CyGen

Cyber Safe Generation: Digital education by design

Design workshops Report

A RESOURCE FOR YOUNG PEOPLE, TEACHERS AND PARENTS

Project Overview

CyGen is a co-funded Erasmus+ Key Action 2 strategic Partnership. The project engaged directly with children (aged 8-13), teachers and parents in four European countries (United Kingdom, Belgium, Denmark and Greece) to:

1. Explore the digital opportunities and challenges as these are experienced by these groups;
2. Develop a novel participatory design methodology and methods in order to work collaboratively with children and young people;
3. Co-design a culturally, linguistically and age appropriate open-access multimedia education programme, a 'web app' with children in the four member states. Designed by children, for children, the web app recognises and builds on children and young people's knowledge and experience to support their safe, informed use of the Internet;
4. Produce online open-access guidance encompassing lesson plans and pedagogical resources to support teachers and educators in primary and secondary schools in diverse European education settings to support children's online safety

The CyGen project was created to understand the opportunities and challenges faced by children when they go online. The project worked with children, young people, teachers, parents and academics to map these opportunities and challenges and, with children, to design educational resources to support children's safety online. The project was unique in that children helped the project team to develop and evaluate an evidence-based digital educational programme to promote young peoples' online citizenship and safety across the four participating European countries (UK, Denmark, Belgium and Greece).

The outputs created for this project are:

- IO1: Scoping and needs analysis
- IO2: Participatory Design Model
- IO3: Design workshops
- IO4: Co-designed digital education programme
- IO5: Evaluation

Further information regarding the evidence-based digital educational programme can be viewed via our website http://cygen.eu/resources/

Contents

Executive summary

CyGen was completed around a series of Design Cycles: a sequence of development activities completed by children in each partner country which informed the design of the Webapp (described in IO4). This report explains how the CyGen team, worked collaboratively with children, teachers and parents in each country using the methodological approach and tools described in the IO2: Participatory Design Model to involve children in the co-production of the Webapp and in the project evaluation.

The Design Cycle was conducted in four diverse European countries: the UK, Denmark, Belgium and Greece (a step-by-step video of this process can be found on the project webpage). Data collection was completed in the local language of each partner. The three phases of the Design Cycle were:

- 🌍 Data Workshop Phase (baseline 'pre-intervention' data)
- 🌍 Design Workshop Phase (mid-point data)
- 🌍 Development and testing phase (end-point data)

The report elaborates:

- The art-based methods, sample and recruitment methods used in each country;
- The process of iterative analysis and co-analysis undertaken with children in each of the partner schools;
- The project ethics and commitment to BERA (2011; 2018) principles
- The roles of children within the project as peer researches, co-designers and evaluators;
- The process of applying the participatory methodology and co-design principles in practice and the country specific adaptations made by each team.

Introduction

This report details the application of the Participatory Design Model (IO2), in each of the CyGen partner countries: the UK, Denmark, Belgium and Greece, with emphasis on the workshop elements of data collection. First, we offer an overview of the Design Cycle to contextualise our reflections, including our analytical approach and the key ethical considerations which underpinned the project. Intellectual Output (IO3: Design Workshops), describes the work completed in each of our partner schools, applying the methodological framework and DesignKit presented in IO2, and building on the needs analysis completed during IO1: Scoping and needs analysis, to produce the educational resources reported in IO4: Co-Designed Digital Education Package. This report captures the team's reflections on the following tasks, completed in fulfilment of IO3:

- Task 1: Report from the workshops at each participating school, and the process of involving schoolteachers, children and their parents;
- Task 2: Report the conducted workshops in the participating school, and the use of the designed kits developed in O2. The format of involving teachers in the design of teaching and learning situations teachers for using the education package (O4);
- Task 3: Report the analysis of workshop outputs and communication of results - are reported in rapport IO4.

Methods and approach

Design Cycle overview

Information about the CyGen Design Cycle is captured within the project's reporting for IO2: Participatory Design Model. In summary, a three-phase Design Cycle was conducted in four diverse European countries: the UK, Denmark, Belgium and Greece (you can find a step-by-step video of this process on our webpage). Data collection was completed in the local language of each partner. The three phases of the Design Cycle were: (i) Data Workshop Phase, (ii) Design Workshop Phase, and (iii) Development and testing phase.
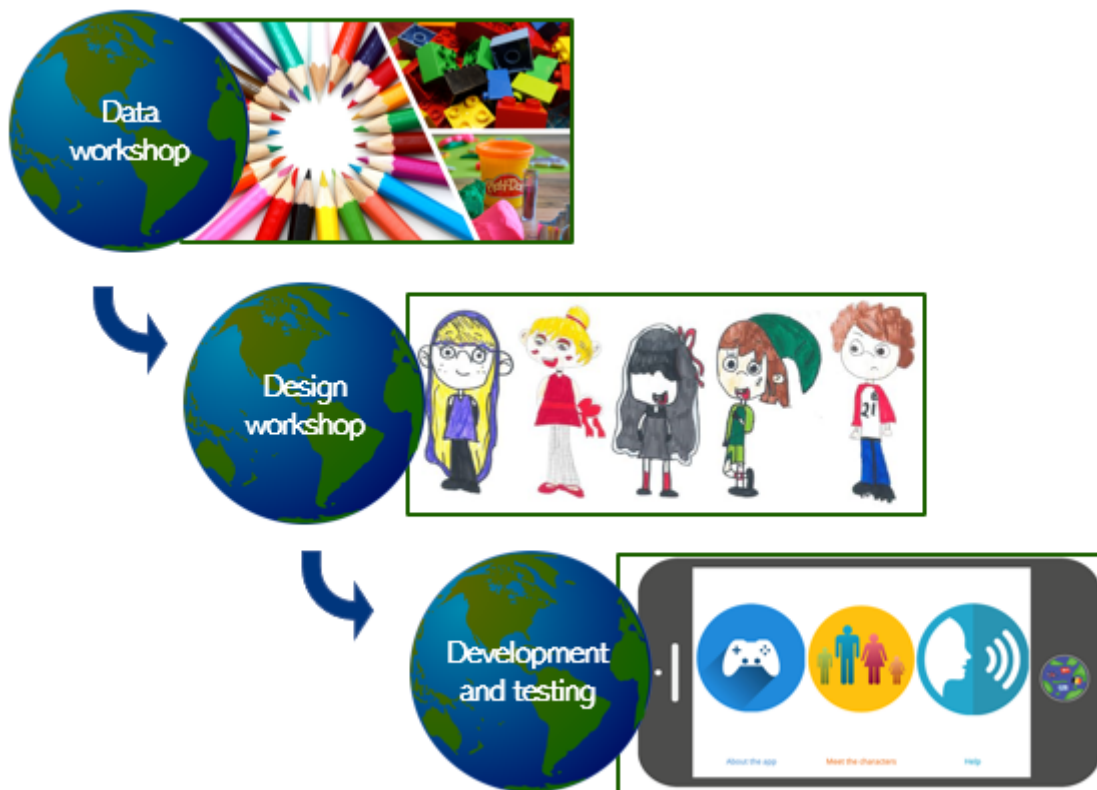
The project was conducted in four participating schools, each in a different European country by conducting:

  i.   Child-oriented interviews and focus groups;
 ii.   Focus groups and interviews with parents;
iii.   Focus groups and interviews with teachers;
 iv.   Participant observation.

Data were captured from these activities to form baseline, mid-way and end-point review of the project. As planned, and as the CyGen cycle unfolded in the four partner countries in turn, each country research team made important adaptations that were appropriate for each country's cultural context. The values underpinning the project were preserved throughout. This balance was an important and valuable feature of the CyGen project.

As we have noted above, each Design Cycle was completed in the language of the relevant partner country, although in Greece the team delivered elements of it in English to support their English lesson delivery. The following provides an overview of the methods used to collect data at each stage of the design cycle:

1. Data workshop phase (baseline 'pre-intervention' data):

1a. Teacher focus groups and interviews;
1b. Parent focus groups and interviews;
1c. Data workshop (creative methods applied with children in a workshop context to capture the ways that they engage with the internet, and the challenges associated with this);
1d. Young People's Panel [YPP] focus groups (a small group of children in each partner country who supported the capture of key themes from the views of their peers).

2. Design workshop phase (mid-point data):

2a. YPP/ child-led teacher focus groups and interviews;
2b. YPP/ child-led parent focus groups and interviews;
2c. Design workshop (creative methods applied with children in a workshop context to capture the key challenges and opportunities arising from their use of the internet);
2d. YPP focus groups.

3. Evaluation and testing phase (end-point data):

3a. Teacher focus groups and interviews;
3b. Parent focus groups and interviews;
3c. YPP focus groups;
3d. Observations of
- example lesson utilising CyGen Wrap Around Text;
- engagement by children with the Webapp.

Data workshop overview

In all four countries the data workshop established a dialogue between the children where they exchanged experiences related to their country specific internet behaviour. The Data workshop framed a process where children and young people shared experiences about their behaviour on the Internet by drawing or building examples from their online life, and which challenges they have meet framed by questions from the facilitator. This process began to illustrate the dilemmas/ situations that children, parents and teachers felt were most important for us to capture in the project outputs.

During the workshop, the children worked in groups and members of the CyGen team acted as facilitators, observing, supporting and recording discussions via observation templates. UK children opted to identify a leader for each table, to support and guide the discussion. These individuals subsequently formed the Young People's Panel.

Design workshop overview

The purpose of the design workshop was to generate data for designing input for the country specific Webapps and associated resources. During the completion of the workshop, the data provided input on the country-specific themes, learning objectives and potential of the tasks and assignments for each country's online tool. The Design workshop facilitated a process in which children were co-designers of learning content and learning processes that can serve as a basis for children reflections about safe online behaviour. Next the purpose is to generate data, which can be used as input for designing the online tool. The design process consists of a playful, collaborative approach.

The design workshop frames a process in which children and young people are co-designer of learning content that can provide children and young people's reflections and articulations about safe internet behaviour. The first activity at the workshop was a short discussion as a whole group about the main themes arising from the Data Workshop. The CyGen team fed into these the key themes to broaden out the discussion. Then the groups worked in groups with specified tasks as described in the Design Kit.

Toolkits and resources

Prior to each data collection phase, each team compiled a toolkit to enable the facilitation of participatory working with children. The content was carefully considered, and each medium was included due to the opportunities it offered for engaging people

in exploring, explaining and re-enacting. The overall design kit which was the basis of data collection across all partners is reported in IO2: Participatory Design Model. It includes:
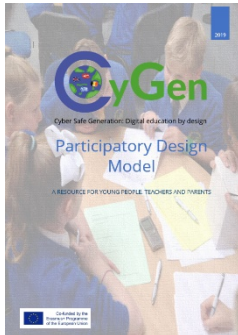
Facilitator guide for the data workshop;
Facilitator guide for the design workshop;
Example resource sheets for work with children;
Example supporting documents (including letters, information sheets and consent forms);
Toolbox resource list.

Resources included in the toolbox for each country were divided amongst groups of children participating in the project. The resources included:

- 2 small boxes of Lego containing blocks in different shapes and colours as well as figures;
- 6 buckets of Play dough in different colours;
- Plain paper;
- Colouring pens/ pencils;
- Recording equipment.

The methodology and tools generated a rich understanding of children's digital literacy practices. There is a pattern across of three country experiments that students liked the different way of working, that is, the individual constructions as well as the discussions with their classmates. Many students particularly liked working with clay and Lego. They liked to express themselves in ways other than with paper and pencil. They pointed out that it helped them with their reflections on the questions when they could build answers together in new types of materials. Students from GE felt though that they would like some more time for their constructions/drawings/creations. In the UK, each table was then given a selection of challenge sheets on which they wrote the challenges associated with going online (green), and 'solutions' or 'advice' that they would offer to other children of their age. They worked in groups to complete these, using the questions on the sheets as a guide. Some chose to write their responses as stories (or scenarios) directly, whilst others wrote about the problems and solutions in a second person narrative; After each part of the session the groups were asked to identify their 'best' contributions, and to feed these back to the whole group. A member of the CyGen

team acted as a reporter and moved around to the children chosen (by their peers) to feed back to the whole group with an audio recorder to capture their contribution.

In Greece and Belgium, the Design workshop toolkit (dilemma & question cards) also contributed to the children's development of problematic situations regarding online safety through such constructions/drawings. The CyGen team in Greece reflected that the workshops constitute one of rather few times in which children in Greece are made co-designers and are actively taking part in decision making as regards their online safety. Most frequently, they are provided with ready material by the relevant safety online organisations to work with during classes. You can read more about the perceived impact of our work on teachers' in Greece in our reporting of IO5.

Sample and recruitment

Partner schools were identified in each partner country at the outset of the project, enabling us to keep them informed of its developments, and to build rapport with these host organisations. In the UK & BE this included Preston Hedges Primary school & Kindercampus Tuinwijk. In Denmark this was a school that preferred to remain anonymous. In Greece, this was the 2nd Elementary School of Kalamata 'partner 4'. Involvement of these schools was continuous throughout the design cycles in each country and included schools generously supporting the scheduling of recruitment sessions, data collection activities, and dissemination/ celebration activities.

The sample included children (aged 8-13); teachers (including teaching assistants) and parents across each of the four partner countries as follows:

Sample	UK	Denmark	Belgium	Greece
Children (YPP: Young people's panel)	26*	15	10	5
Parents	20	3	15	8
Teachers**	20	5	15	14
Broken down by Design Cycle				
Data workshop				
Children	26	28	50	21
Parents	5	3	15	8
Teachers	10	5	2	9
Design workshop				
Children	26	28	50	21
Parents	5	3	15	8
Teachers	10	5	2	9

Development and testing phase				
Children	26	28	50	21
Parents	5	3	15	8
Teachers	10	5	2	9

*26 in all (design team, n = 8; quality team = n-10; ypp, n = 8)

** includes all the teachers and TAs and head from years 4-6 that were involved inc. in recruitment

Analytical approach

Data collected during the project included transcripts of focus groups and interviews, researcher notes, observation logs and the creative outputs of children. These are summarised in Table 1, which maps each stage of the Design Cycle to the data captured at that point in the project.

Design Cycle phase/ method	Data arising from this element of data collection
1. Data workshop phase	
Teacher focus groups and interviews	🌐 Transcripts
Parent focus groups and interviews	🌐 Researcher notes
Data workshops	🌐 Photographs of children's creations (models, drawings and posters) 🌐 Researcher observations 🌐 Researcher reflections
YPP focus groups	🌐 Transcripts 🌐 Researcher notes
2. Design workshop phase	
YPP/ child-led teacher focus groups and interviews	🌐 Transcripts 🌐 Researcher notes
YPP/ child-led parent focus groups and interviews	
Design workshops	🌐 Photographs of children's creations (models, drawings and posters) 🌐 Researcher observations 🌐 Researcher reflections 🌐 Dilemma cards/ challenge and opportunity sheets
YPP focus groups	🌐 Transcripts 🌐 Researcher notes
3. Evaluation and testing phase	
Teacher focus groups and interviews	🌐 Transcripts
Parent focus groups and interviews	🌐 Researcher notes

YPP focus groups	🌐 Transcripts 🌐 Researcher notes 🌐 [children's written notes]
Observations of example lesson and child engagement with Webapp (where applicable)	🌐 Researcher notes 🌐 Short recordings of key feedback from children

Table 1: Data captured during CyGen

Within the table above, where the term 'transcript' is used, we refer to the verbatim transcription of data arising from, usually, a focus group or interview. Other methods of data collection applying verbal or video approaches were usually subject to selective transcription during analysis. Analysis conducted by CyGen project partners was based on thematic analysis approach (Braun and Clark, 2008). Data was analysed thematically, using Braun and Clarke's (2006) six steps of thematic data analysis (1. Familiarisation; 2. Generation of initial codes; 3. Searching for themes; 4. Reviewing themes; 5. Defining and naming themes; 6. Write-up of themes). Using this structured approach consistently ensured that all partners could be supported to conduct their analysis, collating their data and findings within a range of templates which fed into the reporting for all CyGen IOs.

During the project, children played an active role in the analysis of data. The development of the Young People's Panel in each country enabled this through formative data collection in each phase of the project, where YPP members discussed the key themes arising from data collection with wider groups of children in each country. In some countries, children were also involved in co-analysis through activities with researchers. These approaches drew on creative and arts-based approaches (Clark and Moss, 2011; Mannay, 2015), and included:

- 🌐 The creation of PowerPoint presentations to capture the ideas of their peers;
- 🌐 The use of storyboarding techniques to distil key challenges and opportunities discussed during workshops and to inform character development for the Webapp and associated resources;
- 🌐 Children acting as reporters to capture and distil key messages from other children, parents and teachers and iterative feedback throughout the project.

Ethical issues

The project design was guided by the University of Northampton Ethics Code and Procedures and the British Educational Research Association (BERA) *Revised Guidelines for Educational Research* (2011). As the UK partner was the lead partner, BERA (2011) *Revised Guidelines* also guided all transnational elements of the project and fieldwork. An ethical protocol was developed by the UK partner in liaison with other country partners and ethical approval was obtained through the University of Northampton Research Ethics Committee. The remaining partners were briefed on the project's ethical protocol during the project's third Transnational Partner meeting (Northampton, UK: February 2018).

The following ethical values underpinned our approach and engagement with CyGen organisational and individual stakeholders:

- The best interests of participants (including children) were the primary consideration throughout the project;
- Potential participants received full information about the project prior to consent being obtained (informed consent for children's participation was also obtained from primary caregivers), in language and design which met their needs;
- Consent was revisited periodically throughout the project, ensuring that it was ongoing in nature;
- Participants were able to withdraw at any point during the project and were informed of their rights in relation to this;
- School settings hosting the project were made aware of the ethical parameters of the project to ensure consistent messages were given to children, parents and teachers;
- Participants' data was treated confidentially and anonymously. The potential for identification in images used in association with the project was fully disclosed and the wishes of children, parents and host organisations in relation to this were fully respected. In accordance with the study schools' own policies, photographs and video footage have been used in reporting and dissemination activities;
- Data collected as part of the project has – and is – stored according to University of Northampton required protocols, using secure servers. Initial information provided to primary carers and children and young people included a section concerning privacy that addressed this.
- Information about the outcomes of the project is openly accessible via the project website and participants were fully informed of this;
- Initial information provided to all participants (and the parents/ carers of child participants) included a section concerning disclosure.

The role(s) of children in CyGen

Children within the project held a range of different roles; as participants, peer researchers, co-designers and evaluators/ testers. Over the period of the project the teams got to know the children and vice-versa such that children were keen, confident and able to take increasing responsibility in the project. All participating countries experienced pupils who flourished through participation in the project. Several national teams noted, that the students showed great joy and dedication when the CyGen team met at the schools to participate with the children. Several teachers reported that the students were very proud to participate in the project, and this had a positive effect on the rest of their schoolwork.

Children as participants

In the role of participants, children in all four partner countries provided us with information and insight into the current country specific challenges children had in relation to their online security. Using creative methods, they modelled, build and drew their ideas and experiences, reflecting the opportunities and challenges in their online everyday lives.

Children as peer researchers

During the project, children in the different countries, worked alongside CyGen researchers to develop research tools (for example in Denmark children supported the research team to develop the Design Kit for the project, and in the UK, children worked with the team to develop questions for parents and teachers during focus groups and interviews). Young People's Panel participants also worked alongside researchers to help distil the key messages arising from the Data and Design Workshops. As we have noted above, some children also played an active role in the analysis of data.

Children as co-designers

The stories that the children offered during their participation were developed and subsequently form a core part of the Webapp design for three of our partner countries. Children in all partner countries supported the development of other Webapp content including quizzes and videos.

Children as evaluators

UK and BE also offered the children to play a role in a Quality Team, within which they took on roles as interviewer, filmmaker and digital animator according to their preferences. Each group was of a similar size, and enabled children to work within the project in ways which suited their interests, for example the design team worked with our Belgium partners via skype to share their peers' ideas for the web application, and to give feedback on initial designs. The quality team played the role of evaluators, working with the researchers to gather and share the views of other CyGen children on the first full prototype of the application. They also worked in partnership with the researchers to design the evaluation tool for parents following trial use of the web application. Children within all countries acted as testers of the final Webapp and associated resources, offering their feedback and insights to our evaluation.

Preparation and facilitating the workshops

During the project, the CyGen team have continually reflected on how to balance the role of researchers, with participatory methods and co-design approaches. Facilitator guides were designed by the DK team to ensure that there was a consistent approach to the running of both Data and Design Workshops. The CyGen team took over the teacher role during the workshops and attended as facilitator (and as Researcher/observer). In some country's teachers remained present, whilst in others they were available to support if needed. Having teachers in close proximity, but not leading the sessions, was important at this early stage of the project when the research team were building rapport with the children. In practice, teachers had little direct impact in the workshops in both UK, DK and BE. The teachers' role was to support the trusting relationship that the teams sought to develop with the children throughout the project. In Greece a teacher from the school was a member of the CyGen team.

The facilitator guides form part of the project's Design Kit and were developed to ensure that members of research teams acting on behalf of the project consistently shared the collaboration's ethos of participation, whilst recording regular reflections on process as well as outcomes. We wanted to enable participants to share their views and experiences in interesting and engaging ways.

The facilitator guides were tested within Denmark at the outset of the project, prior to the first Design Cycle being implemented. The students taking part in the trialling of the methods and mediums in Denmark illustrated to us how they could support creativity and insightful contributions. The facilitator guides contain regular prompts for researchers, enabling them to work alongside children to capture their experiences, and to tell us about the challenges (and solutions) and opportunities that they experience online. Our design enabled children to work together – thus offering a shared learning experience through their participation – to identify and solve challenges. At the end of the Design Workshops in each country, children had formulated a range of dilemmas or stories that they felt were relevant and challenging enough to feed into the design of the Webapp.

Methodological reflections

Design Cycle adaptations

As we have noted above, as the CyGen cycle unfolded in the four partner countries in turn, each country research team made important adaptations that were appropriate for each country's cultural context. The values underpinning the project were preserved throughout. This balance was an important and valuable feature of the CyGen project. Throughout the Design Cycle we attended carefully to what children, teachers and parents told us and used this information to inform our approach. As we have noted above, each Design Cycle was completed in the language of the relevant partner country, although in Greece the team delivered elements of it in English to support their English lesson delivery.

Within this section of the report, readers are offered a summary of key reflections on the adaptations to the Design Cycle (Design Kit) made by each country partner in turn.

UK

Whilst in the UK the design cycle broadly followed the core CyGen template, some specific changes were made during its delivery. Whilst the formal data collection in the UK began during the data workshop phase of the design cycle, this was preceded by a period of **preparatory activities** which were completed during the previous term. These activities were designed to enable the UK team to build a rapport with the children, fully embedding the underlying participatory values for both them and their teachers from the outset of the project. A logo competition for the project was considered a useful way to make initial introductions, and the team aligned a quiz within this session, and an awards ceremony where all children were offered a certificate of participation for their design. Following this, and in discussion with teaching staff within the host school, it was decided to offer all children within year 5 (approximately 60 children) the opportunity to participate in the study, in order to ensure that they were all afforded the same change to participate. An alternative activity was offered via the University of Northampton's Changemaker team which ran alongside the project. Children were given the choice of which to take part in and 26 children decided to move forward with CyGen.

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of the European Union

The **data workshop phase** marked the first period of formal data collection with the UK CyGen children, parents and teachers. The workshop itself took place within the school setting over a morning session and the sequence of activities broadly followed those set out in the data workshop guide produced by the Danish CyGen team with some cultural and age appropriate adaptations included by the UK team. In groups, children were asked to make models (using Lego and Play-Doh), or to draw images that reflected a range of different themes surrounding their online experiences. These included creations which:

- Shared their recent experiences of going online
- Shared examples of what they use the internet for
- Shared examples of situations they find fun or challenging
- Shared examples of 'safe' internet behaviour

These activities were interspersed with group discussion and feedback. Each group of children was accompanied by a member of the UK CyGen team, who observed and supported, rather than facilitating, their discussion. The researchers also noted key points of discussion, enabling future interpretation and analysis of the images and models that were created. Each table were allocated a voice recorder and the children took responsibility for passing this around to capture key points of importance.

The data workshop was followed by a focus group with the UK Young People's Panel (YPP). Eight young people volunteered to join this group; one from each of the tables in the data workshop. The YPP members remained part of this group for the entire design cycle. The focus group lasted for one hour and was conducted in the afternoon of the data workshop, ensuring that discussions were fresh in the children's minds. The aim of the focus group was to:

- Ensure that children's voices were at the heart of our research;
- Capture data to inform CyGen scoping (IO1) and evaluation (IO5);
- Generate themes from pupils' discussions and activities. These themes were used to underpin the design workshop.

Children were asked to feedback key discussions arising from the data workshop, and in this way to represent the views of their peers. Broad themes were used to underpin the discussion, and two members of the UK team were present (one acting as facilitator, whilst the other took notes of the discussion). The group was audio recorded and fully transcribed for analysis.

Following initial analysis of the data collected with UK CyGen children during this phase of the project, focus groups were completed with primary school teachers and parents

respectively. The core CyGen design cycle offered a starting point for the development of discussion themes, and these were developed using the initial analysis of themes arising from the children's data workshop. The discussions were verbally recorded and transcribed verbatim. Discussion themes used to guide the focus group discussions are illustrated in Figure 2 and Figure 3.

Let's think about:

- what tools children use to go online
- why we think children use the internet
- the challenges children experience when they go online (and parents' responses to these)
- parental fears about children's use of the internet
- the opportunities that the internet affords children

Figure 1: Parent focus group themes (Data Workshop phase)

Let's think about:

- use of the internet in a classroom context
- how use of the internet is currently taught in a classroom context
- any skills that children develop through engagement with the internet in the classroom
    - Patterns in children's engagement
- the development of soft skills for children through engagement with the internet in the classroom
- other opportunities provided to children through internet use
- challenges (for teachers) in supporting children to stay safe online
- resources used by teachers to support children in staying safe online

Figure 2: Teacher focus group themes (Data Workshop phase)

The **Design Workshop phase** of the design cycle was completed in a similar structure to the Data Workshop stage. Within the design workshop itself, children were split into groups with similar membership to the Data Workshop. The researchers allowed for some minor changes based on current friendships. Each group included a member of the Young People's Panel, and one of the CyGen team (four groups in all). Their first activity was a short (five minute) discussion as a whole group about the main themes arising from the Data Workshop. The CyGen team fed into these the key themes arising from initial analysis of the focus groups with parents and teachers, to broaden out the discussion. Whilst this was designed as a warmup exercise, it offered some useful

reflection and some additional data to build on the findings of the data workshop. Each table was then given a selection of challenge sheets on which they wrote the challenges associated with going online (green), and 'solutions' or 'advice' that they would offer to other children of their age (yellow). They worked in groups to complete these, using the questions on the sheets as a guide. Some chose to write their responses as stories (or scenarios) directly, whilst others wrote about the problems and solutions in a second person narrative. After each part of the session the groups were asked to identify their 'best' contributions, and to feed these back to the whole group. A member of the CyGen team acted as a reporter and moved around to the children chosen (by their peers) to feed back to the whole group with an audio recorder to capture their contribution.

The following day the Young People's Panel worked with members of the UK CyGen team to develop questions for 1) interviews with teachers, and 2) a focus group with parents. The children then conducted this data collection, supported by members of the CyGen team. The key themes for focus group and teacher focus groups are summarised in Figure 4 and Figure 5.

Let's think about:

- skills developed by children from engaging with the internet
- the activities that skills learned on the internet can help with
- the role of teachers in keeping children safe online
- the problems encountered by children online
- the advice that teachers would offer to children to keep themselves safe online
- preventative measures to reduce the risk of their children experiencing problems online

Figure 3: Teacher focus group themes (design workshop phase)

Let's think about:

- skills developed by children from engaging with the internet
- the activities that skills learned on the internet can help with
- the role of parents in keeping children safe online
- the problems encountered by children online
- the advice that parents can be given to support their child to spend time online
- preventative actions that parents can take to reduce the risk of their children experiencing problems online

Figure 4: Parent focus group themes (design workshop phase)

Greece

The role of children as co-researchers was innovative and pioneer as it was practically the first time that it was asked of them to offer their views, ideas and experiences on a topic, especially one they particularly favoured. The model of engaging users (children, teachers and parents) in the design process of an application for educational purposes drew principles from Design based research. This process involved such methods as needs analysis regarding existing teaching/learning practices of online attitudes in school as well as in daily life, inquiry methods such as observations, documents, interviews, drawings as well as evaluation techniques to ensure the viability and extension of the CyGen application to more educational or real -life contexts.

The implemented activities involved, apart from constructions with Lego bricks/play dough material and drawings, the creation of posters for children to express and disseminate their experiences about online safety especially after interacting on this issue with their classmates (groupwork) and their teachers – facilitators. Children were asked to reflect on the way they worked in this project (Project based learning) and reported that they liked the different way of working, individual constructions as well as discussing with their classmates about them. They enjoyed working in groups with their friends, but it was also useful to be with friends, they felt more secure. In terms of group dynamics, children said that those who imagined being in a different group were disappointed in the beginning, but they did fine with their new friends. Play dough and Lego were most interesting as teaching/learning materials than the board, the chalk and the books they use in their traditional lessons.

In the above context of CyGen's framework to generate information about the country-specific (i.e. Greece's) challenges and opportunities that children experience and the everyday practices that they use to stay safe online, the methods illustrated below were followed. First of all, 'a co-produced needs analysis' was undertaken the Greek school selected for this purpose in order for us to identify the digital challenges experienced by children and the everyday practices they use to stay safe online. During this analysis, we discussed with children, their teachers and parents the situation concerning the safe internet in Greece, the measures we take as a country to protect children from cyber dangers and invited specialists in the field. For example, we invited police officers who study cybercrimes and the juvenile bailiff of our area for an open discussion on the issue of cyber safety in our region and, of course, all over the country. We exchanged information, experiences and concerns in relation to the time our children spend on screens (computer, tablet, mobile), the gaming issue and potential addictions,

cyberbullying, parental control and many more. After we identified the situation in our area and to be able to organize all this experience and to make sense with the abundant information, we continued with the participatory design model of research according to which specific appraisal and appreciative inquiry methods were used (interviews, observations, documents, drawings).

Children in Greece suggested that they found the question regarding the safe Internet interesting. They told us that this way of working was new to them, and they were taught how to express their ideas by using practical constructions. They said this methodology had helped them to visualize what it means to give your personal data, to play dangerous games, to receive misleading messages or to surf dangerous web pages and it had also helped them understand what the appropriate steps to take would be to address such issues. They thought that group work had helped as the students who understood students were able to clarify matters for those who did not, so they integrated well. They said that they liked having to use different media in a 'rotation' style during the Design Workshop.

They said there had been were no specific problems, but the beginning had been a little difficult as they had not done anything similar before and did not really know what to create or draw. The children in Greece characterised the experience as unforgettable and said that they would like to work in this way again soon, but they would like to have some more time when creating their constructions.

Concerning the teaching during the Design Workshop, the students in Greece said they were satisfied with the educational process. They appreciated working in groups in the sense that the teacher did not tell them what they did not do correctly. They liked the fact that they had markers and paper in every lesson, so they could elaborate on their ideas in different ways. They particularly liked the teachers' attitude towards them and that they liked almost everything they created. Even if something was not so good, teachers did not mind but gave them suggestions for how they might do it better.

After the workshops in Greece, the students noted that it a unique experience to work in this way, showing what they knew, rather than writing dictation and doing mathematics as usual. They said they would like to express their opinion from now on with drawings and constructions, though not all the time. They said they had found he Lego constructions somewhat demanding to assemble but had succeeded in engaging with this medium. They also offered reflections as to how the mediums used as part of CyGen could be adapted to their other lessons.

Through the above described process of dialogue, reflection and interpretation with children, parents and teachers, participants were themselves central to the deliberation and solution building, ensuring that their knowledge, experience and understandings form the basis of the scope, design and functionality of the digital education programme and the design workshop activities. The Data workshop with the children indicated the children's views on using the internet by constructing computer consoles, Lego viruses, screens, play-dough words to attract attention and drawings to place emphasis on messages and their importance. The Young People's Panel (YPP), consisting of 5 students, played an essential role in balancing views and opinions and in transferring students' experiences and knowledge to the CyGen research team.

Belgium

The BE team adopted the roles for children used in UK and DK Design Cycles. All children were invited to join one of three groups (Young People's Panel, Design Team, and Quality team. During the data workshop, the children made models using Crayons and Play-Doh to represent how they go online including:

- Situations they enjoyed and situations they found challenging and how they stayed safe online;
- Posters which illustrated challenges and recommendations for other children using the internet.

The sequence of activities broadly followed those set out in the data workshop guide produced by the DK team ('steps' and 'assignments') with some cultural and age appropriate adaptions. The data workshop collected information on tools, games and activities students do with their computer and internet. The design workshop delivered some narrative stories about the information collected during the data workshop.

In connection with the workshop guide, the children are divided into smaller groups of 4-5 people in each group/table, selected by the children themselves. Four researchers from the CyGen team participate in the workshop. The layout of the workshop matched the following agenda:

- Briefly describe your recent experience of going online
- Draw or build something that tells us about what you use the interest for
- Discuss in your group how you go online
- Draw/ build situations you find fun exciting or challenging

- Draw or model safe Internet behaviour
- Feedback to whole class
- BREAK (pupils go out to play for 20 mins)
- Create a poster of an online with advice for other children

In the immediate evaluation of the workshop, the CyGen team reflected on the challenge of collecting data. It is a general experience of all 4 researchers that the children do not really get in depth with the task, and that there is a great need for support from both the teacher and the researchers. There is a lot of knowledge and experience with the participating children, but the level of reflection does not rise appreciably. Some children required questions to be re-framed to support their engagement. The team worked closely with the different tables to support their creations and reflection.

Denmark

The key difference in the Design Cycle in Denmark was that the Danish team worked with slightly older children than the other country partners: 12-13-year olds. Children were asked to reflect on the way they worked in this project (Project based learning) and reported that they liked the different way of working, both individually and alongside their classmates. They commented on the importance of working alongside friends, which enabled them to feel more secure, particularly at the outset of the project. Play dough and Lego were favoured mediums for them to use in sharing their thoughts and experiences.

Teachers were involved to a greater degree in Denmark than within the UK. In the former they formed a key part of data collection, whereas in the latter the research team worked with teaching staff to set up each phase of data collection but hosted and ran the workshops themselves. The interview with teachers contained questions about:

- Use of internet in the education/classroom
- Their currently support and teaching in online behaviour
- Skills and practices
- Challenges in supporting
- Their own actions

The interview with parents contained questions about:

- Children's online use
- Mediation and shared activities
- Skills and practices
- Challenges and risks
- Supporting and mediation

The Danish CyGen team were the developers of the Design Cycle and completed testing of the Design Kit prior to the first full cycle being completed (in the UK). At the time of the Danish Design Cycle, some specific adjustments were made, building on the learning of other country teams and reflecting the researchers' knowledge of the children that they would be working with. These included:

- One adjustment during the YPP child-led focus group interviews with parents and teachers. Here we divided YPP and made to groups. One group functioned as the interviewer and one as observants during the interviews.
- For practical reasons, the Danish Webapp was not finalised before we did the focus group interview with YPP, teachers and parents in the final phase of the project. Questions were therefore adjusted at this stage of the project in Denmark and focused on the project's processes and stakeholder learning, rather than the tool itself. Follow-up testing was later completed with 4th Grade children, facilitated by the 6th Grade students who supported the Webapp design in Denmark.

All the Danish YPP children in YPP wanted to interview parents: they seem to be most concerned with getting the parents' insights. By lottery it was decided which of the YPP children would conduct the focus group with the parents.

The Danish research team noted that generally, they tended to hear more stories from children during breaks than during the focus group time with the children. As soon as the formal interview was paused, the children tended to become even more talkative. They reminded each other of the stories and experiences they had had and told each other in an adult-free environment. For ethical reasons, these stories are not documented and cannot be included in our reporting. However, this experience with the Danish YPP children indicates that (with permission), it may be beneficial to collect data during breaks and arrange rooms informally if one wants to capture the realities of everyday life of children at this age.

The Danish research team also noted that during the time they were with the children, the children could easily be distracted by external factors, for example if the door to the

room was opened, shouting was heard out in the hallway. They were also easily distracted from what each other was saying and needed to be helped back on track in the YPP focus group, which led to the researchers giving the children small breaks during the YPP focus group. There was a sense of hierarchy in the Danish YPP group and awareness of social positioning which the Danish research team attributed in part to the children being on the threshold of teenage life.

Summary

CyGen was completed around a series of Design Cycles: a sequence of development activities completed by children in each partner country which informed the design of the Webapp (described in IO4). This report explains how the CyGen team, worked collaboratively with children, teachers and parents in each country using the methodological approach and tools described in the IO2: Participatory Design Model to involve children in the co-production of the Webapp and in the project evaluation.

The Design Cycle was conducted in four diverse European countries: the UK, Denmark, Belgium and Greece (a step-by-step video of this process can be found on the project webpage). Data collection was completed in the local language of each partner. The three phases of the Design Cycle were:

- 🌍 Data Workshop Phase (baseline 'pre-intervention' data)
- 🌍 Design Workshop Phase (mid-point data)
- 🌍 Development and testing phase (end-point data)

The report has elaborated:

- The art-based methods, sample and recruitment methods used in each country;
- The process of iterative analysis and co-analysis undertaken with children in each of the partner schools;
- The project ethics and commitment to BERA (2011; 2018) principles
- The roles of children within the project as peer researches, co-designers and evaluators;
- The process of applying the participatory methodology and co-design principles in practice and the country specific adaptations made by each team.

The Partnership