

Case study report 3: GDPR and the 40 Thieves

1. Partner

Partner name: FORTH

Objectives: To study:

- (a) If a legal text can be turned into an engaging and fun learning experience for both children and adults.
- (b) If (and how) such an experience differs between adults and children.
- (c) 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: This workshop successfully turns a European law, the General Data Protection Regulation (GDPR), into an engaging and fun learning experience for both children and adults.

2. Abstract

Contribution: Creative activities and fun can be employed to turn a legal text into an engaging and fun learning experience, equally appreciated by children and adults.

Background: This case study covers an 80-minutes workshop conducted in cooperation with the parents' association of the 15th public primary school in Heraklion, Crete, Greece. "GDPR and the 40 Thieves" is an interactive workshop that presents, in a very simple and entertaining way, issues related to the protection of personal data in the digital age. Also, through an experiential approach, it introduces the General Data Protection Regulation (GDPR) and the fundamental rights it guarantees for all citizens of the European Union.

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

Methodology: Observation and field notes, photographs, Science Capital questionnaire and FUNQ questionnaire including fun-o-meter.

Findings: A legal text can be turned into an 80'-minute learning activity without any break which is engaging and fun both for children and adults and manages 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: 18 May 2019

Where: Heraklion, Crete, Greece

Setting: Non-formal; school's multi-purpose space; participants were sitting on school chairs; there was a big projection screen used by the presenter / facilitator.

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



Figure 1. Setting of the activity

3.2. Participants

Participants: ~50 children / ~50 parents/ 1 facilitator

Age of children: 7 – 12 (parents were in the range of 31 – 70 years old)

Gender of children: based on the answers to the questionnaires, about ¾ of the children were female and also, about ¾ of the parents were female.

Language: Greek

Background of participating children: Primary school children.

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: Attendance was open to anyone coming to the event (mainly children going to the particular primary school and their parents).

3.3. Procedure

Number of occurrences: One time workshop for this audience. The workshop has been held several times with various sizes and types of audiences.

Duration: 80 minutes, 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 15 minutes, participants were introduced (using also interactive activities) to GDPR, personal data and digital footprints.

- Then, there was 30-minutes session during which participants in pairs played an interactive game which introduced in a practical and playful way the basic rights of European citizens offered by the GDPR.
- The next session lasted 15 minutes and included the topics of data breaches, strong passwords and phishing.
- The last 10 minutes were dedicated to a recap of the key points of the workshop and related advice, and instructions about the use of the construction materials after the workshop. There was also a request to fill in the questionnaires.

Group work / individual work: In about half of the workshop participants were required to work in pairs, while during the rest they were advised to work in pairs or more (and even to freely sneak and copy from each other).

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 workshops include several creative activities. Before each activity some inspirational material is presented, followed by very brief instructions.

Use of research instruments: During and after the workshop the facilitator kept field notes regarding several aspects including audience participation, reactions, collaboration, questions raised, comments and conversations after the end of the workshop, follow-up feedback by participants. Also, during the workshop photographs were taken.

At the end of the workshops children filled in a printed Greek version of the Science Capital questionnaire, parents filled 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'). Children were also supposed to fill in a copy of FUNQ but due to a misunderstanding of the organizers, they did not get that.



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

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 set of printed pages which included a worksheet, a post it note and some simple construction materials (e.g., paper clip, wooden popsicle stick, pipe cleaner, googly eyes).

At the end of the workshop, a printed Greek version of the Science Capital questionnaire and a printed Greek version of the FUNQ questionnaire was given to participants (note: there should be 2 copies of FUNQ, one for children and one for parents, but due to a misunderstanding of the organizers only copy was distributed, labeled "PARENTS").

How the materials were used: The worksheet was used to note / draw answers and ideas to workshop tasks, the post-it during an interactive activity for understanding and acting out the basic rights of European citizens offered by the GDPR legislation and the construction materials were to be used after the workshop, according to instructions included in the worksheet.

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 photographs were taken. At the end of the workshops children filled in a printed Greek version of the Science Capital questionnaire and parents (often on collaboration with their children) a 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: Children were also supposed to fill in their own copy of FUNQ, one for children, but due to a misunderstanding of the organizers only copy was distributed, labeled "PARENTS". Unfortunately, this error was identified after the questionnaires were handed for analysis.

How much data was collected: 43 Science Capital questionnaires and 44 FUNQ questionnaires. Additionally, there are hand-written pages with notes and observations and 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 43 Science Capital questionnaires collected (Appendix I) shows that most children had a positive view about science and its potential impact on their lives. Most of the children also knew someone that has a job that relates to a science, discussed scientific matters (including computer programming) with other persons outside school (mostly with their family) and were doing pretty well in school subjects that are related to sciences.

More specifically:

18 children (42%) strongly agreed and 16 (37%) agreed that scientific knowledge is useful for their everyday living and for their future (Q1). 7 children (16%) could not decide and 2 (5%) disagreed – both were 9-years

old boys. The vast majority (35 children, 81%) came from families where parents/guardians believe that scientific knowledge is important for their children's future (Q2). 3 children (7%) from families that deem it somewhat important and 5 (12%) did not know. There was no child coming from a family that thought that science is not important at all.

The degree to which their teachers encouraged them to study sciences (Q3) varied a lot, covering almost evenly the whole range from 'very much' to 'not at all' (respective percentages were 21%; 26%; 14%; 23%; 16%).

The vast majority of children (40 children, 93%) related scientific knowledge and skills to job finding (Q4) considering them useful (15 children, 35%) or very useful (25 children, 58%). 3 children (7%) considered it of little use.

31 children (72%) knew someone that has a job that relates to a science (Q5), 8 children (19%) did not know anyone and 4 (9%) were not sure if they did.

The parents / guardians of 15 children (35%) work in a job that relates to a science (Q6), 13 (30%) had members of their extended family, 12 (28%) had a friend's parent, 4 (9%) knew a neighbor and 3 (7%) knew other people.

When not in school, about half of the children (9 *very often* and 11 *sometimes*, 47%) discuss scientific matters (including computer programming) with other persons (Q7). The remaining children discuss it *rarely* (7 children, 16%), *very rarely* (9 children, 21%) or *never* (7 children, 16%). These discussions are done (Q8) mostly with their parents / guardians (25 children, 58%) and friends (18 children, 48%). Some discussed with their siblings (11 children, 26%), extended family members (7 children, 16%) or others (3 children, 7%).

5 children (12%) read scientific books or magazines or search for scientific content/subjects over the Internet all of the time (Q9a), another 5 children (12%) do it frequently, 15 children (35%) sometimes, 12 (28%) rarely and 6 never (14%).

6 children (14%) frequently visit museums, science centers, zoos or aquariums (Q9b), 18 children (42%) do it occasionally, 12 (28%) sometimes, 5 rarely (12%) and 2 never (5%).

The majority of children rarely (10 children, 23%) or never (20 children, 47%) participate in a programming/science/robotics/3D printing or other, related group, club or workshop (Q9c). 4 children (9%) participate frequently, 5 children (12%) occasionally, and 4 children (9%) sometimes.

Most children reported that they do very well (23 children, 53%) or well (8 children, 19%) in school subjects that are related to sciences (Q10). 1 child (2%) adequately and 11 children (26%) reported that they do not know (all of them were 8- 10 years old, so maybe they do not have yet a clear understanding of which school subjects are related to sciences).

4.2. FUNQ questionnaire

A descriptive analysis of the 44 FUNQ questionnaires completed by the parents (Appendix II) shows that they regarded the workshop as a highly positive and fun experience.

Fun-o-meter

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

29 adults (66%) gave to the workshop a score of perfect 10/10, all scores were above 7.5 and the average score was 9.5 (SD= 0.8).

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**, 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**). They also (**Q7, Q8**) felt quite autonomous and knowing what they were doing. Everyone felt that they were good at the activity (**Q10**). Curiosity (**Q11**) varied considerably (a fact which is in line with the results of other studies).

The questions related to **fun and enjoyment** were very highly rated by almost all participants. In **Q6 (I enjoyed doing this activity)** 35 participants (80%) responded that they strongly agreed and 9 (20%) that they agreed. In **Q13 (I had fun)** 37 (84%) responded that they had fun all of the time and 7 (16%) often. Results were analogous for **Q14 (I was happy), Q15 (I had a lot of energy), Q16 (I was excited), and Q17 (I felt good)**.

In accordance to the above, **Q18 (I was bored)** was scored very low (Never, 77% and Rarely, 18%). Only two participants (5%) responded sometimes (i.e., 3/5).

Additionally, the indicators of stress were very low for almost all respondents who responded that they rarely (~2%) or never (~95%) felt bad, irritated, angry, or sad (**Q27, Q28, Q29, Q30**).

The *Immersion* factors (**Q19, Q20, Q21, Q22**) varied considerably. 88% of the participants felt that time flew and 69% that the workshop made them forget about work.

Results related to the *Loss of Social Barriers* (making new friends, talking to others, etc.; **Q23, Q24, Q25, Q26**) were averagely scored, but this was expected since on the one hand, children and parents were coming from the same school that already knew each other, the design of the workshop allows for collaboration between family members or friends and does not force interacting with random people.

Participants agreed that they did something new (**Q12**) and would like doing something similar again (**Q5**).

4.3. Observation

Observation data confirm the findings from the questionnaires and combined with photographic evidence show that children enjoyed the workshop (at least) as much as adults and were very enthusiastic. During creative activities children were discussing with at least their workshop partner, but, as also shown in several photographs, they would turn and talk with anyone around them. Occasionally, some children would get up and move in other places the room in order to share their ideas with a friend. In every discussion session following a creative activity almost every child children (and a few adults) wanted to openly share their answers which often resulted in cheers and clapping by the audience, and often laughter.

Despite the long duration (80 minutes, with no break) no one walked out of the room. 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.

5. Lessons learned

In general: Although the workshop was designed primarily having children as its main target group, evidence from the adult's questionnaires shows that they enjoyed it very much. Even though no similar hard evidence is available for the children (due to the mistake with the FUNQ questionnaires), observation data regarding the dynamic participation, high enjoyment and constant attention of the children supports this fact. Also, evidence from FORTH's study 1 has shown that in a comparable situation, children's FUNQ scores were equivalent to those of their parents. Finally, another important lesson learnt was that when you are using multiple questionnaires which you are not distributing and collecting by yourself, always double-check that there are no misunderstandings.

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

(a) *If a legal text can be turned into an engaging and fun learning experience for both children and adults.*

- Based on the study results, one can safely conclude that this goal was very successfully achieved.

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

Observation data indicate that the experience of the two groups was quite similar, but unfortunately there are no questionnaire results available to confirm this, or to highlight any potential differences.

(c) 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.

Obviously, the lack of FUNQ questionnaire data does not allow this hypothesis to be tested.

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: The lack of FUNQ questionnaire data for the children severely deteriorated the outcomes of this study.

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?

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

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.