16	5	4	5	2	5	5	3	5	5	5	5	5	5	5	4	4,5	0,9
17	5	4	5	4	5	5	4	5	5	5	5	5	5	5	X	4,8	0,4
18	1	2	1	2	5	1	2	1	1	5	1	1	1	1	X	1,8	1,4
19	5	4	5	2	X	5	1	4	1	3	3	4	X	2	X	3,3	1,4
20	5	4	5	2	5	5	3	3	4	5	4	4	4	5	X	4,1	0,9
21	5	4	4	1	X	5	1	3	3	4	1	X	3	4	X	3,2	1,4
22	5	3	5	1	3	5	4	2	5	5	5	5	3	5	X	4,0	1,3
23	5	1	4	1	2	5	2	2	1	4	1	1	3	3	X	2,5	1,5
24	5	2	4	2	1	5	3	4	1	3	1	3	3	3	X	2,9	1,3
25	5	2	4	1	2	5	3	4	1	3	3	3	4	2	5	3,1	1,3
26	5	1	5	1	3	5	2	2	1	2	3	3	3	3	5	2,9	1,4
27	1	1	1	1	1	1	4	1	1	1	1	1	4	1	1	1,4	1,0
28	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1,1	0,5
29	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1,1	0,2
30	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1,3	1,0

The data collected from the parents using the adapted FUNQ questionnaire are presented below (a red X means that this item was not scored):

