

## Children's experiences with digital technologies



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# Contents

Introduction	4
Learning Outcomes	5
1 Digital technologies over the years	6
2 Debates about new technologies	9
3 The role of evidence	12
4 Evidence in education	15
5 Effects on health and wellbeing	17
6 Effects on learning and development	18
6.1 Test your learning	20
7 The role of adults	23
8 Choosing good quality digital content	25
9 Selecting online videos	26
10 Selecting mobile applications	28
Conclusion	30
References	30
Acknowledgements	32

# Introduction

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Welcome to this free course, *Children's experiences with digital technologies*. This course is an introduction to how children use digital technologies and what they learn from these experiences.

The course will discuss debates around the effects of digital technologies, such as mobile applications and video games, on children and their wellbeing, and debunk some popular myths often promoted by the media. The content and activities emphasise the importance of research evidence, that is, what studies show about the relationships between technology and children. This evidence can help us reflect on our perceptions of how digital technologies influence children's development and inform as to how best to support children when interacting with them.

This OpenLearn course is an adapted extract from the Open University course [E232 Exploring childhood and youth](#). It has been designed by Dr Christothea Herodotou, a Senior Lecturer (Associate Professor) for the Institute of Educational Technology at The Open University. Christothea has studied children and mobile technologies in several projects funded by the British Academy and the British Educational Research Association, and she has a doctorate in game-based learning and psychology. Being a mum, she has had the opportunity to observe her own child and their interactions with technologies that informed the rationale for this course.



# Learning Outcomes

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After studying this course, you should be able to:

- understand how digital technologies have been used by children over the years
- engage critically with public debates surrounding the use of technologies by children
- understand the role of evidence in claims made about digital technologies and children
- understand the effects of digital technologies on children's learning and development
- identify good quality digital content for children using evidence-based guidelines.

# 1 Digital technologies over the years



Figure 1

You'll start this course by learning how the use of digital technologies has changed over the years and engaging with the main debates about the use of digital technologies by children.

In this section, you will focus on digital technologies and children. You will find out how digital technologies changed over the years and how they have influenced children's everyday activities and habits. 'Digital technologies' refers to electronic tools that store, generate or process information. Examples of digital technologies are tablets, computers, multimedia and mobile phones. Digital technologies allow people to access or manage resources such as social media platforms, online television or radio, online games, and virtual learning environments like the one hosting the material you are reading at the moment. When digital technologies are used to support learning then this activity is often described as 'digital learning'. For example, the use of tablets and mobile applications in a classroom for teaching or practising maths concepts is a form of digital learning.

Digital technologies are evolving very rapidly; children born in 1990 in many countries had no internet connection, used tapes to listen to music, and had no cell or mobile phones. More than 25 years later, the technology landscape has changed dramatically; children are now born in a society where digital technologies are used for work, entertainment and at home. At least one-third of internet users around the world are found to be children younger than 18 years old. Increasingly, more children have their own mobile phone or mobile device (for example a tablet), watch television on their own devices, play games for at least a few hours per week, and use websites such as YouTube extensively more as they grow up. For example, in 2017, 81% of 8–11 years old in the UK were found to watch YouTube (OFCOM, 2017).

Yet, not all children around the world have digital access. In 2017, a report by UNICEF showed that nearly one-third of young people across the world were not online and young

people living in Africa were the least connected. Access to technology is dividing millions of children. This is often called the 'digital divide'. This refers to:

- whether a person has access (or not) to digital technologies
- whether a person has (or not) the digital or language skills to access and read relevant material online
- what devices are used to access technology, for example, the use of a mobile phone instead of a computer may create a 'second-best' online experience
- prevailing economic gaps, for example, children from disadvantaged or less wealthy backgrounds may have fewer opportunities to benefit from digital technologies.

These trends are constantly changing and this is due to the development of new digital technologies and resources, and children who are willing to adopt or 'immigrate' to new technologies, social media sites and services.

### Activity 1

Visit the Washington post website below. Hover over the graphs to see details of technology use per year. [What 'tech world' did I grow up in?](#)

(Note that this source may not be accessible for those using screen-reader software.)

Note down below what technologies were popular when you were a child. Do these trends match your actual childhood experiences with digital technology?

In this activity, you should reflect on your own experiences and note down:

- the digital technologies you remember using when you were a child and at which age
- whether these agree with the trends shown in the Washington post website, and, if not, explain why
- how you used to spend your free time as a child:
  - did you use any digital technologies?
  - which ones did you use?
  - how did you use these and how often?
  - did you have any restrictions?

*Provide your answer...*

### Discussion

Your participation in this activity has hopefully pointed to the varied uses of digital technologies over the years and emphasised how children's habits and activities are constantly changing. You may have noticed changes in the time children spent playing outside or outdoors (e.g. Kennedy, 2018) and related this to increased screen time, that is time interacting with a screen. Yet, you should be careful not to make simplistic interpretations of such relationships; you should try to understand and interpret a phenomenon considering multiple factors. For example, changes to the time children spent playing outdoors may relate to or be explained by changing parents' attitudes, such as 'fears of strangers' and childcare organisations being concerned of legal actions should a child be hurt on their premises, that may limit the time children spent outdoors.



## 2 Debates about new technologies

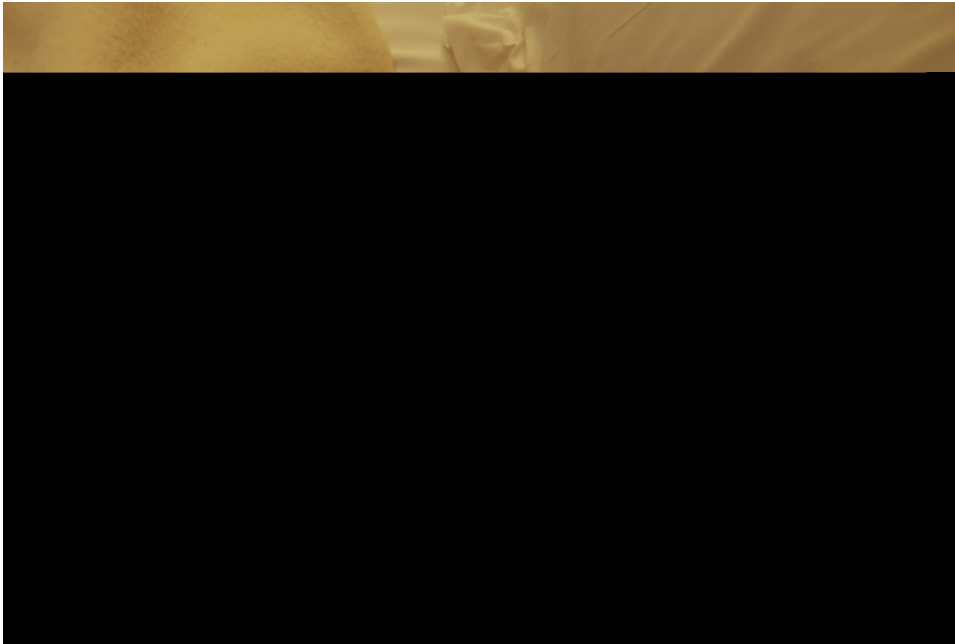


Figure 2

The use of digital technologies has raised several debates in the media. Some examples are found in news headlines such as:

- ‘Are tablet computers harming our children’s ability to read?’
- ‘Addictive video games may change children’s brains in the same way as drugs and alcohol’
- ‘Screen time for children: Good, bad, or it depends?’

These debates point to promises or concerns about whether and how time spent with new media or technology may have a positive or negative impact on the development of children. They also raise discussions about the role of parents or guardians in regulating or mediating the technology–child relationship.

These debates are not new or uncommon, but rather recurring. Historically, similar concerns and debates came about when radio and television emerged. For example, television was viewed as:

- destroying family relationships and the functioning of households
- promoting socially undesirable behaviours such as aggression
- reducing the amount of time spent on other activities such as reading or listening to the radio
- keeping the children inside the house (and off the streets) thus strengthening family relationships.

(Strasburger, Wilson and Jordan, 2009)

On the one hand, ‘optimists’ viewed new media technology such as movies, radio, television and computers as altering the way children learn and making them smarter at a

younger age. On the other hand, 'pessimists' viewed time spent with media as unethical or questionable due to 'too much sex, too much violence, too commercial' (Wartella and Robb, 2011, p. 7).

In this section, you will look closer into one popular debate surrounding the use of digital technology by children, in particular whether or not playing digital games can harm children and result in game addiction. The aim is to reflect on the issues raised and take a position as to whether arguments made in the two articles below hold true or if they are just media 'hype'.

## Activity 2

Read the following two pieces of news and answer the questions below. Then you should justify your own position about whether or not playing digital games can harm children and result in game addiction.

### Article 1

[Addictive video games may change children's brains in the same way as drugs and alcohol, study reveals](#)

1. What technology is discussed in the article?
2. What is the age of the children in the article?
3. What is the central argument of the article?
4. How is this argument justified?

*Provide your answer...*

### Article 2

[The signs and effects of video game addiction](#)

1. What technology is discussed in the article?
2. What is the age of the children in the article?
3. What is the central argument of the article?
4. How is this argument justified?

*Provide your answer...*

### Your position

Note down and justify, if possible with evidence, your perspective about whether or not playing digital games can harm children and result in game addiction.

*Provide your answer...*



Hopefully you enjoyed reading the two articles and you have made some notes as to how arguments are presented and justified. In the next section, you will explore this issue further, in particular the role of evidence and how it can inform our perspectives on controversial issues such as video game addiction.

## 3 The role of evidence

You will now find out about different types of evidence, and learn about the importance of evidence when judging claims about digital technologies.

When you are reading a piece of news like the two articles in the previous section, it is important to consider how the arguments are presented and how they are supported. Things to have in mind are whether what you read is considering and discussing different points of view both positive and negative, whether it is leaning towards a specific perspective, or whether it omits any significant, often contradicting, pieces of work.

It is often useful to read more than one source of information before you form an opinion or a perspective about an issue. One such example is the activity in the previous section. The two news articles about video games and addiction present quite different perspectives about game addiction. The first one is based on biological evidence and is communicating rather negative messages about the use of games by children. Yet, it does not consider factors such as the environment (for example parents) within which children interact with games that can mediate the relationship between gaming and addiction. The second piece of news presents a more balanced perspective on that issue.

A significant question to have in mind is: What is the evidence behind any claims made? In this section you are going to learn about the different types of evidence and how these should be considered when evaluating arguments, concerns, hypes or fears about digital technologies and children. Evidence may come from research, that is researchers studying a phenomenon in a systematic manner, or may be opinions coming from experts and what they believe or have learned in their practice. 'Expert opinions' and 'practitioners' wisdom' are often found in online blogs or commentary papers in newspapers. They are the least strong type of evidence because they are not directly related to research or systematic study, although in some cases they may be informed by that. Such sources of evidence should be less influential when forming your own opinion, unless they are backed up by appropriate research evidence. Studies that have been peer-reviewed and present original information (qualitative or quantitative) are more reliable sources of evidence. The strongest form of evidence is found in 'meta-analysis' and 'systematic reviews'. These studies identify, compare, analyse and synthesise findings from a number of previously published studies. Meta-analyses in particular involve the use of statistical methods to compare findings among different studies.

A cautionary note is that not all studies are done or explained equally well; they may present several limitations that can limit the validity of the evidence presented. The larger the study is (e.g. number of people, or number of studies examining the same issue) and the more in-depth (more details are collected and discussed), the more likely it is to be reliable and valid. For example, rather than researching a single class in a primary school (this is often described as a 'case-study'), researchers study all classes in a school and consider in the analysis differences between students such as age, background, learning abilities, teachers' approach and expertise.

Also, some methodologies such as correlation studies tend to be interpreted in the incorrect way. Below is an example from an educational report by OECD about children and young people's mental health in the digital age:

A small association between social media use and depression has been found (McCrae, Gettings and Purssell, 2017), with a similar link found between

anxiety symptoms and high daily social media use (Vannucci, Flannery and Ohannessian, 2017).

(OECD, 2018, p. 7)

Such statements are often interpreted as ‘high daily usage of social media is responsible for or causing depression or anxiety’. Are such statements correct? Below that the report states:

The multiple studies used to detect these correlations vary widely in methods, sample size and results, and the direction of the association remains unclear – that is, whether social media is contributing to elevated symptoms or social media is utilised more by those with anxiety and depression.

(OECD, 2018, p. 7)

Correlation studies identify associations between different variables such as media use, depression and anxiety. Yet, they cannot determine whether a specific variable causes or is responsible for another one – they cannot determine ‘causation’. Therefore, the relationship between high daily media usage could be well interpreted as follows: ‘children who have symptoms of anxiety or depression tend to use social media more’.

The ‘Strength of Evidence pyramid’ (St John and McNeal, 2017) (see Figure 1) organises the different types of evidence based on their strengths. It is the result of a workshop about geoscience education research, yet it is found in other fields as well such as medicine and agriculture. It is a useful tool for assessing the quality of evidence in any field. The base of the pyramid presents the less strong types of evidence, yet the ones encountered more often in, for example, the media – that is expert opinions and practitioners’ wisdom. The next level presents ‘case studies’ that can either be qualitative (meaning data are collected through interviews or observations) or quantitative (in which data are collected using a survey). The next level of the pyramid presents ‘cohort studies’. In these studies, multiple and diverse cohorts of people such as different classes, courses or institutions are examined together. The strongest form of evidence is found in meta-analysis and systematic reviews – see the top levels of the pyramid.

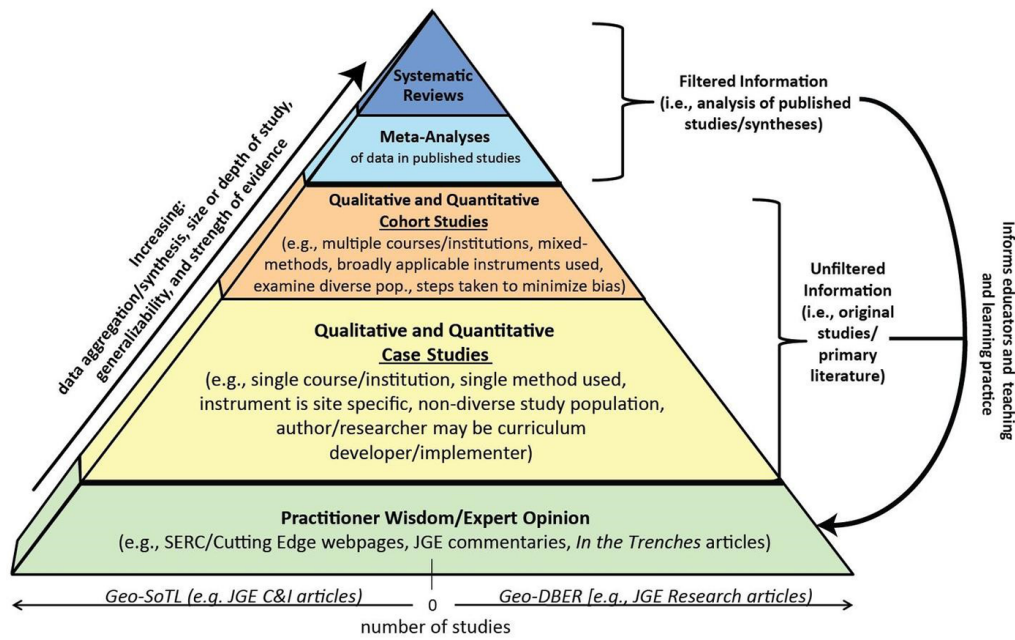


Figure 3 The Strength of Evidence pyramid (from [https://nagt.org/nagt/profdev/workshops/geood\\_research/pyramid.html](https://nagt.org/nagt/profdev/workshops/geood_research/pyramid.html))

## 4 Evidence in education

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Learning is a complex process. It involves students with different skills, competences and learning needs, it involves teachers who may be using different teaching methods, it involves interactions with peers with different expertise and perspectives, and it involves various resources such as physical or digital artefacts (pen and paper, computers, etc.). Due to these complexities:

... education as opposed to other disciplines such as medicine and agriculture, has been less concerned with evaluating different pedagogical approaches and determining their impact on learning outcomes.

(Herodotou et al., 2019)

In other words, less emphasis has been given on assessing available evidence when decisions about teaching and learning are made, such as whether and how digital technologies should be used by children to support learning. For example, in the above paper, one of the teaching approaches reviewed for evidence is 'learning with robots'. The authors concluded that existing studies have not yet illustrated that a robot can be more effective than a human teacher, yet they recommended that more studies should be conducted to explore further and establish the relationship between this teaching approach (learning with robots) and specific learning outcomes.

The importance of evidence in decision making in education is evident in the work of organisations such as the Educational Endowment Foundation (EEF) in the UK that has conducted several studies to establish the effectiveness of different teaching approaches in education. A teaching and learning toolkit (see Figure 2) is used to provide an overview of existing evidence about certain teaching and learning approaches and gives information about impact on attainment, cost and the supporting strength of evidence. For example, among the most effective teaching approaches were found to be the provision of feedback to students, teaching that aims to develop metacognition and self-regulation, and giving homework to secondary students. Another similar organisation is the National Centre for Education and Evaluation (NCEE) in the USA that conducts large-scale evaluations of education programs with funds from the government. Among the interventions with the highest effectiveness ratings are phonological awareness training, reading recovery and dialogic reading (see the [National Center for Education Evaluation and Regional Assistance website](#)).

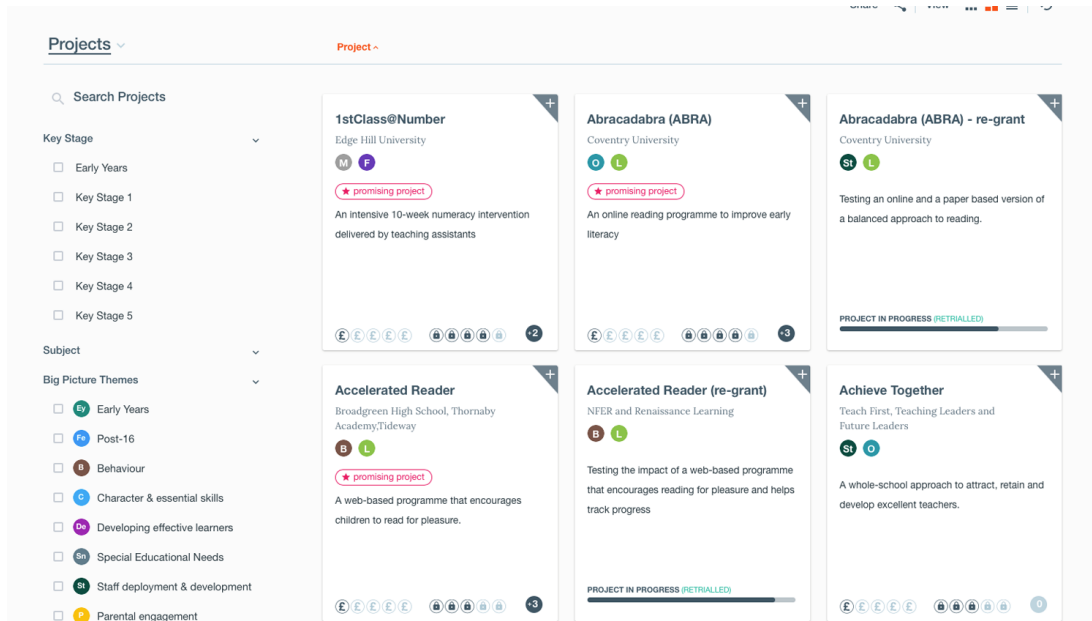


Figure 4 A screenshot of the toolkit used to summarise evidence about different teaching and learning approaches (Retrieved from <https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/>)

### Activity 3

After reading about evidence and its importance in making decisions or assessing claims and opinions, you should go back to Activity 2 and reflect on your answers. Consider the type and strength of evidence based on which arguments in the two articles you read have been made. Write your answer below.

*Provide your answer...*



## 5 Effects on health and wellbeing



Figure 5

In this section, you will learn about the effects of digital technologies on children's health and wellbeing. A core question often raised is whether screen time is good or bad for children. Screen time refers to the time spent in front of a screen such as television, a mobile phone, a tablet or a computer. The Royal College of Paediatrics and Child Health (2019) in the UK reviewed 940 abstracts of studies that examined the relationship between children's health and television screen time, including 12 systematic reviews. This review revealed weak associations (correlations and not causal links) between higher screen time and a less healthy diet, higher obesity rates, more depressive symptoms, poorer educational outcomes, lack of sleep and fitness. Increased or uncontrolled screen time can displace activities such as socialising, good sleep and exercise, as time spent in front of the screen can be at the cost of other activities. Therefore, a lack of time to engage with activities such as socialising, good sleep and exercise can explain the above associations. Similarly, a study examining the use of social media, in particular Facebook (Allcott et al., 2019), showed that face-to-face interactions and watching television increased when users (no age details were given) stopped using Facebook for four weeks while self-perceptions about wellbeing increased. Overall, available evidence suggests that screen time explains only a small percentage of children's general health and wellbeing whereas factors such as sleep, physical activity, eating, bullying and poverty are shown to strongly relate to health and wellbeing.

Is there an 'ultimate' or 'safe' amount of time children should spend in front of a screen? Organisations such as the American Academy of Paediatrics and the Canadian Paediatric Society have made specific time recommendations based on the age of the child, yet these have been criticised as not being grounded on research evidence. That is, there are yet no studies showing that, for example, a certain screen time duration can result in or relate to negative consequences for children. The role of parents or guardians becomes of significant importance here as they can ensure a balance between different activities including digital, physical and social ones, as well as choosing the content children interact with on a screen. The role of adults will be explained further in the next sections.

## 6 Effects on learning and development

In this section, you will learn about the effects of mobile devices and applications, digital games, computers and the internet on children's learning.

### **Mobile devices and applications (apps)**

Mobile devices such as tablets have been used by children including toddlers, pre-schoolers and older children. The ease of use of these devices including their tactile-based interface enabled interactions earlier in the development of children compared to other technologies such as computers. These and other features such as portability, lightweight design and low cost have created high expectations about the potential of mobile devices to support flexible, personalised and mobile educational experiences and bring learning benefits to children.

Systematic reviews of several studies with children have evidenced learning benefits when children interact with certain mobile applications. Having said that not all mobile applications, even when labelled or advertised as 'educational', benefit children. In particular, positive learning effects were found when children 2 to 5 years old used mobile devices in relation to:

- better vocabulary skills
- better reading and writing skills
- enhanced mathematics and science knowledge and skills
- earlier development of fine motor skills
- enhanced problem-solving
- improved social interaction skills
- boost of children's general confidence
- enhanced peer interactions in the class
- enhanced self-efficacy and self-worth from completing game tasks.

(Herodotou, 2017)

Yet, there was no clear evidence as to whether mobile devices can support emergent writing skills (that is writing with a stylus on a device rather than with a pen on a piece of paper) and specific science knowledge and skills especially when children were younger than 5 years old (Herodotou, 2017). Negative effects were observed when parents and children were reading together from a mobile device or an ebook. Well-designed ebooks can help children learn equally well to printed books. Yet, enhanced ebooks, that is books with animations, sounds, games and pop-ups (advertisements) may distract both children and parents and lead to conversations about these extra features than the content of the book or the storyline.

Similar outcomes have been reported about older children (Haßler, Major and Hennessy, 2016): benefits from using mobile devices were identified in relation to science, maths and social studies and in topics such as plant morphology, fractions and financial management. Also, particular benefits were recorded in assisting students with special educational needs. Yet, some other studies found no improvements compared to the standard non-technology-mediated teaching practice in topics such as literacy, mathematics, science and creative tasks.

### **Digital games**

Digital games is another medium that has attracted much attention especially in relation to whether it can support learning, often labelled as 'game-based learning'. Digital games are virtual spaces that can support interactive or experiential learning experiences as well as learning through problem-solving, failure, error and recovery. This type of learning has a unique value especially when compared to less interactive or observational learning such as listening to a lecture or reading plain text. Children are more likely to remember things they learn by doing or interacting with materials and others (in a goal-directed manner) than things they listen to or observe. 'Unlearning' is easier when knowledge was acquired by observation than a goal-directed manner (Klein-Flügge et al., 2019). Digital games that are commercially available or especially designed to support learning (often labelled as 'educational games') were shown to facilitate the acquisition of new knowledge and understanding of content, promote student motivation and engagement (Connolly et al., 2012), promote critical thinking skills, collaboration and communication skills, and problem-solving skills (Qian and Clark, 2016).

### **Computers and the internet**

Computers are widely used by children and teenagers both at home and at school. The Organisation for Economic Cooperation and Development (OECD), which runs the Programme for International Student Assessment (PISA), identified that 96% of 15 years old students were found to have a computer at home, and 72% of them reported that they use a computer at school. Yet, these figures were much lower in Korea (42%) and China (38%). What is surprising is that students in Korea and China were among those performing the best in digital reading and mathematics tests (OECD, 2015).

What does this discrepancy suggest? Can less use of computers relate to better learning outcomes? There are mixed outcomes when it comes to the impact computers and the internet have on students. In particular, in countries that have heavily invested in the use of computers in the classroom, children showed no improvements in reading, mathematics and science. Some learning improvements were found in countries where students used computers moderately as compared to countries where students used them rarely. These differences were found after researchers had controlled for differences between students in social background and demographics (for example gender and age). These findings suggest that 'simply' using computers and the internet in the classroom will not automatically translate to better learning outcomes. Much thought should be given by teachers on how and when computers are used as 'technology can amplify great teaching, but great technology cannot replace poor teaching' (OECD, 2015, p. 17). Teachers should ensure that computers are used when they have an added value compared to traditional ways of teaching such as they can provide immediate and corrective feedback to students, or motivate students when engaged with repetitive learning tasks. On the other hand, not using computers at all may be detrimental for students as computers and the internet have a central position in our personal and professional lives. Therefore, students who do not possess digital skills, that is know how to navigate, read and write online, may restrict their employment opportunities in the future.

The more often computers and the internet are used in teaching is not necessarily translated into better learning outcomes. A balance is needed between technology-enhanced learning activities and conventional, analogue tools and teaching approaches. A great example is students in Korea and Singapore: they are the most proficient in navigating the web, have excellent broadband connections and use computers with ease at home. These students are not more exposed to computers and the internet at school

than are students in other countries, yet they are the highest performing students in the world in digital reading skills (OECD, 2015).

## 6.1 Test your learning

Now you will have the opportunity to test your knowledge about the effects of digital technologies on children.

### Activity 4

Look at the following statements and work out if they are true or false. You will receive instant feedback explaining why each statement is True or False.

Screen time is 'toxic' to health.

- ☐ False
- ☐ True

#### Answer

False. Although often mentioned in the media, there is no evidence to support this claim.

Screen time may alter children's eating habits and lead to increased calorie intake.

- ☐ True
- ☐ False

#### Answer

True. Screen time can distract children and lead to them eating more. Also, food advertising can lead to a higher intake of unhealthy foods.

Screen time can lead to a lack of socialising, lack of exercise and lack of sleep.

- ☐ True
- ☐ False

#### Answer

False. Screen time can lead to displacement of lack of time for doing other activities such as exercise and sleep. It is not directly related to these activities.

Screen time may expose children to harmful content, such as cyberbullying, watching violence or pornography.

- ☐ False
- ☐ True

#### Answer

True. Parents should check often on what their children are interacting with and use certification systems of content that indicate whether content is suitable for the age of their children.

Screen time can displace other positive activities such as socialising, good sleep, exercise.

- ☐ True
- ☐ False

---

**Answer**

True. Increased screen time can limit the time left to do other beneficial activities such as exercise. Parents should monitor the time spent on different activities and aim to maintain a balance.

---

Two hours a day should be the maximum time children spent in front of a screen.

- ☐ True
  - ☐ False
- 

**Answer**

False. There is no 'safe' level of screen time. At the moment there is no evidence to say that below a level there are no negative consequences. Time should be considered alongside other activities and whether these are displaced by screen time such as exercising, sleep, family time. Families should negotiate screen time limits based on their children's needs such as how they are using screen, what they are watching or doing and whether they displace physical and social activities.

---

The impact of screen time on the overall health of children is small.

- ☐ False
  - ☐ True
- 

**Answer**

True. Other factors such as sleep, physical activity, eating, bullying and poverty are shown to strongly relate to children's overall health and well-being.

---

Screens must be avoided before bedtime.

- ☐ True
  - ☐ False
- 

**Answer**

True. This gives time to the brain to wind down for sleep without stimulation from the lights of the screen and the content being watched.

---

Adults need to monitor what children are eating during screen time.

- ☐ True
  - ☐ False
- 

**Answer**

True. If there is no monitoring, eating during screen time can result in unhealthy eating habits and obesity. This is particularly important for children at risk of obesity.

---

Children will imitate how and when parents are using their phones.

- ☐ False
  - ☐ True
- 

**Answer**

True. Parents should have this in mind when for example, during a conversation they check on their phones or social media accounts.

---

Children of any age should interact with screens.

- ☐ True
-

- ☐ False

**Answer**

False. Children younger than 18 months old should have limited or no interactions with screens. This is because children can learn more from interacting with people and physical items.



## 7 The role of adults



Figure 6

In this section you will learn about the importance of adults in mediating the effects of digital technologies on children and find out how to select digital technologies for children. Earlier in the course the following question was asked: Are digital technologies good or bad for children? You should have noticed up to now that this is a rather simplistic question that requires a nuanced approach if it is to be accurately answered. The answer depends mainly on two factors:

- whether the use of digital technologies is balanced with other physical (exercise, outdoor activities, etc.) and social activities (such as family communication or peer interactions)
- whether adults (parents/guardians) monitor, mediate and support children's interactions with digital technologies.

The role of adults (e.g. parents and guardians) is key in ensuring a healthy relationship between children and digital technologies. Media-specific parenting can booster the positive effects of digital technologies and mitigate any negative effects. Many parents – at least a majority of them – believe that digital technologies can bring benefits to their children, for example, they can support early learning, vocabulary and language development and social skills. Yet, at the same time, parents' concerns about digital technologies have been shown to be increasing. This is the reason why they are found to talk to their children regularly about how to be safe online and how to use technical tools, and set rules such as how long and when children should interact with digital technologies. Parents are those who can ensure that children are safe online and they are not exposed to inappropriate content (violence, cyberbullying, etc.). They can also select good quality educational content for children to watch or interact with, and discuss with their children about what they do and learn from digital technologies.

The following guidelines produced by the Children's Commissioner for England (2017) can help parents and children 'talk' about digital technologies and the internet, and get the most out of it:

1. **CONNECT:** Have a discussion with your child about who they are connecting with online, what privacy settings are and whether they disclose any private information. Emphasise that they should come to you, should they need any help or have any questions.
2. **BE ACTIVE:** Encourage your child to start a physical activity such as swimming, walking, dancing or a sport. Check together details or benefits of the activity online. Emphasise the importance of outdoor activities for mental health and wellbeing.
3. **GET CREATIVE:** Encourage your child to use material online that promotes creativity, such as building complex structures in the game Minecraft or creating video content for YouTube. This will help your child develop digital and creative skills. In this way, children will not only consume material online (that someone else has produced), but also create or produce their own online material.
4. **GIVE TO OTHERS:** Encourage your child to give feedback online; positive feedback to good behaviour such as supporting friends or family and negative feedback by reporting inappropriate behaviour. Use the internet together and discuss what constitutes positive and what constitutes negative behaviour. This will help children recognise and respond to it.
5. **BE MINDFUL:** It may be difficult for children to put their mobile devices down or stop using the computer. Give your child practical solutions such as help them download and use a mobile application that can monitor and manage their screen time.

## 8 Choosing good quality digital content

As you have seen in previous sections, the content of media matters. Content that is violent or highly sexualised may result in increased aggression, fears and unhealthy behaviours. On the other hand, good quality educational content can foster children's learning and development. Choosing good quality digital content for children is not easy or straightforward. Parents or teachers often rely on public ratings and reviews of, for example, apps they can download from online stores (such as Google Play or the Apple store). In other cases, they may rely on the popularity of an online video, for example, the number of views, number of likes or dislikes and the number of subscribers an online channel may have, such as a YouTube channel. These sources of information are a good starting point for thinking about the quality of media content and how it is perceived by other users. Yet, they are lacking a significant source of information: the content has not been tested or studied with children and thus there is no evidence about its actual impact on children's learning and development. In this section, you will learn how to select media content considering the research evidence about the impact of digital technologies on children.

### Activity 5

Watch the following two YouTube videos:

[Sesame Street](#)

[Role playing](#)

Now answer the following questions.

1. What are the main learning benefits of watching the videos?
2. What are the main disadvantages of watching the videos?
3. Would you let your child watch the videos? Explain why and under which conditions.

*Provide your answer...*

## 9 Selecting online videos

In the previous activity, you watched two videos that target young children. Both videos are described as being 'educational', that is they have some educational or learning benefit for children. In this section you will come across a set of evidence-based guidelines about what to consider when you select online videos for children, in particular, how to 'judge' the quality of videos that look like or are marketed as 'educational'. The below ten recommendations are evidence-based, that is they emerged after reviewing studies that had examined the impact of screen time on children and identified certain conditions that facilitate or hinder learning accordingly.

1. Choose screen content that children can imitate or copy, is realistic, and shares similarities with them such as the same age or same interests.
2. Choose screen content that models positive behaviour and ensure that this behaviour is encouraged. In cases where the behaviour is not positive, this should receive negative reinforcement (e.g. explanations as to why this behaviour should not be performed again).
3. If the child is very young make sure you use the screen content together as an opportunity to, for example, ask questions about the content and help the child repeat things.
4. Think about the social relationships portrayed in the screen content and whether they are accurate or promote any stereotypes (such as gender stereotypes) or any other implied messages your child should not be exposed to.
5. Choose screen content that asks your child to perform or engage in creative tasks, or provides alternative or new ideas. For example, if it asks the child to repeat a word or gives alternative ideas of playing with a toy promoting creative thinking.
6. Choose screen content that presents dialogues or narrative in an understandable way and within a single scene.
7. Choose screen content that repeats some concepts multiple times as repetition can help your child learn the content.
8. Choose screen content that is not moving forward very fast, keeps a low pace and has infrequent scene and character changes.
9. Choose screen content that combines narration and animation together, for example a visual representation should be accompanied by a song or a narrative.
10. Choose screen content that highlights the learning elements of the video such as any new vocabulary.

(Neumann and Herodotou, 2020)

### Activity 6

In the last activity of the course, you should go back to Activity 5 and watch the two videos again. Considering the evidence-based recommendations above, how would

you improve the educational quality of the two videos? What changes would you make and why? Write your responses for each video below.

**Sesame Street video***Provide your answer...***Role playing video***Provide your answer...*

## 10 Selecting mobile applications



Figure 7

In the last section of this course, you will find out about how to choose interactive forms of media such as mobile applications for children. Again this set of recommendations emerged from a synthesis of studies that tested mobile apps with children and identified what hinders or facilitates learning (Falloon, 2013; Herodotou, 2017).

1. Select apps that narrate or explain concepts and processes.
2. Select apps that have highlight functions, as this can support in particular reading skills.
3. Select apps that are not very restrictive and allow children to perform a variety of tasks.
4. Select apps that are becoming increasingly more difficult (various levels of difficulty).
5. Select apps that present concepts in multiple ways (such as real life examples, symbols, Arabic numbers).
6. Select apps that give feedback to what the child is doing on the screen such as they model the correct answer or help the child reflect and find the correct answer.
7. Select apps that combine text or images with speech (especially if your child does not know how to read yet).
8. Select apps that your child can understand and use. If your child does not understand or cannot use the app, then select another app that is more appropriate to the age and skills of your child.
9. Think and do activities that relate to the app when your children is not interacting with it such as repeat a task orally or ask similar questions using new concepts (numbers, colours, etc.).
10. Avoid apps that have advertisements and buying content.



11. Use the apps alongside your child. You should make sure you comment on the content of the app and not features such as advertisements and pop-up windows.

## Conclusion

Hopefully you have enjoyed this free course, *Children's experiences with digital technologies*, and you now have a better understanding of the effects digital technologies have on children's learning and development. Hopefully the next time you encounter an argument about the impact of digital technologies on children you will consider the type and strength of evidence to inform your understanding. If you interact with children, the recommendations provided in this course will help you in selecting and using digital technologies that can benefit children.

This OpenLearn course is an adapted extract from the Open University course [E232 Exploring childhood and youth](#).

You might be interested in exploring another OpenLearn course taken from the same Open University course: [Climate justice for the next generation](#).

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# Acknowledgements

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This free course was written by Christothea Herodotou. It was first published in June 2020.

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