

CHILDREN, TECHNOLOGY AND PLAY: UK RESEARCH TOOLS

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1. CHILDREN, TECHNOLOGY AND PLAY: UK SURVEY

QUESTIONNAIRE KEY:

BLUE = Section and scripting information

DEMOGRAPHIC QUESTIONS TO PARENTS

We are going to ask a series of questions. We would like you to answer the first few questions that relate to your age, gender, children living in your household, where you live, etc.

Once again thank you for taking the time to complete this questionnaire.

Qa. How old are you?

(Ask all – open ended, number only)

--

Qb. What is your gender?

(Ask all - Single Response)

Male

Female

Other

Prefer not to answer

Qc. Which of these best describes your ethnic group?

(Ask all - Single Response)

SCRIPTING NOTE – DO NOT SHOW CATEGORIES, E.G. A. WHITE, B. MIXED ETC.

A. White [Scripting: Recode grouping]

- White (This includes all White backgrounds)

B. Mixed [Scripting: Recode grouping]

- White and Black Caribbean

- White and Black African

- White and Asian

- Any other mixed background

C. Asian or Asian British [Scripting: Recode grouping]

- Indian

- Pakistani

- Bangladeshi

- Any other Asian background

D. Black or Black British [Scripting: Recode grouping]

- Caribbean

- African

- Any other Black Background

E. Chinese or other Ethnic Group [Scripting: Recode grouping]

- Chinese

- Prefer not to tell

- Any Other (please specify)

Qd. Which region of the UK do you live in?

(Ask all - Single Response)

1. England
2. Northern Ireland
3. Scotland
4. Wales
99. Not in UK [SCREEN OUT]

Qe. Which one of the following options best describes the sort of work that the chief income earner in your household does?

(Ask all - Single Response)

1. Higher managerial, administrative and professional
2. Intermediate managerial, administrative and professional
3. Supervisory, clerical and junior managerial, administrative and professional
4. Skilled manual workers
5. Semi-skilled and unskilled manual workers
6. State pensioners, casual and lowest grade workers, unemployed with state benefits only
- Other (please specify)
99. Not Applicable

Qe2. What is your total household income per year?

1. Less than £20,000
2. £20,000-£39,999
3. £40,000-£59,999
4. £60,000- £79,999
5. £80,000- £99,999
6. £100,000 or more

Qf. Which of the following age groups do your children in your household that you have parental responsibility for, fall into?

[Select all that apply]

1. 0-2 years old
2. 3-11 years old
3. 12-16 years old
99. I don't have any children [SCREEN OUT]

[Screenout if only option 1 or 3 are selected]

Qf2. Now please tell us how many boys and/or girls you have and how old they are, using the boxes below.

Column:

[c1] Boys (enter number below)

[c2] Girls (enter number below)

[c3] Other (enter number below)

[c4] Prefer not to say (enter number below)

Row:

- [r1] Under 1 year old
- [r2] 1 year old
- [r3] 2 years old
- [r4] 3 years old
- [r5] 4 years old
- [r6] 5 years old
- [r7] 6 years old
- [r8] 7 years old
- [r9] 8 years old
- [r10] 9 years old
- [r11] 10 years old
- [r12] 11 years old
- [r13] 12 years old
- [r14] 13 years old
- [r15] 14 years old
- [r16] 15 years old
- [r17] 16 years old

We would like you to complete this survey on behalf of one of your children aged between 3 and 11.

Qg.

Please state your child's gender

Boy

Girl

Other (please specify)

Prefer not to answer

Please state your child's exact age in years and months below

[\(Ask all – single response\)](#)

Years

- 1. 3
- 2. 4
- 3. 5
- 4. 6
- 5. 7
- 6. 8
- 7. 9
- 8. 10
- 9. 11

Months

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6

- 7. 7
- 8. 8
- 9. 9
- 10. 10
- 11. 11

[Intro 2] For the rest of the survey we would like you to think of your [piped Qh: year] years old child when completing the survey. It might be useful to have your child nearby so that you can ask them to provide answers if needed.

Section A: Use of Electronic Devices

The following questions relate to the type of electronic devices your [piped Qh: year] child has access to, how they use these devices, the amount of time in a week they typically spend using them and the types of play that occur when using them.

AQ1. Which of these devices does your child have access to?

(Ask all – single response per row)

		Multiple Response					
		1. Yes – have their own	2. Yes – have access in the household	3. Yes – have access in a family member and/ or friend's home	4. Yes – have access in a public space such as a school, library or community centre	5. No – we don't have one but we do expect to get one EXCLUSIVE	6. No – we don't have one AND do NOT expect to get one in the near future EXCLUSIVE
	TV						
1	Standard TV Set						
2	A smart TV (a TV connected to the internet) (Asked if Qh = 7)						
	TABLET						
3	iPad						
4	Samsung Galaxy Tab						
5	Microsoft Surface						
6	Amazon Fire						
7	Kindle Fire						
8	Huawei Media pad						
9	Google Pixel Slate						
10	Amazon Fire Kids						
11	LeapPad						
12	Other Tablet computer						
	Smartphone or mobile phone						
13	iPhone						
14	Samsung Galaxy						
15	HTC						
16	Nokia						

17	Sony						
18	Huawei						
19	Google Pixel						
20	Oppo						
21	Honor						
22	Razer						
23	Other smartphone or mobile phone						
	GAMES CONSOLE						
24	Xbox						
25	PlayStation						
26	Nintendo (including Wii, Wii U, Switch)						
	HANDHELD						
27	PlayStation (PSP, VITA)						
28	Nintendo (DS, 2DS, 3DS)						
	OTHER						
29	Desktop computer /PC						
30	Laptop						
31	Internet connected Portable Media Player (e.g. iPod Touch, Archos)						
32	Smart speaker/voice assistants (e.g. Alexa, Google Home, Apple HomePod)						
33	Smart toy-connected to internet						
34	Electronic toy not connected to the internet, e.g. robot, drone etc.						
35	Virtual Reality equipment (e.g. headset)						
36	Wearable (e.g. FitBit, AppleWatch)						

[Scripting note: Recode Category as NET score]

AQ2. On a normal weekday, how much time does your child spend playing when using the following? For items like ‘wearables’ we would like you to think about the actual time they spend using the device for a purpose, and not the time where it’s ‘just being worn’

		1. Less than 30 minutes	2. 31- 60 minutes	3. 1 hour	4. 2 hours	5. 3 hours	6. 4 hours	7. 5 hours	8. 6 hours	9. 7 hours	9. 8 hours	10 . More than 8 hours	9 9. Does not use
1	Television												
2	Tablet												
3	Smartphone or mobile phone												
4	Games console (e.g. PlayStation, Xbox)												
5	Handheld Games Console (e.g. Nintendo)												
5	PC or Laptop												
6	Internet connected Portable Media Player (e.g. iPod Touch, Archos)												
7	Smart speaker/voice assistants (e.g. Alexa, Google Home, Apple HomePod)												

8	Smart toy - connected to the internet (e.g. Furby, toy robot)												
9	Electronic toy not connected to the internet, e.g. robot, drone etc.												
10	Virtual Reality equipment (e.g. headset)												
11	Wearable (e.g. FitBit, AppleWatch)												
12	Non-digital toys and playthings												

AQ3. On a normal weekend day, how much time does your child spend playing when using the following technologies? For items like ‘wearables’ we would like you to think about the actual time they spend using the device for a purpose, and not the time where it’s ‘just being worn’

[Same list as AQ2]

Section B: Play with technology

We are interested in how your child plays with technology. The questions in this section explore this area.

BQ1. There are different types of play which take place in everyday life and in digital worlds. These are some of them:

Object or construction play: Your child uses materials and objects to create new things

Exploratory play: Play in which your child explores objects to see what they can do with them, or to find out what the object can do (e.g. they may put them in their mouth, tap or drop them to see what happens, and so on).

Imaginative play: Your child uses his or her imagination in play, pretending ordinary objects are something else or (e.g. a stick turns into a wand)

Game play: Your child plays a game, following the rules of the game

Physical play: Such as running, jumping, wrestling etc.

Role play: Your child pretends to be someone else, taking on a role e.g. firefighter, vet

Social play: Your child plays with others

Transgressive play: Your child plays with something in a way that might not have been intended by the designers.

Which types of play have you observed when your child is using these technologies? Tick all that apply. We'd like you to think about whether your child's use of technology has led to or inspired them to play [\[Multiple response\]](#)

[\[Scripting- to add 'definition' to the col option when hover over the text \]](#)

		1. Object or construction play	2. Exploratory play	3. Imaginative play	4. Game play	5. Physical play	6. Role play	7. Social play	8. Transgressive	99. None of these
1	Television									
2	Tablet									
3	Smartphone or mobile phone									
4	Games Console (e.g. PlayStation, XBox)									
5	Handheld Games Console (e.g. Nintendo)									
6	Personal Computer									
7	Laptop									
8	Internet connected Portable Media Player (e.g. iPod Touch, Archos)									
9	Smart speaker/voice assistants (e.g. Alexa, Google Home, Apple HomePod)									
10	Smart toy- connected to internet									
11	Electronic toy not connected to the internet, e.g. robot, drone etc.									
12	Virtual Reality equipment (e.g. headset)									
13	Wearable (e.g. FitBit, Apple Watch)									

BQ2

Which of the following does your child play with/on? (Tick all that apply)

APPS

1. Escape and obstacles apps (e.g. Temple Run)
2. Style creation apps (e.g. Stardoll)
3. Basic strategy apps (e.g. Angry Bird)
4. Nurture and mimics apps (e.g. Talking Tom, My Horse)
5. Musical apps
6. Drawing apps
7. Number game apps
8. Writing/spelling game apps
9. Creative production apps (e.g. Puppet Pals, Toontastic)
10. Augmented Reality apps (e.g. Pokémon Go)
11. Virtual Reality apps (e.g. Roller Coaster VR)
12. LEGO apps [please specify]
13. Scratch

POPULAR GAMES

14. Minecraft
15. Roblox
16. Fortnite
17. Racing games e.g. Super Mario
18. Other video games [please specify]

TOYS/TECH

19. Drone (e.g. Holy Stone Predator Quadcopter)
20. Coding game (e.g. Fisher Price Think and Learn Code-a-Pillar, Osmo)
21. Echo Dot Kids
22. Connected toys (e.g. Furby Boom, Cozmo)

BQ3

Tick the top 3 apps/ games your child plays with: (Tick 3)

APPS

1. Escape and obstacles apps (e.g. Temple Run)
2. Style creation apps (e.g. Stardoll)
3. Basic strategy apps (e.g. Angry Bird)
4. Nurture and mimics apps (e.g. Talking Tom, My Horse)
5. Musical apps
6. Drawing apps
7. Number game apps
8. Writing/spelling game apps
9. Creative production apps (e.g. Puppet Pals, Toontastic)
10. Augmented Reality apps (e.g. Pokémon Go)

11. Virtual Reality apps (e.g. Roller Coaster VR)
12. LEGO apps [please specify]
13. Scratch

POPULAR GAMES

14. Minecraft
15. Roblox
16. Fortnite
17. Racing games e.g. Super Mario
18. Other video games [please specify]

TOYS/TECH

19. Drone (e.g. Holy Stone Predator Quadcopter)
20. Coding toy (e.g. Fisher Price Think and Learn Code-a-Pillar, Osmo)
21. Echo Dot Kids
22. Connected toys (e.g. Furby Boom, Cozmo)

BQ4. Do you tend to join in when your child plays with the following?

		6. I play alongside them all of the time	5. I play alongside them most of the time (e.g. at least once a week)	4. I play alongside them some of the time (e.g. at least once a month)	3. I play alongside them now and again (e.g. every few months or less)	2. I normally start them off e.g. explain the rules, but then withdraw	1. Rather than joining in/starting them off, I oversee their play	99. I do not play/engage with them at all
1	Television							
2	Tablet							
3	Smartphone or mobile phone							
4	Games Console (e.g. PlayStation, Xbox)							
8	Handheld Games Console (e.g. Nintendo)							
9	PC or Laptop							
10	Internet connected Portable Media Player (e.g. iPod Archos)							
11	Smart speaker assistants e.g. Alexa							
12	Smart toy-connected to internet							

13	Electronic toy not connected to the internet, e.g. robot, drone etc.							
14	Virtual Reality equipment (e.g. headset)							
15	Wearable (e.g. FitBit, AppleWatch)							
16	Non-digital toys and playthings							

BQ5. What is the main reason you do OR do not join in with the play with your child using these items?

		Asked to BQ4 selected devices; Col 1-4			Asked to BQ4 selected devices; Col-5 to 7 (without 'often')			
					{Often} Asked to BQ4 selected devices; Col-3 to 4 [Keep 'often' as separate codes]			
		1. I play with them because think it is important for my child's development/learning	1. I play with them because think it is important for our relationship	1. I play with them because it is fun for me too	4. I generally do not play with them because I am too busy	4. I generally do not play with them because I am not confident with the technology	2. I generally do not play with them because I do not think play is for adults	1. I generally do not play with them because they do not want me to
1	Television							
2	Tablet							
3	Mobile Phone							
4	Games Console (e.g. PlayStation, Xbox)							
5	Handheld games console (e.g. Nintendo)							
6	PC or Laptop							
7	Internet connected Portable Media Player (e.g.							

	iPod Archos)							
8	Smart speaker assistants e.g. Alexa							
9	Smart toy-connected to internet							
10	Electronic toy not connected to the internet, e.g. robot, drone etc.							
11	Virtual Reality equipment (e.g. headset)							
12	Wearable (e.g. FitBit, Apple Watch)							
13	Non-digital toys and playthings							

Other reason: [Please specify] on the right column

BQ6. Which of the following types of non-digital play do you engage with your child on a regular basis (e.g. once a month or more?) [Tick all that apply]

- Board games
- Card games
- Indoor Sports
- Outdoor sports
- Play with toys
- Role play
- Making/ arts/ crafts
- Short excursions
- Games from everyday life (e.g. language games, contests)

98. Other (please specify)

99. None of these [\[EXCLUSIVE\]](#)

BQ7. We are interested in children's active engagement with technology in play. When playing with technology, is your child is actively engaged (e.g. interested, focused on the activity), in general?

[\[Single response\]](#)

1. Very much
2. Somewhat
3. Not sure
4. Not really
5. Not at all

BQ8. We are interested in how far your child enjoys their play with technology. When playing with technology, is your child joyful (happy, cheerful), in general? [\[Single response\]](#)

1. Very much
2. Somewhat
3. Not sure
4. Not really
5. Not at all

BQ9

We are interested in the ways that children find play with technology meaningful and relate their experiences to their everyday lives. When playing with technology, does your child find the play to be meaningful to them and their everyday interests, in general?

[\[Single response\]](#)

1. Very much
2. Somewhat
3. Not sure
4. Not really
5. Not at all

BQ10. We are interested in the ways your child might try things out and try then to make improvements/ set themselves challenges when playing with technology. When playing with technology, does your child enjoy trying things out and making improvements, in general?

[\[Single response\]](#)

1. Very much
2. Somewhat
3. Not sure
4. Not really
5. Not at all

BQ11. We are interested in children's social interactions in relation to their play with technology. When playing with technology that allows for social interaction, would you say your child engages well with others, in general?

[\[Single response\]](#)

1. Very much
2. Somewhat

3. Not sure
4. Not really
5. Not at all

BQ 12 Can you describe examples of technologies where your child is being particular playful?

BQ13. When your child plays with technologies, how far are they taking an independent approach?

- My child is not inspired by the technologies and wants to do something else
- My child follows what happens
- My child takes the initiative on her/his own
- My child sets her/his own goals
- My child personally owns the experience
- My child feels they can do things they couldn't do before

BQ14. Who does your child play with mostly when using these technologies?

[Scripting note: Show option for BQ18, BQ19 on one page, by devices]

(Single response per row)

		1. Plays mostly on own	2. Plays mostly with brothers/sisters	3. Plays mostly with parents	4. Plays mostly with friends	5. Plays mostly with online friends they have not met	6. Doesn't have a preference – plays on own and with others equally
1	Television						
2	Tablet						
3	Smartphone or mobile phone						
4	Games Console (e.g. PlayStation, XBox,)						
5	Handheld games console (e.g. Nintendo)						
6	PC or Laptop						
7	Internet connected Portable Media Player (e.g. iPod Archos)						
8	Smart speaker assistants e.g. Alexa						
9	Smart toy- connected to internet						
10	Electronic toy not connected to the internet, e.g. robot, drone etc.						
11	Virtual Reality equipment (e.g. headset)						
12	Wearable (e.g. FitBit, AppleWatch)						
13	Non-digital toys and playthings						

BQ15. Where does your child play with technology, mainly?

(Single response per row)

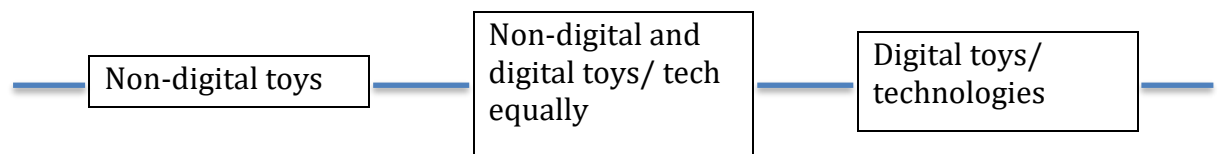
		1. Own room	2. In brother's/sister's room	3. Shared family room (e.g. living room, kitchen)	4. Other (e.g. friends, grandparents, relatives)	5. Outside/Outdoor
1	Television					
2	Tablet					
3	Smartphone or mobile phone					
4	Games Console (e.g. PlayStation, Xbox)					
5	Handheld games console (e.g. Nintendo)					
6	PC or Laptop					
7	Internet connected Portable Media Player (e.g. iPod Archos)					
8	Smart speaker assistants e.g. Alexa					
9	Smart toy- connected to internet					
10	Electronic toy not connected to the internet, e.g. robot, drone etc.					
11	Virtual Reality equipment (e.g. headset)					
12	Wearable (e.g. Fit Bit, AppleWatch)					
13	Non-digital toys and playthings					

BQ16. My child plays mainly with...

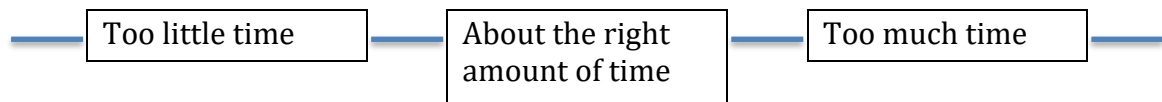
[Revision of DQ5:2, 4, 13].

Please use the scale below to select the most applicable to your child

[Single response]



BQ17. My child plays with technologies for:



BQ18. My child mainly integrates the digital and non-digital when playing.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Section C: Skills

CQ1. We want to know about how confident you (not your child) are in playing with technology compared to your friends in your age group

1. Not confident at all
2. Not very confident
3. Neither confident nor unconfident
4. Confident
5. Very confident

CQ2. We want to know about how confident you are in helping your child play with technology

1. Not confident at all
2. Not very confident
- ~~3.~~ Neither confident nor unconfident
4. Confident
5. Very confident

CQ3 We want to know about what skills you feel your child has when playing with technology

(Ask all as grid question–single response)

		Is able to do unassisted	Needs some assistance	Is unable to do /unaware of
1	Can turn devices on			
2	Can use key features of devices e.g. turn volume up and down, find apps			
3	Can navigate age-appropriate apps			
4	Can locate and get on to a web browser			
7	Can manage pop-ups by clicking on 'x' to remove them			
8	Can conduct searches using search terms in a search engine			
9	Can browse, search and filter data, information and digital content*			
10	Can analyse, compare and evaluate data, information and digital content* (e.g. choose which website gives best information for homework)			
11	Can organize, store and retrieve data, information and content in digital			

	environments* (e.g. can create folders to store files in)			
12	Is able to interact through digital technologies and understand most appropriate uses of phone/text etc.* (e.g. asks to Skype/Facetime family members who live afar)			
13	Can share data, information and digital content with others* (e.g. send photos)			
14	Can create Powerpoint/presentation slides			
15	Understands issues relating to data privacy and safety (e.g. not to share name/password)*			
16	Can create digital content e.g. take photographs/videos*			
17	Can create virtual worlds using games such as Minecraft			
19	Can code their own games e.g. using Scratch			

[Scripting note please exclude * in the survey. * refers Competence linked with EU Digi-Comp Framework]

CQ4 How creative would you say your child is relative to their friends/children their age?

[Single response]

1. Less creative
2. About the same
3. More creative

CQ5 In general, how playful would you say your child is relative to their friends/children their age?

[Single response]

1. Less playful
2. About the same
3. More playful

CQ6 In general, how interested in using technology would you say your child is relative to their friends/children their age?

[Single response]

1. Less interested
2. About the same
3. More interested

CQ7 In general, how happy would say your child is relative to their friends/children their age?

[Single response]

1. Less happy

2. About the same
3. Happier

CQ8. Has your child ever...?

(Ask all – multiple response)

1. Bought a game online without your knowledge
2. Played with their friends over the internet (e.g. on the Xbox)
3. Played with family members over the internet (e.g. on the Xbox)
4. Played with people they don't know over the internet (e.g. on the Xbox)
5. Played with people they don't know in the physical world
6. None of above

Section D: Safety /Issues

DQ1. Please indicate how you feel about each of the following statements

(Ask all – single response per row)

RANDOMISE

		1. Strongly disagree	2. Tend to disagree	3. Neither agree / disagree	4. Tend to agree	5. Strongly agree
1.	Play is essential for children's learning and development					
2.	Playing with technologies enables my child to come up with new ideas					
3.	Playing with technologies supports my child's ability to concentrate.					
4.	Playing with technologies makes it difficult for my child to regulate her/ his emotions.					
5.	Playing with technologies limits my child's physical activity.					
6.	Playing with technologies helps my child to be more sociable					
7.	Playing with technologies is important for my child to have success in education and life.					
8.	Playing with technologies limits our time as a family together.					
9.	I worry about what technology my child plays with					
10.	My child learns a lot from playing with technology/technological toys					
11.	I do not feel the need to supervise my child's use of technology in their play					
12.	I would prefer it if my child just played with non-digital toys					
13.	Playing with technology is essential for my child's well-being and happiness					
14.	My child should spend more time outside rather than playing with technology/technological toys					

15.	I know who my child is playing with online all of the time					
16.	I get bored easily when playing with my child using technology					
17.	Technology helps my child to be creative					
18.	I regularly talk to my child about the things they like to play with using technology					
19.	I know where to get help and advice if I am worried about my child's use of technology in their play					

DQ2. We want to understand how comfortable or uncomfortable you are with your child using these technologies in their play
(Piped list from BQ1–single response)

		1. Very uncomfortable	2. Quite uncomfortable	3. Neither comfortable nor non-comfortable	4. Quite comfortable	5. Very comfortable
1	Television					
2	Tablet					
3	Smartphone or mobile phone					
4	Games Console (e.g., PlayStation, Xbox)					
5	Handheld games console (e.g. Nintendo)					
6	PC or Laptop					
7	Internet connected Portable Media Player (e.g. iPod Archos)					
8	Smart speaker assistants e.g. Alexa					
9	Smart toy- connected to internet					
10	Electronic toy not connected to the internet, e.g. robot, drone etc.					
11	Virtual Reality equipment (e.g. headset)					
12	Wearable (e.g. FitBit, AppleWatch)					

DQ3 What is your experience with parental controls?

1. Not aware of any parental controls
2. Aware of them, but not sure how to use them
3. Aware of them, but don't use them /don't find them to be useful
4. I sometimes use parental controls

5. I regularly use parental controls

DQ4 Do you use any safety features of online sites? (e.g. SSL certificate, Secure/Verified)

1. Not aware of any safety features
2. Aware of them, but not sure how to use them
3. Aware of them, but don't use them /don't find them to be useful
4. I sometimes use safety features
5. I regularly use safety features

DQ5 How concerned are you with these aspects of data privacy?

		1.Not at all concerned	2.Not very concerned	3. Neither concern/not concern	4.Somewhat concerned	5.Very concerned	99. My child does not use
1	Toys/devices that collect data on how children use it						
2	Toys/devices that collect data on what children say to it						
3	Toys/devices that let people in its vicinity have access via Bluetooth						
4	Toys/devices that allow third-parties to have personal data for advertising purposes						
5	Hidden advertising in toys/devices (e.g. specific products sponsored in them)						

Thank you for completing this survey! If you would be willing to participate in a 20 minute follow-up interview in October/November, in which we explore some of these issues further, please leave your details below. If we receive more expressions of interest than required, we will select participants based on their profiles in order to ensure a mixture in terms of age of child, gender of child, social class and ethnicity. Randomly selected participants will be given a £30 Amazon voucher.

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2. CHILDREN, TECHNOLOGY AND PLAY: SCHEDULE FOR CASE STUDY VISITS

VISIT 1 - FAMILIARISATION VISIT

Researcher 1

Go through the parent information sheet carefully. Reassure parents that they can withdraw at any time, that there are no wrong/right answers and that they are in control of their contribution to the project at all times.

Suggest that the main focus for the project will be on the target child (we will decide on the target child once we have all family details confirmed, to ensure a range of ages/ genders). However, any siblings can also participate in any of the child-centred participatory aspects of the study if they wish to do so (e.g. they can also have a diary, use cameras etc.).

Ask them if the parents have any questions about the project,

Collect some basic data about the family (Appendix i).

Ask parent to use their smartphone (if they have one) to take any interesting photographs/ images of child/ren's technology-mediated play until the next visit. Explain how to do this – ask them to take video and/ or photographs and then on the next visit, the researcher will upload this to a laptop. Talk about the kinds of interesting data they could collect e.g. child playing with tablet/ video game, child using internet-connected toys, and so on. Discuss how they could also record sibling and adult interaction in this play. Clarify that they should not film anyone for whom we do not have informed consent.

Explain that the parent may wish to share some of the images/ videos in the closed WhatsApp group, which is closed to the parents and the researchers.¹ The parents may wish to invite others to the group e.g. grandparents.² Researchers may ask questions about the data shared this way using questions on WhatsApp.

Ask the parent if the child attends any kind of out-of-school activities/club. Explain that you would like to visit one of these places in order to identify if, and how, children engage in technology-mediated play when there. If they agree, ask for the contact details of the person/ institution running the after-school activity/club. Show them the questions you would ask of the person running the club (Appendix ii), to reassure them that this is not about asking about the child's general contributions but is a focus on play and technology.

If there is time, you could start to work through the list of questions we are interested in (Appendix iii). Please note that these questions can be asked – and revisited – throughout the whole 6 visits.

Researcher 2

Talk to the child/ren about the project, and help them to complete the informed consent booklet.

Give the child/ren the journals and pens and discuss what they might want to record e.g. what they played with/ when/ with whom/ what they felt about this play.

Take some paper and additional felt pens. Ask the child to draw their favourite play activities/ playthings.³ Use the drawing as a stimulus for discussion using prompt questions e.g.

- Tell me about that drawing.
- How often do you play (with) that?

¹ One WhatsApp group per family, plus the researchers they have met.

² See updated consent form for adults which has been clarified to include family-related adults who are not parents, e.g. grandparents.

- What do you do when you play that?
- Who do you play that with?
- Where do you play it?
- Do you play it at any time of the day, or a specific time?
- How does playing that make you feel?
- Have you any stories to tell me about playing that?

Researcher 1 and 2

Towards the end of the visit, introduce the parent and child/ren to the Go Pro camera and show them how it works. Let them have a play with it and ensure that they feel comfortable with it before you leave it with them.

Asked them to choose times when the child is playing using technology and then the child can choose to wear it. Stress that this is optional, that the child can take the camera off at any time or can choose not to use it at all.

If there is more than one child aged 3-11 in the family and children other than the target child wish to take part, ask that they take turns to share the use of the Go Pro camera. Explain that the Go Pro data would be too large to share on WhatsApp and we will collect it at the next visit.

Ask what type of voucher they would like on conclusion of the project (e.g. Apple; Argos; John Lewis; Tesco).

VISIT 2

Researcher 1

If the parent recorded data, transfer it on to your laptop. Look through it and/or any data sent via WhatsApp group, with him/ her and ask why that data has been recorded, what it means to the parent/ child and so on. Prompt questions⁴ could include:

- Why did you record this?
- When was it filmed/ where/ what was the context?
- What does it show?
- What does the episode mean to you?
- How often does this type of play occur?
- Why did you film this sequence? What does it mean to your child?
- Tell me what your child/ren were doing in this sequence.
- What did he/ she enjoy the most about this?
- Can you remember any other feelings your child had in this play? Tell me about that.
- What technologies foster particularly joyful play? Tell me about that.
- Did your child try out new things - if so, what? Has your child tried those things since? Does your child set themselves challenges in their play? Tell me about that.
- When your child plays with technologies, how far do they take an independent approach? Tell me about that.
- Which technologies foster or limit social interaction in play? Tell me about that.
- What do you think your child learned, if anything?
- Do you want to tell me anything else about this video?

If Go Pro data were recorded, transfer this on to the laptop and ask about the context for this use. Then pass the laptop on to Researcher 2.

If there is time, go through some of the questions in Appendix iii.

Researcher 2

Ask the child/ren to share their play diary, if they have recorded in it. Talk to them about what they have written/ drawn in it.

Ask the child to show you their favourite toy. Ask them to tell you all about it e.g. why is their favourite toy, how long has it been a favourite toy, when they play with it, who they play with when using it, if anyone, and so on.

If the toy is not related to technology, ask them to identify their favourite play activity using technology. They can draw a picture of this if they wish. Again, ask them to tell you all about it e.g. why is their favourite toy, how long has it been a favourite toy, when they play with it, who they play with when using it, if anyone, and so on.

Now share the photographs of various items of technology (Appendix iv). Ask them to stick them onto three sheets of paper with the following headings: *I have played with this*, *I have not played with this*, *I do not know what this is*. After they have completed the task, ask them questions about those items that they have played with e.g.

- When have you played with this?
- How often do you play with this?
- Where do you usually play with this?
- What do you do when you play with this?
- How do you feel when you play with this?
- Who do you play this with, if anyone?

- Why did you film this sequence? What does it mean to you?
- Tell me what you were doing in this sequence.
- What did you enjoy the most about this?
- Can you remember any other feelings you had in this play?
- Did you try out new things - if so, what? Have you tried those things since?
- What do you think you learned, if anything?
- Do you want to tell me anything else about this video?

When Researcher 1 is ready to share the laptop, look at the Go Pro data with the child and let them talk about what is on screen. It is better at this point not to ask questions, but to let them talk when they notice particular activities on-screen.

Researcher 1 and 2

Remind the parent to use smartphone (if they have one) to take any interesting data until the next visit.
Remind the child/ren to use the Go Pro camera when he/ she wishes to.

VISIT 3

Researcher 1

If the parent recorded data, transfer it on to your laptop. Look through it with him/ her and ask why that data has been recorded, what it means to the parent/ child and so on. Prompt questions could include:

- Why did you record this?
- When was it filmed/ where/ what was the context?
- What does it show?
- What does the episode mean to you?
- How often does this type of play occur?

Plus additional questions from above (Visit 2).

If Go Pro data were recorded, transfer this on to the laptop and ask about the context for this use. Then pass the laptop on to Researcher 2.

If there is time, go through some of the questions in Appendix III.

Researcher 2

Ask the child to share their play diary, if they have recorded in it. Talk to them about what they have written/ drawn in it.

Tell the child he or she is free to play with something they love playing with, which involves technology. It could be something they want to play with on their own, or something they want you to play with them. Film them playing if the former and make field notes after the visit if the latter. Ask questions about why they have chosen the activity, how often they play this, when, where, who with, and so on (including additional questions from above (Visit 2). If they do not wish to play, then move on to the next activity.

If there is time and if appropriate for the child's age/development, ask them some of the questions in Appendix V.

When Researcher 1 is ready to share the laptop, look at the Go Pro data with the child and let them talk about what is on screen. It is better at this point not to ask questions, but to let them talk when they notice particular activities on-screen.

Researcher 1 and 2

Remind the parent to use smartphone (if they have one) to take any interesting data on until the next visit. Remind the child/ren to use the Go Pro camera when he/ she wishes to.

VISIT 4

Researcher 1 and 2

Ask the child and parent if they can take you on a play and techno-tour of their home. This involves going into each room that the child uses and asking about the accounts of technology-mediated play that occurs in the rooms (see Appendix vi).

If the family seem reticent to do this, support them in drawing a map of the home and ask them about the kinds of technology-mediated play that occurs in each of the rooms.

Researcher 1

After the tour, if the parent recorded data, transfer it on to your laptop. Look through it with him/ her and ask why that data has been recorded, what it means to the parent/ child and so on. Prompt questions could include:

- Why did you record this?
- When was it filmed/ where/ what was the context?
- What does it show?
- What does the episode mean to you?
- How often does this type of play occur?

Plus additional questions from above (Visit 2) when agreed.

If Go Pro data were recorded, transfer this on to the laptop and ask about the context for this use.

Researcher 2

After the tour, ask the child to share their play diary, if they have recorded in it. Talk to them about what they have written/ drawn in it.

Let the child play and observe him/ her/ them. If the play involves technology, film it. If the child does not wish to play, that is fine. If appropriate, you could explore some of the questions in Appendix v.

Researcher 1 and 2

Remind the parent to use smartphone (if they have one) to take any interesting data on until the next visit. Remind the child/ren to use the Go Pro camera when he/ she wishes to.

VISIT 5

Researcher 1

If the parent recorded data, transfer it on to your laptop. Look through it with him/ her and ask why that data has been recorded, what it means to the parent/ child and so on. Prompt questions could include:

- Why did you record this?
- When was it filmed/ where/ what was the context?
- What does it show?
- What does the episode mean to you?
- How often does this type of play occur?

Plus additional questions from above (Visit 2) when agreed.

If Go Pro data were recorded, transfer this on to the laptop and ask about the context for this use. Then pass the laptop on to Researcher 2.

If there is time, go through some of the questions in Appendix iii.

Researcher 2

Ask the child to share their play diary, if they have recorded in it. Talk to them about what they have written/ drawn in it.

If there is time and if appropriate for the child's age/development, ask them some of the questions in Appendix V.

When Researcher 1 is ready to share the laptop, look at the Go Pro data with the child and let them talk about what is on screen. It is better at this point not to ask questions, but to let them talk when they notice particular activities on-screen.

Researcher 1 and 2

Explain to the parent and child/ren that there is no requirement to film any further play in the following week. Instead, the final visit will be an opportunity to revisit any of the footage not previously discussed with the family.

Share with the family a selection of images that could be used to create a photobook in the final session (printed out as thumbnails prior to the visit). Explain that on the final visit, you would like them to have chosen 10 photographs that they think would create the most appropriate photobook that best describes the child's/ children's technology-mediated play and how they feel about it.

Visit 6

Researcher 1

Go through with the parent any footage not previously talked through, which is of interest.

Ensure all questions in Appendix III have been addressed.

Researcher 2

Ask the child to share their play diary, if they have recorded in it. Talk to them about what they have written/ drawn in it.

If there is time and if appropriate for the child's age/development, ask them any remaining unexplored questions in Appendix v.

Researcher 1 and 2

Create a photobook of play and technology in the family, using photographs chosen by the family. Use the Apple Photobook facility on MakeEY project iPads to do this.

Explain the next steps of the study, e.g. they will be sent a copy of the photobook in the next few months. We will be analysing the data over the next few months, and they will receive a copy of the report after the completion of the study in March 2020.

Thank the child/ren and parent for participating in the study. Give the family their chosen gift voucher.

Appendix i

Initial questions about the family

Basic information

- What are the parent/s' ages?
- Are they employed, and if so, what do they do?
- At what age did the parent/s leave school?
- What is their highest qualification?
- How would the family define their ethnic status?
- Do any of the family have a disability and if so, what is this?
- Do the parents own a car?
- What are the ages/ gender of each of the children? (Please ask for date of birth in each case.)
- Do the children own any LEGO products? If so, which?
- Do the children engage with any of the other LEGO portfolio e.g. films?

Access to and use of technology

The family will be asked to complete the survey, which will provide information about this aspect of their home/ family.

APPENDIX ii

Questions for activity leaders

Explain that we are undertaking a profile of the case study child across home and other significant sites that he or she visits, as was explained in the information sheets.

Technologies refers to both

- a) digital devices, such as mobile phones, tables, cameras, games consoles, computers etc, which are available in the children's daily lives, and
- b) **media** which children access, such as Apps, websites and digital games.

We are also interested in

- a) any **making** they are engaged in, e.g. robotics, creative coding (e.g. Scratch and ScratchIR), and
- b) **making/tinkering**, e.g. designing digital artifacts and 3D printing, building virtual worlds and exploring in VR and AR etc.

The **play** we are interested in includes

- a) adult-led, child-led, peer- and sibling-led play
- b) play using digital devices and media, including playful engagements with digital devices and media more generally as well as digital toys
- c) play which shows the influence of digital devices and media when they are not present.

Stress that, although the questions reflect the study's focus on play with technologies / media and creativity, they are not to be taken to imply deficit if technology and media are not used in the club or activity setting.

General Questions

- Tell me about your activity centre/ group – what does it do?
- Who funds it?
- How often does it run?
- How frequently does the case study child visit it?
- What types of things does he/ she normally do when attending?

Questions relating to technology and media in your activity centre / club / organisation

- Do technologies and media feature in your activity centre/ group, and if so, how?
- How far does this reflect the policy of your parent/central organization and how far it is a more local or personal approach?
- What technologies/media (e.g. websites, apps, games or films) do you use, and why?
- What are your aims in using technology/media in the activity centre/ group?
- Are there any technologies / media you'd like to use if you had the possibility (funding, support)? Why?
- What barriers do you encounter regarding integrating technologies/media in your activity/club?
- Are there any other uses of technology/media in your activity/club/organization you would like to tell us about, e.g for admin, training?

Questions relating to the case study child

- How does the case study child use the technology/media on offer?
- Do you use technology / media for creativity in your activity centre/ group? Is the case study child involved and, if so, how (ask about when/ where, who with etc and look out for LTP characteristics)?
- We are interested in understanding how this sort of play/ activity might develop skills and knowledge for the case study child. For example:
 - Physical skills
 - Social skills (such as online communication)
 - Cognitive skills

- Creative skills
- Emotional skills.
- When the case study child is playing with technologies or in response to media, do you ever engage with him or her? If so, how? What kinds of roles do you take, e.g. guiding, prompting, directing, co-playing? (Ask about when/ where, how often etc.)
- Are there some technologies / media that work particularly well for playing together with the case study child? Can you give me some examples, if so? If not, do you know why this is?
- Do you ever initiate play / activities using technology with the case study child? Are you more or less likely to initiate play / activities with technology rather than without technology? Why do you think this is?
- How do you think the case study child draws on their everyday experiences and knowledge of technologies or media at the club/activity?

Questions relating to the leader's perceptions of technology / media in general (ascertain for each, What has shaped your opinion on this?)

- Do you think any technologies /media are particularly "positive" or "negative" for the children at the club /activity? Which ones? Why?
- How important do you think technologies / media are for children in general?
- Do you have any concerns about children's experiences with technologies / media?
- Do you have any concerns about the safety aspects of Internet-enabled toys? If so, what are they? What has shaped your views?
- Do you have any concerns about data privacy in relation to children? What sort of concerns, if so?
- How important are technologies / media for you?
- Do you think that children's uses of technologies / media impact (positively or negatively) on their lives? Give examples.
- Do you think that children's uses of technologies interfere in any way (positive and/or negative) with their lives?

Questions relating to play with technology / media and wellbeing

- We are interested in exploring the link between play with technologies / media and children's emotions and wellbeing. Do you have any thoughts on this topic that you would like to share?
- Do you think that certain types of play with technologies/ media are more likely to lead to expressions of enjoyment from children than other types of play with media? Why do you think this is? How does this compare with play, toys and games more generally?
- Do you think that play with technologies / media is likely to lead to expressions of other emotions apart from enjoyment? If so, tell us more about which ones and what types of play they are linked with. How does this compare with play, toys and games more generally?
- Which types of technology / media are children in your setting more likely to get bored with quickly when playing, if any? Why do you think this is? How does this compare with becoming bored with play, toys and games more generally?
- Which types of technology lead to more social play in your view, if any? Why do you think this is?
- Do you have any further thoughts on the topic?

Observation schedule for the activity centre/ group

If the child is playing with technology or in response to media during your visit to the activity centre/ group, then make notes about how they are engaging on Table 1, which includes a space for comments on how the activity group leader is engaging with the child, if applicable.

Table 1: Observation Schedule

Notes on context	Observations on the activity	Notes on adult's role in the play
<ul style="list-style-type: none"> • Date • Time • Place • Number of children involved • Devices / artefacts involved 	<ul style="list-style-type: none"> • Note how far the child exhibits the following: non-play/ passive/ responding/ exploring/ owning/ transferring • Note how far the following are identified: actively engaging/ joyful/ meaningful/ iterative/ social interactive 	<p>Note if/ how far the adult:</p> <ul style="list-style-type: none"> • Initiates play • Guides play • Engages in co-play • Extends play • Shuts down play • Extends play into non-digital areas

APPENDIX iii

Questions for Parents

Questions about child's/ children's play and creativity in general

- What kinds of play does your child typically engage in (also ask about when, where, who with)?
- Can you give me some examples of her/ his favourite play activities?
- What is the balance of your child's indoor and outdoor play?
- How has your child's play developed over time?
- What do you think is the value of play in your child's life?
- How important is play in your family life?
- What kinds of creative activities does your child engage in (also ask about when, where, who with)?
- What are your thoughts on creativity and its value?

Questions about play and technology

- How does technology feature in your child's play?
- Does your child like to play with particular devices and, if so, what does he or she do with them? (Ask about when/ where, who with etc.)
- What types of devices/ apps/ games/ toys promote play, in your view? Why is that?
- What types of devices/ apps/ toys limit play, in your view? Why is that?
- What types of devices/ apps/ toys promote creativity, in your view? Why is that?
- What types of devices/ apps/toys limit creativity, in your view? Why is that?
- Does your child play when watching television and, if so, what kind of things that they do?
- Does your child's engagement with apps and online sites such as YouTube impact on their play at all and, if so, how?
- Does your child play video games and, if so, which, how, when, with whom and so on?
- Does your child have any physical toys that relate to their online/ digital interests e.g. Minecraft blocks/ figures. If so, does he or she play with these when also accessing the digital forms?
- Does your child play with toys that are digital e.g. Leap Pad toy laptops, robots etc? How does he/ she play with them? (Ask about when/ where, who with etc.)
- Does your child play with internet-enabled toys that are digital e.g. Furby, robots etc? How does he/ she play with them? (Ask about when/ where, who with etc.)
- Does your child play with Augmented Reality or Virtual Reality equipment? How does he/ she play with them? (Ask about when/ where, who with etc.)
- Does your child play with any artificial intelligence assistants e.g. Alexa, Siri, Google etc. How does he/ she play with them? (Ask about when/ where, who with etc.)
- Does your child play with technology in outdoor spaces and if so, what, where, when and how?
- Who decides which digital toys/ games/ apps your child will use, and what guides these choices?
- We would like to know about your child's play with LEGO. Does your child own any LEGO products and, if so, how does he/ she play with them?
- What about other aspects of the LEGO brand e.g. items such as bags, films and so on?
- What kinds of toys/ product do you think LEGO should be developing for children in this digital age?
- We are interested in exploring the link between play with technology and children's emotions and well-being. Do you have any thoughts on this topic that you would like to share?

- What types of technology-mediated play do you think are more likely to lead to expressions of joy from your child that other types of technology-mediated play? Why do you think this is?
- Which types of technology are your children more likely to get bored with quickly when playing, if any? Why do you think this is?
- Which types of technology lead to more social play in your view, if any? Why do you think this is?
- What skills and knowledge do you feel he/ she has developed through play with technology, if any?

Questions about parents' roles in technology-mediated play

- When your child is playing using technology, do you ever play with him or her? If so, tell me about how you play with him or her? (Ask about when/ where, how often etc.)
- Are there some devices/ app/ game/ toys that are better for playing together with your child?
- If you are using your own devices, does your child ever ask to play on them with you? If so, what sorts of things do you play together on the devices?
- Do you ever initiate play using technology with your child? Can you give me some examples, if so? If not, do you know why this is?
- (If there are 2 parents) Is dad likely to play with some kinds of technologies more than others with your child? Is mum likely to play with some kinds of technologies more than others with your child? What are the reasons for this?
- Are you more or less likely to initiate play with technology rather than without technology? Why do you think this is?
- Do you help your child with apps or do you prefer your child to figure it out on their own?
- How do you support your child's creativity with tablet apps?
- And you tell me about any times when you stop your child playing with technology – why is this, normally?
- Are there any rules concerning the use of digital devices/internet/etc. at home?
- Are they the same for all?
- Who makes these rules? Do your children have a say in the making of the rules?
- Are you making some decisions about what programs/games/app/ your children could use/see? If yes how?
- Do all family members accept these rules? If not, how do you deal with children's resisting the rules?
- Have these rules changed with time? If yes, why?
- Are digital devices part of the 'reward-punishment' system of the family? If yes, how and with whom?
- Do you have parental controls installed on laptops/ computers?
- Do you use the safety mode features offered on websites or by internet providers, for instance, on YouTube?

Questions about parents' general perceptions of new technologies

- Do you think any technologies are particularly "positive" or "negative" for your children? Which ones? Why?
- Are you worried in any ways about your children's experiences with technologies?
- Are you concerned about the safety aspects of Internet-enabled toys and if so, what are these concerns? If not, why not?
- Are you concerned about data privacy in relation to your child? What sort of concerns do you have about this?
- How important do you think are technologies for your children?
- How important are new technologies for you? And for family life?
- Do you think that your children's use of technologies interfere in any way (positive and/or negative) with family life?

- Do you have any worries or concerns about your child using these technologies? Or about the use of new technologies at home? If you do, what do you do about it?
- Would you like any advice or guidance on issues relating to data privacy and safety in relation to your child?

APPENDIX iv

Photographs for Activity 'Play with/ Don't Play With/ Don't Know What This Is'



APPENDIX v

Questions For Children

- Tell me about what you like to play. (Ask about when, where, who with and so on).
- What is your favourite kind of play? Why?
- Do you ever use technologies when you play such as tablets, smart phones and so on? If so, how do you play with them?
- Tell me about what you do when you use a tablet/ smartphone.
- Show me your favourite app/ computer game/ video game and tell me all about it.
- Have you ever played with digital toys such as robots and so on, and if so, tell me about this. Probe in depth about what is done, with whom, where, what they like best about the toy, and so on.)
- Have you ever played video games and, if so, tell me about this. (Probe in depth about what is done, with whom, where, what they like best about the game, and so on.)
- Have you ever played with Augmented Reality games toys/ apps (such as Pokémon Go), and if so, tell me about this. Probe in depth about what is done, with whom, where, what they like best about the toy/ game/ app, and so on.)
- Have you ever played with Virtual Reality games/ toys/ apps, and if so, tell me about this. Probe in depth about what is done, with whom, where, what they like best about the toy/ game/ app, and so on.)
- Tell me what you think about LEGO toys (If they use them, probe in depth about what is done, with whom, where, what they like best about the game, and so on.)
- Do you ever get bored when playing, and if so why do you think that is?
- Do you ever create films, songs and so on using a tablet or smartphone and, if so, tell me about that. Show me some of the things you have made.
- Tell me about your friends, and what you like playing with them.
- Who do you like playing with best, and why?
- Have your friends introduced you to new games/ toys and, if so, what were these? Do they involve technology and if so, how?
- Do you ever play with your parents and, if so, what do you do? What do you think about this?
- What kinds of play make you the most happiest, do you think?
- Are there any kinds of play you don't like? Tell me about that.
- Do you play any games related to what you watch on television and/ or YouTube? If so, what are these?
- What kinds of toys would you like to be invented that have not been invented already?
- Do you think you learn anything when you are playing and, if so, what do you think you learn?
- Do you have anything else to tell me about your play and your use of technology?

APPENDIX vi: PLAY AND TECH TOUR

Purpose

To identify spaces in the home where children's play with technology occurs, and to explore the nature of this play.

Procedure

Ask the parent if he/ she and the child can take you on a tour of the home, in which you can find out about how they play with technology in each room/ space the child uses including any spaces outside of the home, such as garage/ shed. Explain you and/ or the child would take photographs and you will record the discussion with a digital voice recorder.

Then visit each room in which the parent and/ or child identify that play takes place. Record all the technological objects related to play/ creativity in that space by taking digital photographs and recording what children and parents say. Use the sheet on the following page to record both digital and non-digital toys/ playthings and devices in each room.

Ask the children to also take photographs, using a colour digital camera/ tablet, of their favourite play-related devices/ toys.

As we are particularly interested in the role of technology in play, ask children and parents about this in relation to each room e.g. does the child bring the tablet into this room? If so, how does he/s he use it? Ask also about the playful/ creative use of other technologies in the room – computers, laptops, console games and so on.

If the parent and/ or child do not seem comfortable about this process, create a 2D drawing of the home, in collaboration with the parent, including any spaces outside of the home, such as garage/ shed, where play/ creativity takes place. Ask the parent and child to tell you about play with technology in each of those spaces. Ask them to take photographs of some of things they talk about.

Stimuli for play/ creativity	In which rooms/ spaces are these found? E.g. Living room, kitchen, dining room, hallway, bathroom, child's bedroom, siblings' bedroom, parents' bedroom, garden, shed
Non-digital toys/ playthings	
<i>Animals</i>	
<i>Arts & crafts</i>	
<i>Baby & Toddler toys</i>	
<i>Board Games</i>	
<i>Construction (other than LEGO)</i>	
<i>LEGO</i>	
<i>Dinosaurs & Accessories</i>	
<i>Dolls & Accessories</i>	
<i>Domestic (including kitchen) items</i>	
<i>Dress-up & Accessories</i>	
<i>Educational: word & number</i>	
<i>Jigsaws & Puzzles</i>	
<i>Music</i>	
<i>Outdoor & Large play e.g. trampoline</i>	
<i>Small World, figures & Accessories</i>	
<i>Soft Toys</i>	
<i>Sports</i>	
<i>Vehicles & Accessories</i>	
<i>Water & Sand play</i>	
<i>Wooden Toys</i>	
<i>Weapons</i>	
<i>Other (please specify)</i>	
Devices/ technological toys	
<i>Technological Toys e.g. robots, furbies</i>	
<i>Tablet</i>	
<i>Computer</i>	
<i>AI Assistant e.g. Amazon Echo, Google Home, Apple Home</i>	
<i>iPod/ MP3 player</i>	
<i>Smartphone</i>	
<i>Laptop</i>	
<i>Games console</i>	
<i>Handheld computer</i>	
<i>Television/ DVD player</i>	
<i>Virtual Reality set</i>	
<i>Radio</i>	
<i>CD Player</i>	
<i>Other (please specify)</i>	

3, CHILDREN, TECHNOLOGY AND PLAY: SCHEDULE FOR FOCUS GROUP INTERVIEWS

The focus group aims to establish what sorts of play experiences children have on different technologies. Technologies' refers to both

- a) digital devices, such as mobile phones, tablets, cameras, games consoles, computers etc, which are available in the children's daily lives, and
- b) media which children access, such as apps, websites and digital games.

We are also interested in

- a) any making they are engaged in, e.g. robotics, creative coding (e.g. Scratch and ScratchIR), and
- b) making/tinkering, e.g. designing digital artifacts and 3D printing, building virtual worlds and exploring in VR and AR etc.
- c) play which shows the influence of digital devices and media when they are not present.

We should try to probe in depth about the play experience, e.g. when, where, who with, how often, if it has any particular significance for them/relates to their lives in any way, how it makes them feel and why, what they like best (or least), what they learn (physical, social, cognitive, creative, emotional skills), if anything, and so on. To try and get at the iterative process, we can ask if/how the game/play changes when they play it the next time.

Questions

1. We are going to start by talking about the technology or digital devices that you have (access to) and then ask what you do with them (use images from home visits to support, as needed). For each, ask 'tell me more about what you played' and, if appropriate, 'where did the idea(s) come from?'
 - Tablets
 - Mobiles
 - Digital toys, such as robots
 - Video games
 - Augmented Reality games toys/ apps (such as Pokémon Go)
 - Virtual Reality games/ toys/ apps, and if so, tell me about this.
 - Siri/ Alexa etc.
2. What you think about LEGO toys? And about LEGO bags, films, Legoland and so on?
3. Do you ever get bored when playing with digital devices, toys and games? If so, why do you think that is? Is this different to the way you might get bored with other sorts of play?
4. Do you ever create films, music, stuff for YouTube and so on using a tablet or smartphone? If so, tell me about that.
5. Do your parents ever join in your play on technology? What, when, where, why? What do you do? What do you think about this?
6. What kinds of play do you like the best? Why do you like them? How do they make you feel when you're playing them? Or when you think about them later?
7. What kinds of play with technology don't you like, if any? Why?
8. What kinds of technology are best for playing with others, do you think? Tell me about them.

9. Do any of the games you play (e.g. (such as imaginative or pretend games) relate to what you watch on television, your computer game play, and/or YouTube? (If so, what, where, when, who with, how often, etc. How did you get started doing this?)
10. Can you think of any kinds of toys you would like to be invented that have not been invented already?
11. Do you think there should be any limits on how children play with technology? If so, what should they be, why?
12. Do you have anything else you want to say about your play and your use of technology?

Other activities in the focus group could include:

Concept mapping

Ask the children to put the phrase 'Play and Technology and Learning' in a circle in the middle of a piece of paper. Ask them to think of all the words that come to their mind when they read this phrase, and draw a line to each word.

Use the maps as a prompt for discussion.

Good for play/ Not-so-good for play Good for Learning / Not so good for learning

In pairs, give children pictures of items of technology and a glue stick. Give them a piece of paper divided into two, with 'Good for play' written on one side and 'Not-so-good for play' written on the other. The pairs discuss the items before placing on one side or the other. Interview them about the reasons for their choices. They could then try this but with the idea of learning and see what the differences are.

Invent a new technological toy

Split the children into twos. Give each pair a piece of paper of blank paper and some felt pens and ask them to invent a new technological toy. Ask each pair to explain their invention and how it would work.

Or build with an invention with Lego construction toys.

4. CHILDREN, TECHNOLOGY AND PLAY: SCHEDULE FOR TEACHER INTERVIEWS

Interview Schedule for Teachers

These questions do not have to be asked in one long interview. They could be divided up into clusters to allow time for the case study child from each teachers' class to be selected⁵. Broadly however, when we refer to **technologies** we are actually using the word as a **short-hand**. So we are referring to digital devices which are available in children's daily lives at home and school, such as mobile phones, tablets (I pads), cameras, games consoles etc. computers. But we are not only interested in the devices. We are interested in the **media** children play with, such as Apps, websites and digital games (you may want to suggest examples from the national / local context). We are also interested in any making they might be engaged in such as robotics, creative coding (i.e. Scratch and ScratchIR) and making/tinkering (including designing digital artifacts and 3D printing, building Virtual Worlds and exploring in VR & AR etc.

It is clear that every context will be different and not all will have same resources so questions should be asked sensitively so as not to imply deficit. An informal pre-interview classroom tour might help establish the level of resources / content available etc.

Section A: Questions Relating to Curriculum and Pedagogy

1. How do technologies / media feature in your own planned curriculum, if at all?
2. How does this relate to the national curriculum guidance regarding technologies, media and learning?
3. In what ways are your decisions to use media or technologies similar or different to your colleagues and how does this work when you undertake shared planning?
4. Is your use of media / technology supported by the leadership of the school as a resource for teaching and learning?
5. Which media such as websites, Apps, games or films do you use in your classroom and what are your aims in doing so?
6. Are there any technologies / media that you would like to use if you had the opportunity (funding and support)? Why?
7. What barriers do you encounter re integrating technologies / media as part of your teaching?
8. We are also interested in the way technology / media is used in your classroom in relation to different pedagogies – do you have any comments relating to your own practice in relation to the following?
 - Collaborative learning
 - Inquiry-based learning
 - Problem-based learning
 - Project-based learning
9. Any other uses of technology / media in schools you would like to tell us about – for assessment or documenting learning or for non-curriculum activity after or out of school, or during breaktimes?

Section B: Questions Relating to Teachers' Perspectives / Concerns

1. **Do you think any technologies / media are particularly “negative” for your children? Which ones? Why? What are your reasons for this opinion?**
2. Do you have any concerns about data privacy in relation to children? What sort of concerns do you have about this?
3. Do you think that children's use of technologies / media at home impacts in any ways (positive or negative) on their lives in general? Give examples.

⁵ Due to SA undertaking school fieldwork first.

4. What about the use of technologies/ media and its impact on school life – curriculum, relationships with peers, during breaktimes etc.? Do you have any thoughts on this?
5. What do you think is the role of schools in addressing issues about children's internet safety and data privacy?
6. Is any content in school filtered and what impact does this have on the sort of learning you can support? Is this ever a barrier to learning (particularly creativity & open-ended learning?)
7. Do you have any concerns about the safety aspects of Internet-enabled toys and if so, what are these concerns? If not, why not?

Section C: New Technologies, Play, Creativity and Learning

We are interested in exploring how play with technology supports children in learning new skills and knowledge, or if it forms a barrier to these things

1. Could you tell us about your choices of digital technologies or content to facilitate learning?
 - Are the technologies / media /approach you use explicitly linked to curriculum themes and learning outcomes?
 - Do the technologies / media /approach you use include instructions which guide children to a particular approach? For example, are they games with rules (where the games and contexts provide specific constraints⁶ or prompts)?
 - Or is the technologies / media / approach you use more likely to be open-ended, offering choices to the children? Please explain.

Do you have any examples you could share for each of the above?

2. The Lego Foundation has been developing a tool for understanding 'Learning Through Play' and they are interested in what you have noticed according to the following characteristics of play? Examples for each of these would really help us too.
 - Are you seeing children actively engaged with technologies?
 - What range of emotions do you see when children are involved in play with technologies in school?
 - Are the children playing with technologies alone, together, or collaboratively?
 - Are they designing, adjusting and reflecting in their play with technology - is it an iterative process? (i.e. are they building on their prior use of the technology in the play?)
 - Are they playing with technologies in ways that are personally meaningful, i.e.? with projects related to their own life and background? Other observations?
3. Can you tell us about any examples of how children are creating things with technology / media in school? Again examples would be helpful.
 - Building and programming robots
 - Creative coding such as using Scratch or other creative coding languages
 - Making and tinkering with technology such as solving problems with Lego Blocks and Motors.
 - Making film, images or animations
4. We are interested in understanding how play with technology or media might develop the following holistic skills and would be interested in your perspective and observations on each:
 - Physical skills: such as physical moving around, building and testing robotics, drones, outdoor games with apps etc.

⁶ Here we are referring to the way tasks shape children's activities – so a constraint might be that they have to create a story which has two characters or that they have to use a series of instructions or codes in Scratch to make a character move.

- Social Skills: such as imaginative play, digital storytelling, on-line communication, video conferences, digital group work
- Cognitive skills: such as math's games, problem-solving or brain training apps, educational robots, video conferencing with subject 'experts' as part of project work.
- Creative skills: such as children creating their own games, animation and stories, developing online projects etc.
- Emotional skills: such as showing empathy for characters in animations or games for children

5.. In your view, what is the role of technology / media in preschool and school settings in relation to play, creativity and learning. What would you like to do if you could make changes (e.g.to resources, the curriculum)? Why?

Section D: The Case Study Child

1. How does the case study child use the digital tools or technology on offer in the classroom? What do you notice in terms of their play?⁷
2. What about the use of technology / media for creativity in class? Is the case study child involved? If so, can you tell me about this? (Ask about when/ where, who with etc.)
5. We are interested in understanding how this sort of play might develop the following holistic skills for the case study child and would be interested in your perspective and observations on each:
 - Physical skills: (eg: movement games, building robotics)
 - Social Skills: (eg: on-line communication, video conference, digital group work)
 - Cognitive skills: (eg: brain training apps, video conferencing with subject 'experts' as part of project work.
 - Creative skills: (eg: children coding their own games, animation and stories in Scratch)
 - Emotional skills: (eg: digital story telling such as animation for children to talk about difficult and controversial activities).
6. When the case study child is playing with technologies or in response to media, do you ever play with him or her? If so, tell me about how you play with him or her? Do you initiate this? What kinds of roles do you take e.g. guiding, prompting, directing, co-playing? Ask about when/ where, how often etc.
7. Are there some technologies / media that work particularly well for playing together with the case study child? How about building and programming robots? Creative coding such as using Scratch or other creative coding languages? Making and tinkering with technology such as solving problems with Lego Blocks and Motors? Making film, images or animations? Other things?
8. How do think the case study child draws on their experiences from home in their play with technologies or media content in school?

Observation schedule for the classroom

If the child is playing with technology or in response to media during your visit to the classroom, then make notes about how they are engaging on Table 1, which includes a space for comments on how the teacher is engaging with the child, if applicable.

⁷ Looking out for LTP characteristics.

Table 1: Observation Schedule

Notes on context	Observations on the activity (See LTP Tool ⁸)	Notes on adult's role in the play
<ul style="list-style-type: none"> • Date • Time • Place • Target child • Number of children involved • Devices/ artefacts involved 	<ul style="list-style-type: none"> • In what ways does the child exhibit the following: non-play/ passive/ responding/ exploring/ owning/ transferring • In what ways does the child exhibit learning through play which is: actively engaged/ joyful/ meaningful/ iterative/ social interactive 	<p>Note if/ how far the adult:</p> <ul style="list-style-type: none"> • Initiates play • Guides play • Engages in co-play • Extends play • Shuts down play • Extends play into non-digital areas

5. CHILDREN, TECHNOLOGY AND PLAY: QUESTIONS FOR TELEPHONE INTERVIEWS

Explain that ‘**technologies**’ refers to both

- a) **digital devices**, such as mobile phones, tablets, cameras, games consoles, computers etc, which are available in the children’s daily lives, and
- b) **media** which children access, such as apps, websites and digital games.

We are also interested in

- c) any **making** they are engaged in, e.g. robotics, creative coding (e.g. Scratch and ScratchIR), and
- d) **making/tinkering**, e.g. designing digital artifacts and 3D printing, building virtual worlds and exploring in VR and AR etc.

The **play** we are interested in includes

- d) adult-led, child-led, peer- and sibling-led play
- e) play using digital devices and media, including playful engagements with digital devices and media more generally as well as digital toys
- f) play which shows the influence of digital devices and media when they are not present.

Stress that the questions reflect the study’s focus on play with technologies / media and creativity, and that if technology and media are not used much or at all, that is also of interest.

If families have more than one child, then ask them to focus their answers on ONE child aged between 3-11. We would like a range of ages across the thirty interviews, so keep that in mind as you identify the child.

Questions relating to their child’s play and technology

1. How does technology feature in your child’s play?

- Does your child like to play with particular devices/apps/toys and, if so, how? (Ask about when, where, who with, how often, why they think the child plays this, e.g. any particular significance to the child, what they think their child is feeling and how they know this⁹).
- Does your child play when watching television and, if so, how?
- Does your child’s engagement with apps and online sites (such as YouTube, Netflix CBeebies, CBBC, ITV) impact on their play? If so, how?
- Does your child play video games, mobile or tablet games and, if so, which ones (Ask about when, where etc, as above).
- Does your child have any physical toys that relate to their online/ digital interests, e.g. Minecraft blocks/ figures. If so, does he or she play with these at the same time as playing with the digital forms?
- Does your child play with toys that are digital, e.g. Leap Pad toy laptops, robots etc? If so, how? (Ask about when, where, as above)
- Does your child play with internet-enabled toys that are digital, e.g. Furby, robots etc? If so, how? (Ask about when, where, as above)
- Does your child play with Augmented Reality or Virtual Reality equipment? If so, how? (Ask about when, where, as above)
- Does your child play with any artificial intelligence assistants e.g. Alexa, Siri, Google etc. If so, how? (Ask about when, where, as above)
- Does your child’s play in outdoor spaces feature technology in any way? Or show the influence of technology in any way, e.g. in pretend play, language used)? If so, how? (Ask about when, where, as above)

2. We would also like to know about your child’s play with LEGO or other similar toys.

- Does your child own any LEGO or similar products
- What about other aspects of the LEGO brand e.g. items such as bags, films, Legoland and so on?

Questions relating to the interviewee's views on children's play and technology

- Who decides which devices/digital toys/games/apps your child will use, and what guides these choices?
- In your view, what types of devices/digital toys/games/apps
 - promote play? Why is that?
 - limit play? Why is that?
 - promote creativity? Why is that?
 - limit creativity? Why is that?
- What kinds of toys/ products do you think LEGO should be developing for children in this digital age?
- We are interested in children's active engagement with technology in play. When playing with technology, how far is your child actively engaged (e.g. interested, focused on the activity), in general?
- We are interested in the ways that children find play with technology meaningful and relate their experiences to their everyday lives. When playing with technology, how far does your child find the play to be meaningful to them and their everyday interests, in general?
- We are interested in the ways your child might try things out and try then to make improvements/ set themselves challenges when playing with technology. When playing with technology, how far does your child enjoy trying things out and making improvements, in general?

Questions relating to play with technology and children's emotions and wellbeing

- We are exploring the link between play with technology and children's emotions and well-being. Do you have any thoughts on this topic that you would like to share?
- We are interested in how far your child enjoys their play with technology. When playing with technology, is your child joyful (happy, cheerful), in general?
- What range of other emotions do you see when your child is involved in play with technologies? Why do you think this is?
- Which types of technology is your child most likely to get bored with quickly when playing, if any? Why do you think this is? Is this similar or different to the way they become bored in play that does not involve technology?
- We are interested in children's social interactions in relation to their play with technology. When playing with technology that allows for social interaction, would you say your child engages well with others, in general?
- Which types of technology support social play in your view, if any? Why do you think this is?

Questions about parents' roles in technology-mediated play

1. When your child's play involves technology, do you ever play with him or her? If so, how? (Ask about when, where etc., as above)
2. Are there some devices/digital toys/games/apps that are better than others for playing together with your child? Which ones, and why?
3. If you are using your own devices, does your child ever ask to play on them with you? If so, what sorts of things do you play together on them? Are there some devices/apps that your child can only access with you or another family member?
4. Do you ever initiate play using technology with your child? If so, can you give me some examples? If not, do you know why this is?

Questions about parents' general perceptions of technologies

1. Do you think certain technologies offer more "positive" or "negative" experiences for your child? Which ones? Why?
2. Do you have any concerns about your child's experience with technologies? What has shaped these concerns?
3. Are you concerned about:
 - the safety aspects of Internet-enabled toys and if so, what are these concerns? If not, why not? What has shaped these concerns
 - data privacy in relation to your child? What sort of concerns do you have about this? What has shaped these concerns?
4. Do you think that your children's use of technologies influences family life positively in any way? If so, how?
5. Do you think that your child's use of technologies influences family life negatively in any way? If so, how?
6. Do you have any concerns about your child's use of technologies? Or about the use of technologies at home? If you do, what do you do about it?
7. What advice or guidance would you offer new parents on issues relating to data privacy and safety in relation to your child?