

Culture, Media and Sport Committee

Oral evidence: Children's tv and video content, HC 1338

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Members present: Dame Caroline Dinenage (Chair); Mr Bayo Alaba; Vicky Foxcroft; Damian Hinds; Natasha Irons; Liz Jarvis; Anneliese Midgley; Cameron Thomas.

Questions 126-178

Witnesses

[I](#): Professor Amy Orben, Digital Mental Health Group, University of Cambridge; Dr Gemma Taylor, Associate Professor in Development Psychology, University of Salford; and Professor Sam Wass, Director, Institute for the Science of Early Years and Youth.

Examination of witnesses

Witnesses: Professor Orben, Dr Taylor and Professor Wass.

Q126 Chair: Welcome to this morning's meeting of the Culture, Media and Sport Committee. Today is our third session on children's TV and video content. We are joined by three expert witnesses: Professor Amy Orben from the Digital Mental Health Group at the University of Cambridge; Dr Gemma Taylor, who is the associate professor in developmental psychology at the University of Salford; and Professor Sam Wass, who is the director of the Institute for the Science of Early Years and Youth. Thank you so much for joining us today—you're all very welcome.

I remind all members of the Committee to declare any interests before they ask their questions. Unusually, because you are a group of real experts in this field, but in different parts of the sector, can I start by briefly asking you to describe your own area of research and how it relates to how children watch TV? What age group of children does your work tend to specialise in? Can I please start with you, Professor Wass?

Professor Wass: I am very much an expert in the nought to five age range, so early years. I am a cognitive neuroscientist, and we do a lot of work taking brain recordings from children, with a particular focus on what I want to be talking about today, which is how young children process sights and sounds differently from how adults process them, and the implications for how we should be optimising early years content for young viewers. The emphasis of my research, which, again, I will talk about a lot today, is the interrelationship between concentration and stress—the physiological stress systems in our bodies. That is the relationship between how we pay attention to content on screen and our physiological stress.

Chair: Thank you very much. I don't think we have ever had a panel with two professors and a doctor before. I feel very intimidated.

Professor Orben: Thanks for the invitation. I am Professor Orben. I lead the UK's largest team looking at digital media use and its impact on mental health and other health outcomes, mainly in adolescence. I do a lot of work on science advice to Government; I sit on the science advisory council for the Department for Education. I also sit on the advisory council for the evaluation of the Australian social media ban and I do a range of different activities, so I also understand that interface. I do mainly quantitative work across a range of different topics in this space.

Dr Taylor: Again, thank you for having me. My research is basically all about children's development in the digital age. It focuses very much on the early years. However, I am starting—I am no expert right now—to look at neurodiverse children in the older age groups as well. I look at things like children's language development, their ability to learn from screens, and what they get in terms of social and emotional skills from screens.

Q127 Chair: I will start the questions. Professor Wass, in your evidence you talk



HOUSE OF COMMONS

a lot about the characteristics of children's TV and video content that are important for very young children. One of the things you talk about is pace. Why is the pace of a TV programme or video so important for very young children?

Professor Wass: Basically, we start from the idea that our brains are fundamentally prediction machines. With every single word that comes out of my mouth as I am talking, your brain generates, word by word, a prediction for what I will say next. If I suddenly say "cabbage", which is unexpected in the context, your brain will generate a mismatched response. We know from lots of studies that this is a fundamental aspect of how our brains work.

Young brains process information very differently for the simple reason that they don't have so much prior knowledge or expectation, so their ability to do this predictive brain processing is very different. We know from lots of recent studies that what maximises learning, and what young brains need to learn most effectively, is slow-paced, predictable interactions. They need the same thing to happen over and over again because they are not so good at making predictions, so they need repetition to help make them. Also, because of the lack of prior knowledge and the fact that, to put it crudely, the wiring diagram of their brain is much messier, the process of making predictions takes much longer. That is why young brains seek out slow-paced, repetitious, predictable interactions—things like peekaboo and singing the same song or reading the same book over and over again.

What screens are giving us—and the modern world in lots of other ways, like urbanisation—is exactly the opposite of that. For reasons I will get into later, the makers of screen content are increasingly packing screens with fast-paced, unpredictable content, and there is good evidence that this trend is going up over time. It is, as I say, exactly the opposite of what young brains need.

There is another aspect that is really important and I am keen to talk about; lots of studies have looked at this in different ways. We know that if information is coming at me in a way that is too fast paced and too unpredictable, and my brain is struggling to make predictions to keep up with the rate of information coming at me, I have an in-built mechanism to put my body into a high-alert, hyper-vigilant mode. That makes sense if you think about it: "I am in an unpredictable situation; I better be ready to respond at a moment's notice." This is our brain sending a signal to our body that we need to be ready to respond at the drop of a button. We go into a fight or flight physiological mode where our heart starts to beat faster, we get increased energy release to our muscles, and so on.

What is really important is that we have good-quality evidence from lots of different sources to say that children go into this physiological state when they watch content that is coming at them at too fast a pace for their brains to process. There is also more indirect evidence—a large number of studies have come out over recent years and some nice evidence from the Department for Education came out yesterday—that specifically points to



associations between early screen use and behavioural and emotional dysregulation in later life, and also more long-term affective mental health problems to do with depression and anxiety. We know that fast-paced content triggers hyper-alertness and hyper-awakeness in a part of the brain known as the brain stem, which is strongly implicated in conditions like depression and anxiety. There is a good-quality case to be made that the fast-paced content that we are exposing a lot of young children to at an early age may relate to behavioural and emotional dysregulation, and later-life mental health problems.

Q128 Chair: That is fascinating. One of the other things you talk about in your evidence is the importance of there being clarity of visual content. You say that includes being able to see key facial features and to identify emotions on the face of characters. Why is that important?

Professor Wass: This goes back to the idea that I started with, which is that our brains are prediction machines: as I am looking at your face, I am generating expectations for where your facial features will lie, where the outline of your face is, and how your face will move, and I am generating those predictions based on my prior knowledge and experience. Young viewers have less prior knowledge, so they are not so good at making those predictions.

It is well researched in neuroscience that one of the things that we naturally do when communicating with young people is hyper-articulation. In the context of child-directed speech, it is parentese: when we are talking to a baby, we naturally say, "Hello, baby", and we exaggerate our mouth movements. The reason we do that is because speech perception does not work so well in young brains, but if I exaggerate my mouth movements it exaggerates the difference between my speech sounds, which helps a young child to tell apart my speech sounds, given that they are not very good at that. We can take exactly the same idea in terms of visual design. That is why most cartoon characters have big black outlines around their eyes and the edge of their face. That is hyper-articulating a face in exactly the same way as we hyper-articulate speech—in a way that makes content easier to view.

That is also why good-quality TV does other things; we call it emotionese, which is similar to parentese in speech. When Igglepiggle and Upsy Daisy see each other in "In the Night Garden", they do not just wave and smile as I would do naturally when I am pleased to meet a friend; they clap their hands and jump for joy, which is a way of hyper-articulating emotional expression.

Good-quality TV content for young children will use that exaggerated clarity: of mouth movements in speech; of the visual design, when thinking about the visual features; and of the emotional content and narrative elements. That is something that only a small proportion of children's TV is aware of and does properly. If we are thinking about introducing guidance to help parents tell apart good-quality content from less good-quality content, this is a really important place to start.



Q129 Chair: That is really fascinating. Professor Orben and Dr Taylor, can you give us your views on what the positive and negative aspects are of content for very young children? I know that you tend to concentrate on content for adolescents, Professor Orben, but do you guys have any particular views on this?

Dr Taylor: I would add to what Sam was saying about language being really important in children's video and TV content and ensuring that it does marry up with what we call child-directed speech: short, simple sentences, with simple vocabulary and new words being repeating frequently. I would argue that is really important for supporting children's early language development. Obviously, that changes as children get older and they start acquiring more words, but I would argue that language is really important. There is a study showing that the language used in "Bing" is very similar to the child-directed speech that you would use every day with children, so it is more likely to support their language development because it is using those features.

Q130 Chair: What evidence is there about how the content that very young children watch impacts their development over future years?

Dr Taylor: Good-quality educational content with language properties, as I was mentioning, can support children's language development. It is small—they are small correlations, but they are positive none the less. That is the first thing to say.

The other thing is, as you will be more than aware, the evidence base is very much mixed. Not all studies look at content; they sometimes just look at screen time. That is a problem, because not all content is educational and high quality, but if it is high quality, it can support children's language development and their learning—if they are learning maths concepts, for example. If it is good quality, it can also support their socio-emotional development—their social and emotional skills—but it is all dependent on content. I am sorry to have to caveat; I am afraid that this is what we do as researchers—we caveat all the time—but it is very much dependent on that being good content. We cannot generalise about all screen content available for children.

Q131 Cameron Thomas: As a father, I feel constantly embattled trying to stop my daughter asking me to put the iPad on, where she watches all sorts of mind-numbing tosh, but I do quite enjoy watching stuff on iPlayer. She does watch "Bing". She likes "Bluey" as well, and I quite enjoy that. She quite regularly has to ask me to stop crying. In what way is it beneficial for my daughter to be watching TV with me or with family members?

Dr Taylor: It is incredibly important and beneficial if children are watching with another person. The other person has to be watching actively, not just passively sitting there with them while they do not talk and interact. If you are talking about and interacting with the content, whether that is during or after the screen time, that is going to support their learning from that content. It kind of relates to what Sam was saying about pacing. The really good-quality content that will support these co-viewing interactions cannot be too fast paced, otherwise there is no gap for you to be able to



say anything—you have missed half the story if you do that. It absolutely will support their learning if you are co-viewing and using it with them. Obviously, you are enriching it then with additional language with the children as well.

Professor Wass: Can I make a couple of points to add to what Gemma was saying? This is not so much for things like “Bing” and “Bluey”, which are very much about everyday experiences, but for the type of content I was talking about earlier—the very fast-paced and particularly “world in peril”-type content, which you get a lot of even on iPlayer. In addition to the pathways I was talking about earlier—through which fast-paced, unpredictable content triggers us to go into this fight or flight mode, ready to respond at a moment’s notice—there is also evidence that when watching imaginary characters dealing with an imaginary situation in which the world is in peril, children’s bodies get tricked and respond to this imagined danger as if they are actually experiencing danger themselves. Their bodies are triggering this fight or flight mode. It is, “You might have to run for your life at a moment’s notice”, even though it is all happening on a screen.

For both those reasons, there is really good-quality evidence that a lot of the naturally occurring peaks in a child’s stress occur during screen viewing. This point is really important to make to parents, because parents are very often unaware of it. That is why kids are ratty when they come off screens: they are in fight or flight mode; they have had a massive energy release to their muscles; and their bodies are ready for all this activity. Parents will notice that children are ratty after they come off screens, but they will not be aware that it is the time when they are on screens that their hearts are going really fast and they are in this fight or flight mode.

When I think of my children experiencing their own moments of peak stress, they are definitely times that I want to be there with them. I want to be experiencing this with them at the same time. You can model how to respond appropriately to the stress. The simple act of physical contact—there is really good-quality evidence that just sitting next to or with you attenuates their stress response. You can also talk about it afterwards. You can discuss what happened. You can contextualise it. You can say it was imaginary and not real—all those types of things that are really important for children. That is a particularly important reason. It is about helping children to cope with when their stress peaks naturally during the day by experiencing that with them.

There is one more point I wanted to make. We do a lot of work with dual brain recordings and looking at synchrony in terms of brain activity and physiological activity. One of the really important benefits from co-viewing comes in lots of different ways. It definitely comes from reading stories with your children at the same time. There is really good-quality evidence that simply experiencing things at the same time, whether that is in terms of brain synchrony or physiological synchrony—it is quite mysterious how this happens, but it is very well proven that it does—increases your

feelings of mutual understanding with the person you are experiencing them with. It gives you a common frame of reference and stuff to talk about afterwards, but it also deepens your mutual understanding and perspective-taking.

Those are all reasons why co-viewing screens are a great idea. Practically, it is so hard to do as a parent—we all know that you just need five minutes to clean the kitchen, so chuck a screen at them—but if you can make it work, it is really important for lots of different reasons.

Q132 Cameron Thomas: Professor Orben, do you have anything to add?

Professor Orben: As Dr Taylor said, there is a large range of different pieces of evidence. A big integration of different studies in this space found that the amount you did co-viewing and the viewing of educational content was positively associated with learning outcomes in children—those classified as zero to 18, so not just early years. So the evidence you have heard is backed up by the integrative process of putting together, I think, 88 different studies.

Q133 Cameron Thomas: You have mentioned the physical contact—the experience of experiencing something together. Is there anything else that my daughter or other young children are looking for from that shared experience?

Professor Wass: Do you want to talk a bit about language, Dr Taylor?

Dr Taylor: As I said, it will enrich their language environment if you are watching it with them and interacting with them, during the screen and after the screen. That is one area, and then the screen itself, and high-quality language there, can obviously enhance their language environment, because it takes you outside of things you might see in your everyday life, which is quite nice. It is like books do: you read and you introduce language from books because it is outside of what is around you now. So that is helpful.

Professor Wass: I don't really have any studies to add to that, but from the perspective as a parent, I would say that it is often quite hard to start conversations with your children. You ask them how the school day was and you get a one-word answer back. Just getting them to talk you through the plot of a show that you have watched together is about having a common frame of reference. It is about having something where you are both there together experiencing something from exactly the same perspective. So much of the time, our interactions with our children are about getting through the practical stuff—you know, "Get up. Get dressed." Seeing something from the same perspective at the same time is really important as a stimulator of shared conversation, but also in helping them to see things from your perspective, just as you have had that experience of seeing things from your child's perspective.

Q134 Cameron Thomas: At the risk of becoming a mansplainer, do you think my daughter would benefit from recapping following an episode—talking it through at the time, post the episode?

Professor Wass: Yes. That is an area where there is really good-quality evidence. That goes back to general principles for good screen content, particularly for young children, and to this idea that young brains struggle to make predictions and to keep up.

The idea of repetition is really important. First, it is about viewing the same thing again. The genius of “Teletubbies” is that you watch a two-minute video clip and then it goes back to the Teletubbies and they say, “Again, again!” We as adults groan when we hear that, because our brains extracted the maximum information from it the first time we watched it. We do not learn so much from viewing it again, so we hate the idea, but a two-year-old loves it.

There is really good-quality evidence with, I think, 18-month-olds that if they watch a video five times in a row, their attention goes up over time. It is because each time they are learning more. Their brains are getting better at making predictions. They struggle to process it and to understand what is happening the first time round. The second time they can predict better what is going to happen, so they learn from it better.

Good-quality content will feature repetition all the way through. That is like characters having an entrance song; every time that Igglepiggle enters, you have the Igglepiggle song. It is about particular elements repeating in different contexts within a story. It is about retelling the story—what happened—at the end of the show. They do that in “In the Night Garden” as well.

Q135 **Cameron Thomas:** “Bing” does that.

Professor Wass: Yes, “Bing” does that. That is a marker of good-quality content. Children need to process the same information multiple times in different ways, and it helps them. So, absolutely, talking with your daughter afterwards about the show that you have watched is a really crucial part of her learning and will definitely help. There is good evidence for that.

Professor Orben: In terms of when your daughter grows up, it will also be relevant in later childhood and adolescence. We know that active engagement with content is critical, both when the content is positive, and also when the content might be disturbing or having a negative impact on them; it is really critical to have that active communication pathway, regardless of age.

Critically, I would also say—having heard both of my colleagues talk about this—that what is good for child development is not different on screens than it is wherever else in a child’s life. It is about varied activities, good-quality interaction and strong care giver bonds. We always need to think about that. Screens are not special; well, they are special, in that they are engineered in certain ways, but what makes a good childhood is generally quite stable. A good way to start judging it is that putting your child in front of a screen for multiple hours and not engaging is probably bad, just like leaving them somewhere else and not engaging with them would be.



That is something to think about when we make these quite complex judgments as parents, policymakers and researchers.

Professor Wass: I half agree with that point and I half don't agree. The really important way that screens are different from the real world is that they contain a constant flow of information. We have in us, in-built, an early developing brain mechanism to automatically pay attention to movement when it is present anywhere in our visual field. This is why auto-play adverts on the internet are incredibly distracting and so on. This developed, we think, for evolutionary reasons because movement in our visual field used to index threat. It does not any more, but we still have this in-built mechanism.

Basically, from a neuroscience point of view, there are two ways that children can pay attention to screens. One is comprehension-driven attention: "I understand what I am seeing. I have watched this repeatedly. It is at a pace and developmental level that is appropriate for me, so I understand the content I am being shown." That is one way we can get children to pay attention. But there is another way we can get children to pay attention to screens, which is simply by cramming more and more fast-paced movement into the screen.

Those are two very different ways that target very different brain mechanisms, and we can articulate quite well the different brain mechanisms. One of those ways of targeting is definitely good. All the positive benefits that Gemma was talking about in terms of impact and education come through comprehension-driven attention. But there is good-quality evidence that programme makers are increasingly using the latter approach and cramming constant movement into the screen to target these very low-level brain mechanisms that automatically draw our attention to movement.

The reason they do that is simple. Comprehension-driven attention builds up over time. It needs to be really slow paced, which does not immediately grab you. The first time you watch, you might struggle to pay attention. The fifth time you watch, you understand it, so you are paying attention better as a two-year-old. However, what we call salience-driven attention—movement-driven attention—is instantaneous. It works for everybody. It keeps you glued to the screen, even if you do not have a clue what it is that you are seeing. It is this kind of in-built mechanism.

In response to your point, Amy, I would say that that is a really important difference with screens. They can be really packed with movement, and they increasingly are.

Professor Orben: Yes, and I am not disputing that content and what is on the screen is a crucial determinant of the impact. What we watch, how we watch it and, critically, what it is displacing will be really important in considering the outcome of that viewing behaviour on the child, regardless of age.

Q136 **Mr Alaba:** Thank you, panel. This is a question for Dr Taylor. How should



HOUSE OF COMMONS

parents interact with content? Before you came in, we were talking about musicals, and I think the whole Committee spoke about their love of musicals. I have a 22-year-old and an 18-year-old, 6-foot young men, who know all the words to "The Sound of Music"—it is a bit of a dictatorship in my house. How should parents interact with the content that they see with their children?

Dr Taylor: Obviously, we have talked a lot about talking about it, so I will not rehash that point. But taking what is on the screen into the day-to-day world is the best opportunity. I will give you an example. "Bluey" is also my children's favourite television programme, I am afraid. Parents love to watch it and kids love to watch it, so it naturally drives co-viewing; we are quite happy to sit and watch it together. The most important thing that we take away from it, though, is the games and the game ideas. We take them away. We have turned off "Bluey" at this point. For example, there is a game in there—you might remember this—in which the dad is an octopus. He is hanging over the sofa and he is an octopus. The children have to run past and he tries to catch them. That is something we take away from the screen and then do as a family. It is building play, which is essential for children's development, and there is also the language happening as part of that episode. They research other types of octopus, and whether the octopus could electrocute them and things like that, so they are learning different things. There are lots of ways you can take what you see on the screen into day-to-day life, expand on it, turn it into play and make it an incredibly enriching experience for children.

Chair: Maybe you could demonstrate dad as an octopus for us all later, Cameron?

Cameron Thomas: I have to regularly give horsey rides; that is another episode.

Chair: I will not get you to do that with any of us, because it could kill you.

Q137 Vicky Foxcroft: My questions are on support for parents. As Cameron explained, new parents are desperate to make sure they get this right, so if there is anything I do not ask about that you want to mention, this is where you may want to do it. What could be done to make it easier for parents to choose high-quality content for their children with confidence?

Dr Taylor: I will jump in first, if that is okay. There is loads that can be done. Signposting is critical. I pulled out an interesting statistic that I really want to share with you. On iPlayer, we can be fairly sure that it is generally high quality for children. On YouTube, there was a study published last year, although it was based on survey data from 2020 in the US. It asked 47 parents of nought to three-year-old children what YouTube videos their children had watched. The researchers took the sample of over 400 videos away, coded them and looked at things like whether they were age appropriate or not. Are you ready for the statistic? Just 19% of those videos were age appropriate for the nought to three-year-old children. So signposting on YouTube is essential for parents.



HOUSE OF COMMONS

Quite often, parents will turn to screens when they are experiencing stress and burnout, and this is adding to their stress. We already know that parents feel guilty when their children consume media. They may be turning to it because they are stressed, and then the guilt is adding to that. If I was one of those parents and I heard that statistic, and it was based on my data, I would be horrified. So signposting, particularly on YouTube, is crucial.

Q138 Vicky Foxcroft: On that in particular, what about the YouTube Kids stuff? Is this happening because people are on YouTube, or are they on YouTube Kids?

Dr Taylor: I think that even YouTube Kids is not—

Vicky Foxcroft: If you have any more statistics on that, it would be very interesting to get them at some point.

Professor Wass: To add one point, there is some signposting. I am not quite sure how YouTube Kids differentiates between content for older viewers and younger children, but it does have some kind of classification. Otherwise on YouTube, to my knowledge, the only criterion is, was this made for kids?

People like Netflix voluntarily follow the BBFC ratings, but at the moment those go purely off the thematic content—does it have certain warnings? There is no element in any of the parental advisory stuff about the things I was talking about: the complexity, and how sensorily intense the content is for young viewers. It is not factored in at all. It is perfectly possible to get a U rating for something that is mega, mega fast paced and mega, mega flash, bang, whirr all the time. Plenty of that content does get that rating.

I think that the reason we are increasingly focusing, in the screen time debate, on early years is exactly what I was talking about at the beginning: those fast-paced, unpredictable things are affecting our brain stem, and having long-term effects. This is definitely something we need to be looking at. We cannot just take these age-appropriateness ratings off the thematic content. We need to be looking at the structure. How is it designed? Is it at an intensity and a level of predictability that is right for a young child? Or is it too much for a young child? That is really important, and something really has to change on that.

Professor Orben: Something else to add, which becomes more important in later childhood, is that, more and more, it is not just parents or the child who choose content; it is an algorithm. The algorithm decides what to watch next. That is a critical difference, because when I actively decide what to watch next, I state my preference. I weigh up how the different options look, and I choose. What the algorithm tries to do in determining content—especially with short videos, but also on platforms like YouTube or Netflix—is to infer what I might want to watch next. This is revealed preference. Some people talk about it like crisps or kale: I might really want to eat the kale, but I might end up snacking more on the crisps. The



HOUSE OF COMMONS

algorithm learns that I like the crisps more, so it will feed me more of them. I think that is a really critical difference.

It is very concerning that, over the last few years, we have increasingly seen that change. That will have impacts on us into adulthood, but especially on older children, who are exploring their identity and building their beliefs about society and themselves. I think that that time can be really sensitive, just as it can be with young children—I know that researchers are very concerned that the couple of videos you first watch might end up training the algorithm. That might even reinforce disadvantage, for example, if your algorithm tracks you, and what your parents put on in the first few years of life determines what the algorithm thinks later on.

Naturally, we do not have evidence for that specifically, but those are the design features that remove a certain form of agency from the parent, from the child and from us as adults. I think we really need to examine critically that, especially because these designs are so successful that they have now been rolled out across a huge amount of different media platforms.

Q139 Vicky Foxcroft: The stuff you say is quite worrying. What kind of things might help? For example, would some form of kitemarking help? Would a hub app aggregating trusted content from public service broadcasters help? What kind of things do we think might be able to deal with stuff? I think you touched on the BBFC and how it does its age ratings? Does it need to relook at different ratings?

Dr Taylor: Yes, I agree: all those things ideally need to be put in place. When we are talking about very young children—and this is forming the foundation of their development moving forward—we really need evidence, particularly on the early years stuff. For the older children—sorry, I am at risk of a rant now—it is more about developing their digital literacy skills. Yes, we need the platforms to provide support, but we need to be teaching them the skills in the first place. We need the platforms to work for the early years, but we then need to educate children to develop the skills that they need moving forward.

Professor Wass: I would add that it is also an Ofcom thing; Ofcom has a regulatory duty to regulate harmful content. When we see the warning that says, “This contains flashing images which might trigger some forms of epilepsy,” that comes from Ofcom. The stuff I have been talking about—the quite new knowledge about how children process sights and sounds differently, and the potential long-term effects of that—is an Ofcom issue. This is about harmful content; it is not so much the BBFC. This is outside my thing, but I know that the remit of Ofcom is limited, and it regulates only UK-based on-demand services.

Professor Orben: Good-quality content takes investment, and I think we have moved to a world where we increasingly think our media should be free. I think we really need to consider how we invest in this space to

support good-quality content creation in the creative industries and elsewhere in the UK.

Q140 Vicky Foxcroft: Who should be responsible for providing the guidance and support for parents? Should it be the platforms, or should it be Government?

Dr Taylor: Realistically, it needs to be both. If we are going to tackle this, and tackle it well, it needs to come from all angles.

Professor Orben: Your question talked about guidance, and I think guidance needs to come from quite trusted sources and should be centralised, rather than getting guidance from YouTube and guidance from elsewhere. It is about having a trusted voice to give guidance.

Critically, I think platforms are often in charge of design. It is very difficult to regulate design properly, and design and the content being displayed are in their remit. We need a lot more focus on safe technologies by design, which includes good-quality content in early years, and it also includes a lot of other things that we have talked about for long periods of time.

We need to understand what different entities in this ecosystem we can focus on best. Pushing platforms to think about this engagement-based content that wants to ensnare attention for profit and ad revenue is something that we need to examine critically. I do not know whether it is just about adding more guidance. It is really important, and literacy is important, but we also need to develop an environment that is beneficial for children and young people. I sometimes find that literacy is also a sticking-plaster, when the issue itself is the design and commodification of children's attention—and our attention as well.

Q141 Damian Hinds: A couple of months ago, I put a parliamentary question to the Government to ask what research they had commissioned on the effect of media on babies and toddlers. The answer that came back was, "Well, we expect the platforms to do a risk assessment and think about the effect it will have on children." In other words, it did not seem to say that the Government had commissioned anything. That was the Department for Science, Innovation and Technology and, arguably, this is not really their arena. You would want to hear from the Department for Education or the national health service about some of those questions instead.

You must interact with the public sector. What is your understanding of the appetite of all the different branches of Government for developing a knowledge base? The advice comes after that, but we need to understand what is going on, in the same way that we have spent masses of energy understanding formula milk versus breastfeeding, five a day or exercise.

Professor Orben: We have a chronic lack of public sector research and development investment in understanding the impact of digital technologies on children, parents and our society.

You talked about food, and we have the Food Standards Agency, where there is investment in research centres that test the safety of food. In other industries, there is often an interplay between industry safety testing and public sector safety testing. In the digital technology space, there is increasingly a fundamental decrease of trust that companies are ensuring that products are safe. Companies are bringing out minimum viable products at speed, partially because that is what is needed to stay competitive in a very fluid technology market. But that means that products are released that the public, policymakers and researchers believe there is very little testing of, to see whether those things are safe, whether it is kids' content or other digital platforms.

What then happens is that, to create policy, we often want to show there is harm and to have evidence that there is something wrong. That evidence creation gets outsourced to university research teams or teams in civil society organisations, who work on insubstantial, short-term research grants that take a couple of years to get, and then it takes a couple of years to do the research. Then, the evidence created is too late, too little and not targeted to policy questions—the questions that parents have on the doorstep, for example. So we need to fundamentally rethink how we support our understanding of the digital world, and to think about how we have done so in other industries.

I welcome the investment by the previous Government in the AI Security Institute, but there is £100 million for long-term AI security and practically nothing for the security of our children now. That shows a lack of long-term interest. We have heard for many years that there is interest, and I have been sitting on these Committees for many years, but what has actually changed for us on the ground in terms of providing the evidence is very little.

My last point is that we also need to think about where evidence sits in this space. We often talk about cars, and we have regulated cars: there are seatbelts and MOTs, and there is traffic safety teaching in schools. But we had about 100 years between the first car and the ten millionth car being sold in the UK. For TikTok, which is one of the predominant content consumption platforms for older children, I think we had two years. So we need to think in a more agile way about how we create evidence and how we make decisions; we cannot wait for the perfect evidence. That is my soliloquy.

Q142 Damian Hinds: Let's put any of the three of you in the policymaker's chair. We heard, I think, yesterday that there is now going to be guidance on screen time and content type for babies and toddlers. Given that somebody will have to come up with something in pretty short order, and all this research cannot be short-circuited, what should be in that advice?

Professor Wass: I would say it is really important that content needs to be structured differently for young brains compared with older brains, for the reasons I was saying.

Q143 Damian Hinds: Hang on—I think this is going to be advice to parents. If



HOUSE OF COMMONS

you say, "This whole industry should go away and do something different," good luck, but that is at one remove, and you are dealing with people in another jurisdiction. If there is going to be advice to families—I hope it will be from either the Department for Education or the health service—what should that advice say?

Chair: On the back of that, the guidance is going to be just on screen time, so should it be on something more than that?

Professor Wass: It is very important that it is not just on screen time. There are definitely massive differences between different ways of using screens. There is screen content that is very well designed for young brains and screen content that is extremely poorly designed. We have this active selection pressure that I was talking about earlier: the more movement and fast-paced content that you can pack into screen content, the more a child will look at the television, because of these automatic, in-built, involuntary attention mechanisms that have nothing to do with whether we understand the content being viewed or we are at all engaged or interested in it. It is very hard for anyone, even an adult but particularly a young child, to experience movement in their visual field and not look at it, so that is really important—

Q144 **Damian Hinds:** Okay. I want to make sure that everybody gets a chance to say what this guidance should be. But the challenge back to you, Sam, would be that that is all very well, but that is expecting every mother and father in the land to be an expert on neurodevelopment, to be able to categorise different pieces of content and to be constantly at the shoulder of their young child. That is perhaps why screen time is a much easier thing to give advice on than content. What actually is the practical advice that you are giving to Cam, whose daughter is how old?

Cameron Thomas: She is four.

Professor Orben: It is difficult for me to comment. I have been involved in the DFE conversations, and we will release those guidelines in April. It needs a conversation that is not just about the evidence. It is about the ethics, people with lived experience and what parents need. Research will play one role.

Critically, there are guidelines in this space already, which are really important to think about. The WHO guidelines recommend one to two hours for under-two-year-olds. The CMO guidelines talk about things like not having screens at family mealtimes, in the bedroom or potentially an hour before bed. All of those are already guidelines out there that are evidence-based and really important for us to communicate.

I had a call from the BBC last summer—I think it was the "Today" programme—about how they had done a study on kids not putting their phones in the bedroom, and had found real positives. I welcomed it and said, "Well, that has been the guidance for about five years." There is also communication. We can give guidance, but it needs to meet the parents where they are and it needs to be realistic for them as well.



Q145 Damian Hinds: I think that the phones in the bedroom stuff is mostly about older children. If I have understood correctly what we are going to get in April, it is also coming right down to the earliest years. There are questions around early brain development and more children presenting in year R with attention difficulty and so on, so hopefully that will move us on. Gemma, what should be the policy? What should be the advice?

Dr Taylor: It is a big question. I do sit in this space as a parent as well as a researcher. I have a four-year-old and a seven-year-old. For me, you cannot always honour the screen time guidance. I will admit that myself. It is just not always possible. What I do try to do, if I cannot be there with the children while they are watching content, is to make sure that that content at least has tried to have some kind of educational value and is not just—you know the videos I mean on YouTube; they are just videos. That is the first thing: try to get a sense of whether the content is educational.

Co-view with them if you can, and take whatever they have learned beyond the screen. Crucially, as Amy said, it is about meeting families where they are at. Different parents have different needs at different times, whether that is based on their stress and whatnot, but different children do too. Neurodiverse children benefit from screens in different ways from what we have really considered so far. I am speaking about four to 16-year-olds, for example, with foetal alcohol spectrum disorder—that is where they have had some kind of brain changes as a result of exposure to alcohol during pregnancy. Those children have challenges with their social skills and their emotional skills, but they use YouTube videos to learn about how to interact in everyday situations and so on. Some parents say that their children need those screens to support them during moments where they are feeling emotionally overwhelmed, and they can turn to content that is predictable to calm down. It is about meeting individual families where they are at—this is not good guidance; I am aware of that.

Damian Hinds: I realise I am stretching our Chair's patience a little bit, as this is only one follow-up question, but can I ask one more?

Chair: Yes, if it is quick.

Q146 Damian Hinds: Can I put to you the proposition that is not realistic in an algorithmically driven system to say that parents should control what their children watch? Even if a lot of the time you do manage to co-view—let's say you have three children; as it happens, I do—it is not physically possible to be there all the time, with all the other things you have to do. Should it not just be a channel?

Professor Wass: Should it just be a channel?

Damian Hinds: Yes, do you remember them? Why is no one arguing for that? It is impossible to say, "I'm going to pick all these individual, one, five, 10 or 20-minute pieces of content and put them all together, and I will know which ones are good and which ones are bad." That is what channels are for. We call them curated playlists in another part of the

media landscape. Why is there not just a drive to say, “Let’s bring back responsible, well-edited channels”?

Professor Wass: There is evidence about curiosity-driven exploration—if you get a child to ask a question before you tell them the answer, they remember the answer better. Even in early years, we have done quite a lot of work looking at child-led attention. It is about getting them to click, or even the interactivity of swiping on TikTok, particularly when thinking about things for early years. If I express curiosity—if I choose to watch something—then I engage with that content differently.

That is true, but the other thing about children’s urges is the stuff I have been talking about: it is very hard not to look at fast-paced, densely packed visual content, and that is something you want to steer children away from. I would say that, ideally, you need curated choice, where we know everything that goes in the basket, but they are given a choice about what they pick out and when.

Damian Hinds: But we survived. How did we grow up into these adults?

Natasha Irons: We didn’t have wi-fi, Damian. That is the difference.

Professor Orben: It is also about the fact that, naturally, they will grow up into a very different age and they will need very different skills. For those policy decisions, we can just advise on where there is evidence. I think that, partially, it will be a policy decision about how exactly to act on that evidence.

Q147 **Damian Hinds:** If the proposition I put was correct—maybe it is not, but if it was—part of the advice could be, “If you are going to put your child in front of something for an hour, you are much safer putting them in front of one of the few public service media channels than sticking them in front of something with self-selection”—although it is not really self-selection. To be fair, I think the children’s versions do not do auto-play, but a lot of children are also not using children’s versions. That is not really self-selection; that is kind of, “People like you looked at things like this.” Wouldn’t the safer advice possibly be, “Some other professionals have looked at this and they have come up with a set of stuff that is probably a little bit educational but also entertaining and engaging. You are better off there”?

Professor Wass: I do agree. I think, as a general principle, we are in one area where, “It worked for us as kids and we turned out fine, so it must work for other kids” does not work, for the very simple reason that screens have become ubiquitous—you know, the iPhone in 2009 or the iPad in 2010—and because of the amount of content that children are watching. When you are in the queue at a shop or you are waiting for your food to come at a restaurant, no parent can resist pulling out “Peppa Pig”, and your hyperkinetic toddler goes motionless.

There is so much evidence. It just came out of the Department for Education yesterday that 98% of two-year-olds watch television for an average of 127 minutes a day. This really isn’t something where you can



HOUSE OF COMMONS

say, "We watched screens", because of the amount, the timing and the spacing, as well as this trend that I have been talking about, of more and more fast-paced, movement-driven attention capture. In terms of what worked for us, our kids are experiencing a very different world.

Damian Hinds: That might be an argument in favour of preferring channels, not against.

Q148 **Cameron Thomas:** We now have fact checkers that show people how likely it is that the news channels or media organisations they are reading from can be relied on to tell the truth. What if we had a similar standard applied to children's media sources, such as YouTube or whatever else?

We spoke about food briefly. We have a traffic light system that shows people this piece of food is, for example, green here, yellow here and red on saturated fats or whatever it is that is terrible for you. What if we were to apply that, based on an approved authority, to specific programmes?

Professor Wass: I can answer on the latter one. Absolutely, in terms of what we have been saying, you cannot supervise your kids all the time. Just having a green, yellow or red flag, where you type in the age of your content and it gives you a flag for how age appropriate it is, is great. We are a very long way from that. We are at the level of these very crude things, such as a maximum number of hours for screen content, with no real awareness about the idea beyond this very crude, thematic stuff—

Q149 **Cameron Thomas:** You think we have to get there, but that we are a long way from it.

Professor Wass: Yes, it is really important, but we need a lot more research about this idea of how the content and design of TV needs to be different for young brains and older brains. It is really important, but there is a lot of research that needs to happen.

Q150 **Cameron Thomas:** You think this might be the answer. Would you like to jump in, Professor Orben?

Professor Orben: It would also have to be scalable. On certain platforms, there is a lot of user-generated content, so it is not like movie kitemarking. It would need to be something that could be done automatically through some sort of AI coding.

Q151 **Cameron Thomas:** Perhaps on the basis of how reliable that source is expected to be.

Professor Orben: Potentially, yes. Research will be able to help advise on those sorts of policy options, but you will quickly see that there is a lack in terms of our ability to keep up with those changes. The question in the long term will also be about who and how.

Cameron Thomas: Dr Taylor, would you like to close?

Dr Taylor: I don't have much to say on that topic. Any sort of guidance for parents would help.

Q152 Liz Jarvis: I would like to focus on the impact of YouTube and TikTok on older children and teenagers. There was a case in *The Sunday Times* at the weekend of a young man who had watched a video at the age of 12 and been diagnosed with PTSD as a result. It was originally on Facebook and then migrated to YouTube and TikTok. Professor Orben, could you talk about the main wellbeing risks associated with these platforms?

Professor Orben: The first thing to think about with that case, which I also read about on Sunday, is that we need to differentiate between individual-level harms and risks and population-level harms and risks. On a lot of these platforms, we have quite clear evidence of individual-level harms, from the boy in the paper on Sunday, to Molly Russell and the content that heavily impacted her, to a wide range of children we have seen in coroners' reports and investigative journalism.

For a lot of industries, that would be enough to drive change. For example, if a toy that caused a couple of children real, grave harm, you would expect a certain level of recall. Naturally, you would not expect the recall of all toys, and that is where the difficulty lies at times.

On the population level—I will focus specifically on video content because that is the focus of this Committee—in this review of the 88 studies, we find that there is a negative and weak association between more time spent watching all types of video content and learning and mental health outcomes. Naturally, we talked a bit at the beginning about how certain types of educational content or co-viewing content have these positive associations, but the baseline was negative.

An economic modelling exercise published, I think, in November, looked at the potential impact of spending an hour more watching videos in childhood—this was on US samples. For every additional hour you spent watching videos as a whole, they found a decrease specifically in socio-emotional skills and an effect on internalising behaviours—being with your peers, as well as things like depression and anxiety. They actually found positive impacts on things like maths and cognitive skills.

We have this understanding that there are clear harms on individuals, and those need to be targeted and addressed. On the population level, we have an increasing understanding that more video viewing will likely lead to small decreases in certain outcomes, especially in that mental health wellbeing space, and potentially lessen that cognitive skill for older children. But that is very variable and, as you said, we are not homing in on a specific platform with specific designs or pieces of content.

Two years ago, on X the most searched term was "kitten in a blender" and a lot of young people were watching those videos in school. We do not need evidence or a study to show that the number of minutes spent watching videos like that will have a negative impact on developing brains—as well as adult brains, to be perfectly honest.

Q153 Liz Jarvis: You have touched on this briefly, but what additional challenges does AI and the ever-increasing AI slop present for children?

What is the best way to address AI?

Professor Orben: There are two bits there. There is the algorithmically determined short-form video content that, given the way we as humans make decisions, we find much harder to disengage from.

It is almost like a slot machine. You do not know what is coming next; it might be the funniest video you have seen. You do not need to choose what to watch next; you just need to choose whether to swipe or not. That is very different from social media or YouTube a couple of years ago, where you would have to search and choose what to watch next and where the videos were not in a reel format, which is where there is a video and then you swipe and see the next one.

Since then, we have seen increasing numbers of children talk about struggles with agency and feeling not in control of their own use, which is very concerning. There is some really nice qualitative research on young people's use of Instagram and TikTok, where they talk about being bored so they go online. It is like content soup: they are wading through this content soup and actually getting more and more bored, but they find that they struggle to disengage. That is critically based on design. It is the design that keeps them engaged. We see that the design is very good at keeping them engaged because TikTok pioneered it, but we are now seeing it on Instagram, YouTube and Facebook, and we are even seeing reels on LinkedIn. That should be seen as something we need to consider.

What we can do about it is think about how we regulate for platforms. We know we could make platforms safer by design. The question is: do we trust that we can do this, and can we trust that we can do this quickly enough? Do we regulate this like junk food or cigarettes? This decision has to be made not by researchers or policymakers; it is us together figuring out what is feasible. I do not think we have seen a lot of progress in the last 10 years on making certain technologies that young people use safer.

We also need to think about user choice. There is a lot of work on adults showing that people want to choose how their platforms are designed. In the old internet, we used to be able to say, "I want this here, I don't actually want reels and I actually don't want to have this feature." In my physical environment I can choose how to organise my desk to fit how I want to work. Increasingly, in the app-based age we have no agency, or it is hidden in some place on the app that we cannot easily find, where we can decide whether we want this or not. Empowering user choice, especially in older adolescents and in adults, will be critical.

Q154 **Liz Jarvis:** What do you think of the idea of banning smartphones and social media access for under-16s? What impact would that have?

Professor Orben: That is a really interesting question. There has not been an experimental study on reducing or removing social media in healthy under-16s and seeing what happens—there has been one in those who show certain symptoms of mental health conditions—so it is very difficult.

It is very hard for us to understand the impact of a policy like that, both in terms of its effectivity and then its ultimate impact. Therefore, I am really excited to be involved in the evaluation of the Australian ban. Over the next few months, we should start seeing a bit how that has worked. That will help inform us on how that has gone. If it does improve wellbeing and mental health across the board, it should be an option on the table. But it is very hard as a researcher to be able to judge what it might lead to at the moment.

We are running a trial in Bradford where we are going to put in place a social media curfew and reduce social media use to one hour a day across Bradfordian schools for six weeks to see the impacts. That was just funded and was directly informed by some of the policy options that were on the table earlier last year.

That sort of evidence will be critical. Otherwise, it is hard for me to make a prediction.

Q155 Liz Jarvis: TikTok has a wind-down mode that prompts under-18s to turn off at 10 pm. In your experience, do some young TikTok users have trouble sleeping?

Professor Orben: Some of the clearest evidence of social media harms is in the sleep area. Sleep is really critical for any age of child or young person; in adolescence, it is one of the most predictive elements of mental health outcomes over the course of development.

A really interesting report from the Youth Futures Foundation was published last year. They looked at the decrease in mental health in adolescence over the last 20 years and tried to see what has changed at a similar rate. Sleep quality has declined at a similar rate, digital technologies have gone up and there were changes in deprivation and economic circumstances. So they could not pinpoint it, but I think sleep is really critical.

That is why earlier in the session I talked about the CMO guidelines on no phones and screens in bedrooms and no phones and screens an hour before bed. They are really critical, and we need to get that out to parents.

I struggle with layering more and more policy or regulation or guidance on top when we are not yet enforcing or enacting appropriately things like the Online Safety Act and the guidance we already have in place. I think that needs to be considered.

Q156 Damian Hinds: I have a couple of quick-fire follow-ups. Away from TikTok and YouTube, is there any evidence on any harm or goodness that comes from binge watching something on Netflix relative to waiting a week for the next episode? Or do we just not know?

Professor Orben: I would not know.



HOUSE OF COMMONS

Professor Wass: The only stuff on that I do know is on if it is used to control behaviour dysregulation—back to early years. If you use it to stop a tantrum, there is good-quality evidence that has come out recently from some colleagues of mine in the States that that is associated with tantrums getting worse over time, rather than—

Q157 **Damian Hinds:** Sorry?

Professor Wass: If you use it to stop a toddler tantrum—you pull out a screen to stop a toddler tantrum—that is a counterproductive technique. It leads to the increase in severity of toddler tantrums over time.

Otherwise, I think it is all just general correlation in terms of total amount being consumed.

Professor Orben: I think it is mainly thinking about displacement. If you are watching six hours on the weekend, what are you not doing? Are you not interacting with your community?

Q158 **Damian Hinds:** Okay. Quickly to Gemma, is there any evidence on the Turn on the Subtitles campaign? Is it beneficial to very young children to have the subtitles when they are hearing speech on the television?

Dr Taylor: Again, I don't know that there is any research on that. I cannot imagine it would be very helpful in the very early years, because you are asking them to do two different things, and that is a challenge. We would need research evidence on the age at which that becomes beneficial.

Q159 **Damian Hinds:** To any of you, have you ever met a parent who has used every parental control available to them—with two or three children, two different operating systems, three different Meta apps, two different Google apps? Have you ever met anybody who has mastered parental controls? And can you introduce me to them? We will have them here at the Committee.

Professor Orben: If that sort of perfect parent exists, they are probably going to be highly educated. It creates a differential in society where we have parents who need to make those choices about which child gets exposure to that or not. I haven't met them—

Q160 **Damian Hinds:** It was kind of a rhetorical question. My hypothesis is that that person does not exist, because it is not physically possible. However well educated you are, you just cannot be on top of all these different systems. They all have their own individual parental controls. TikTok says, "We have parental controls"—well that's fine, except the child has just been on Instagram and I have been worrying about those parental controls. Is it fair to say that no parent can realistically be on top of all the parental controls?

Professor Wass: And who is better than their kids at turning them off?

Damian Hinds: Exactly.

Chair: By the time their child gets to the teenage years, they will be

creating a VPN to get round them anyway.

Q161 Anneliese Midgley: Thank you very much for coming to give evidence; it has been fascinating. We have talked around challenges and pitfalls of video sharing platforms. What does the panel think are the positive benefits of video sharing platforms such as YouTube and TikTok? Amy, would you start?

Professor Orben: As with the negatives, it is all about content, who is watching with whom, at what point and for what purpose. Qualitative evidence shows that purposeful good-quality content consumption can be transformational for some children who are looking for a specific piece of information, maybe in adolescence, who are struggling with a certain part of their lives.

It can be highly educational. I do admissions interviews at Cambridge and we see people coming through our doors who have taught themselves whole curricula through watching things on YouTube. It can allow young people agency if there are not opportunities in the home to get that information and certain forms of educational content.

That is something that we need to recognise: it is often the most vulnerable who find potentially the most harm but potentially the most benefit, which makes it quite a difficult space to judge who is the most at risk and who might most benefit from access versus no access. As with harms, it will be very specific types of content and specific situations that lead to benefits.

Dr Taylor: I agree with everything Amy said. To emphasise again about neurodiverse children, their ability to find content on YouTube that can support different areas that they would like extra support with is really helpful for them. Likewise, we have probably all gone down a hole where we want to learn something new, and we can find those videos. High-quality content is there and is supportive and beneficial—it's just finding it.

Q162 Anneliese Midgley: How does that relate to the algorithms?

Dr Taylor: I honestly could not comment on the algorithms; that is a mystery to me.

Professor Wass: I wasn't going to say anything about that. I was just going to talk about the contingency as Amy was saying. There is one thing that algorithms try to discourage. On what Gemma just said about neurodivergent children, I was talking earlier about repetition being important for young viewers in gaining predictability.

One way neurodivergent children use technology differently is that they will often watch the same video over and over again. That is exactly the same as the early years learning mechanism. It just continues much later, because their brains find it harder to find things predictable over time. Algorithms don't like that; they want you to move on to different content. A lot of the time, they are against one another.



HOUSE OF COMMONS

Professor Orben: I think the algorithm can create positive and negative feedback cycles. The rich get richer, the poor get poorer, in the theory in the media space that has existed for a long time. If you are a child who has a certain hobby and is feeling very settled in their school, the algorithm might be feeding them more information about that hobby.

If you are a child experiencing a lot of stress at school and something is causing you a lot of anxiety or putting on more pressure, you might go into those negative feedback loops. Like all technologies, algorithms create more extremes. We need to understand how to support the positives while safeguarding those who will experience those negative impacts or feedback loops.

Q163 **Anneliese Midgley:** Going on from that, you all touched on high-quality content. Do you think the video sharing platforms are doing enough currently to ensure that educational, high-quality content is more prominent?

Professor Wass: I don't see it.

Dr Taylor: I would say no, probably not, but that is an opinion.

Professor Orben: I think that, in the AI age, this will be increasingly challenging. We need serious companies and platforms to have responsibility for the people on their platforms. There have been times when that has been less clear to me. In the time of AI-generated content, where your algorithm might not just decide which video you watch next but might create that video for you, those challenges will be coming down the line for Committees like yours. If we have concerns now, they will not become easier or less; they will just increase.

Q164 **Anneliese Midgley:** We know that traditional public service broadcasters are developing content to be placed on these video sharing platforms because they know that is what kids are watching and that is where the audience is. If you were advising them, what would you tell them to do to maintain educational and positive elements of the programmes, no matter what the platform is? What would your advice be to those that are increasingly moving into that space and want to be up there on the algorithm so that we maintain high-quality programming?

Professor Orben: I have a lot of respect for colleagues in, for example, the BBC, who try very hard to create high-quality programming. They live in a world where, given the way that technologies are set up, certain choices are playing against them. Changes have been going through Parliament, such as making sure there is an iPlayer button on remotes and making sure we have easy access to public service broadcasting, that are critical in giving those colleagues tools so that they do not have to compete as much.

Critically, we need our public service broadcasting to compete in that frame. My advice is that we need to create a system where they can make the best choices without the pressure to compete with, as you were saying, the colourful, attention-grabbing content.



HOUSE OF COMMONS

How can we create a system that supports high-quality content that is more like the kale than the crisps? We cannot just make the BBC solve that. It is an ecosystem choice that would allow them to make those choices. If the system continues, they will have to pivot in certain ways. I cannot view that as negatively if that is what they have to do to keep certain audiences, but that is my opinion.

Professor Wass: The only thing I would add to that is that, from an early years perspective, it is very much about how the programme is made. That is the really important point, and a lot of change needs to happen on that.

It is tricky because, as I was saying earlier, you have these two things that are very directly in opposition. One is slow-paced, comprehension-driven attention, which doesn't immediately grab you because it is slow paced. The other is this automatic attention capture, which works instantaneously, irrespective of whether you understand or are interested in it. It is really hard to look away from movement. It is really hard when those two things are so directly in opposition. It is not that one is definitely good and the other is definitely bad; it is just that one has immediate rewards and the other doesn't. It is really hard to think about how to disentangle those two things and reward the slow-paced, comprehension-driven attention.

Professor Orben: It also impacts older children and adults. Our attention is being grabbed from different types of content, and the good quality might be washed out. There is a really interesting trial in Denmark, where they looked at 13 to 17-year-olds and started adding friction into their social media use; whenever they wanted to open TikTok, it gave them a six-second break. They were asked to take a breath, and only then were they allowed to enter. The trial found a 31% to 36% reduction in the amount of use. I don't have the figure, but I think that was about an additional hour for other activities without a decrease of enjoyment, so there are ways that we can do this through design. Everything has become so frictionless and optimised to grab our attention, so we need to start bringing that back in.

I have been in contact with the BBC R&D department, who are quite interested in interventions like that. Public service broadcasting should not just be about content; it should help parents install things like break features, and should be a trusted resource that helps them manage screens and media.

There is a lot of interest, and that is where world-class public service broadcasting and research-and-development capacity in the BBC could be of use.

Q165 **Anneliese Midgley:** My final question is on that. What role do you think research has to play in this to make it more beneficial? How do you think the balance is at the moment in terms of health harms from digital media platforms vis-à-vis the kind of things that could be more beneficial and how they could be used?



Professor Wass: The only thing I would say on that is what I was saying earlier. At the moment, it is definitely not the case that all screen content affects young children in the same way. It is definitely the case that there is good-quality content and bad-quality content. This is about the programme design, the pacing, the complexity of the narratives—that type of stuff. But we do not have reliable measures for telling, ideally automatically, whether something is age appropriate. That is definitely possible. It is a research aim that is really important, but we do not have it at the moment. It is crucial, because all screen time is not the same. Some screen content is absolutely fine for a two-year-old to watch; some really isn't, and we do not have a way to tell them apart at the moment.

Dr Taylor: Researchers should be embedded as much as possible in the development of content, but also in the rating of content and so on. I suspect that the things that we are concerned about today are going to change, and it is important that research moves with that, so that we can continue generating the new knowledge that we need to make informed decisions.

Professor Orben: My only two points are about evidence creation needing to be proactive. I am sure that in five or 10 years' time we will be sitting here talking about AI companions or AI content. It pains me that I am not already working on that and I am working on social media. We need to think proactively and get ahead. When I talked to Apple researchers five or six years ago, they were asking me only about virtual companions, and I now understand where their heads were at. We need to start thinking like that, and we need more research that is directly relevant to policy. These instances are really nice for us to communicate and to connect, but often I find that really great research is done and then is not relevant. Then there is policy that needs research, but it is not there.

In the health sector, the DHSC does fund something called a policy research unit, which is a group of researchers on a specific topic, who sit down with the Department I think every half a year or year to figure out exactly what questions they want to answer and what is policy relevant, and then they do the research: the systematic review or the quick experimental study. We could think a bit more in that way. It needs a redesign so that we are really working together, because any waste of time, effort or funding will mean that there won't be the evidence in time to help you make those decisions that your constituents want you to make.

Q166 **Damian Hinds:** Obviously, academic independence and freedom are also very important; you cannot only be working to the requirements of Government or some agency. We are going to be writing a report with recommendations. Would a recommendation of yours be that, say, annually there should be some, probably publicly available, discussion about what we as a society, through the Government—because that is the channel through which this goes—think are the most important things for the academic community to be researching in this arena?



HOUSE OF COMMONS

Professor Orben: You get some of this through the areas of research interest that the Departments release. Naturally, what we need is curiosity-driven basic research, but there is this key element where, for example, in my interactions now with a range of Departments, it is often a case of, "Well, we needed the evidence yesterday," or, if you create it, it will take you two or three years and that will not be quick enough. It needs that conversation.

Like the DHSC, if you fund something in a stable way so that the researchers are already there, the expertise is there, you can quickly do the trial or review. A potential wait of 12 months a Minister can deal with, but when it is a wait of 24 months, it's sort of off the table. I have seen that paralysis quite a lot, and we need not just communication but the secure funding and R&D spend that would allow this to take place. We have seen it in the AI Security Institute and in other areas. We have seen it work, and we have seen it not work, but we have not done it in this space so we do not know what to do there.

Q167 **Natasha Irons:** I have been waiting with patience and bated breath to speak to you, because your evidence is fascinating. As a parent of two boys—one born in lockdown, when screens became the thing we all clung to—I find this fascinating. Time and again, what we have gone back to in this conversation is content being king: not all screen time is equal, and it is not all bad. We had evidence sessions with public service broadcasters, whose motivation in this space is not necessarily monetising their content but providing things that are for the public good.

At the moment, the Government are waiting for video sharing platforms and the public service broadcasters to work collaboratively to come up with some sort of lovely self-regulatory thing—maybe a kitemark, as my colleague was talking about before. Do you think that that is working right now? If not, do you think that the Government should be regulating in this space? If they should, what would you like that to look like?

Professor Wass: I would say that it is working in principle; I do not think there is always knowledge dissemination. Certainly in my area of early years neuroscience—how children and young brains process sights and sounds differently—we have really moved on a lot in our understanding in the past five years. Honestly, I see stuff on iPlayer that is not optimally designed for my young kids' brains. But in principle, it works. I think that the desire to change is there, but it is just a question of getting the knowledge flow happening fast enough. That would be all I would say on that.

Professor Orben: With anything to do with these big tech giants, it often feels like a David and Goliath battle; it feels like that for the researcher and probably for public service broadcasting. We know that public service broadcasting that is not driven by ad revenue is probably a really good mechanism for creating good-quality content, because that is the ultimate aim. It is also content that is created in the UK, created with our values and created in our communities, so we need to make sure that it is as competitive as possible.

It is very difficult to say if it is working, because we are increasingly seeing young people going to other platforms. It is hard to say that all of public broadcasting is not working if that transition is taking place, when we are seeing that those platforms are designed specifically to ensnare attention. I think we are seeing that those tech giants are very successful at doing their business model.

Q168 Natasha Irons: If we think big—if there is no limit; let's just wipe the slate clean and start again—is there a space in which you regulate the type of content? We were talking earlier about the food standards for what is in baby formula, or the standards that we have for the materials that go into toys. The reason we made those changes is that, over time, we saw the harms of those things. Do we go into the space of regulating how many images are flashing and that sort of thing? Rather than waiting for these organisations to do it voluntarily, should we make them do it?

Professor Wass: I would say that, technically, it is very hard to ban fast-paced screen content. I think the only thing we can do is on age-appropriateness—is this right for your child at a particular age?

Q169 Natasha Irons: Maybe you would not ban it, but you would say, "You can't market this to children," if it has a certain sort of thing.

Professor Wass: Yes—that type of thing. The problem specifically with my area of early years is that what young brains need is very different from what older brains need, and that what works very well for older brains works terribly for younger brains. That constrains what you can do. It is not like violent content, which is bad for everybody; it is that young brains have a very specific need. They learn very differently, and process sights and sounds very differently. It has to be about age-appropriateness, rather than a flat-out ban.

Q170 Natasha Irons: Is there any sense of a cultural shift in the sector towards monetising comprehension rather than attention? That is not just for early years but for all of us—anyone who is online. Is there any appetite for us to move that culture towards comprehension rather than just attention?

Professor Orben: I have been doing some EU Commission work where there is interest in asking whether, for example, instead of the algorithm always coming with a platform, could there be consumer choice, in that I might want the BBC algorithm? There is the raw content soup that a platform maybe owns, but then there is an in-between where I could choose the platform's own algorithm, which might be free and ad-driven, but where I might also choose the algorithm that is developed by the BBC or somewhere else.

I am not—and I think none of us is—a policy researcher or expert in this space, but that has interested me because increasingly we see a raw flood of information and there is a role, potentially for public service broadcasting or other mechanisms, to help give people choice. Again, bringing it back to the element of choice, I could choose that I want the

TikTok experience, where hours fly by in a couple of minutes when I am stuck on a train, but I could also choose something else.

Q171 **Natasha Irons:** But you would make it a public service, so you do not create a situation where if you cannot afford it, you get the soup and if you can, you get the premium product where your brain is not overstimulated.

Professor Orben: We are seeing, for example with edtech and other forms of technology, that there is a differential between those who have to go on the free versions and those whose parents can choose the high-quality content or pay for high-quality apps. We need to make sure that we push against that. Digital inequality is not just about digital access; it is about access to certain, high-quality features. That comes back to what I said earlier: we are in a space where we assume everything should be freely available, but we need a base level of good-quality content, software and apps that are available to all. They will cost money to make; the question is who will cover that.

Q172 **Natasha Irons:** I have one final question. How much interaction or discussion have you had with parents in the organisations that are creating these things? Do they let their children use these platforms, and how do they let their children use them?

Professor Wass: That is a good question. I have not.

Professor Orben: Naturally, there are all those media articles about how the silicon valley executives send their children to screen-free schools. It comes back to which parents have that choice. There is a certain amount of income that allows you to have childcare and all those after-school clubs to keep your child entertained, and to have a big garden where they can climb a tree and a safe neighbourhood where they can go over and meet their friends. We need to understand that for some kids, going out on the street can be unsafe. That hour not spent on a screen is not an hour playing in the garden, because they do not have access to nice-quality playgrounds where they are living. We should think about the tech bosses, but we also need to understand that there is a lived reality, so even if certain parents want to make the choices that they make, they might be out of their current reach, and we need to reflect on that.

Q173 **Natasha Irons:** I completely agree; that makes sense. But if you are building an online world for young people, secure in the knowledge that your children are not experiencing it, maybe there are guardrails that you would put in for your own kids that you should put in for the rest of the world's kids.

Professor Orben: I think you are inviting some tech bosses; that is a great question to ask them.

Q174 **Chair:** With Australia having their ban on social media for under-16s, are you aware that they are in any way backfilling the availability or funding of content on public service media, in order to provide enough to watch for that age group?



HOUSE OF COMMONS

Professor Orben: I am not sure, but I have not heard that they are doing that. I think that there was a large amount of debate in Australia about what you will fill that time with, and how you enable children to go out and play footy, for example, as they were hoping for them to do. It is the same for the Play Commission here in the UK, for example. A big thing that came out was that we need to give young people the space to play and do things that are not digital.

We have just done some interview work with young people where they were saying, "Well, we would love to meet up, but actually we're sort of stuck in our homes. Then, in the winter, it's dark and there's not really a space for us to hang out." They were teenagers. So we critically need to think about, if we want to remove screen content, what we replace it with. The path of least resistance will potentially not be the things we would want people to replace that time with. We also need to think about children's rights and the limitations they have experienced post pandemic, where we are giving them a lot less freedom and opportunity to go out and take risks.

To be fair, I think that it is all connected. We often focus on the screens, but there are a lot of other changes that have happened in our society that have potentially been helped or enabled by screens, or were a consequence of them. It is all one big complex system.

Professor Wass: It is a great question. I don't have anything to add.

Q175 **Chair:** One final question for all of you: can any of you give me an example of where a video sharing platform has acted to help promote high-quality educational content?

Professor Wass: Do you mean a video sharing platform specifically, as opposed to posting content from somewhere else?

Q176 **Chair:** Yes. Are there any video sharing platforms that have taken steps to actively help promote high-quality educational content?

Professor Wass: Not that I am aware of.

Dr Taylor: No.

Professor Orben: It is not my area of work to track companies.

Chair: In the same way as our PSBs collate high-quality content so that it is there for our children.

Professor Wass: It is a good question. It is not my area of expertise, but it is a really interesting question. Not that I am aware, no.

Q177 **Chair:** Thank you so much. Are there any final points that you want to land with us before we finally let you escape?

Professor Wass: No, I don't think so. They were great questions.

Chair: Thank you for joining us today. It has been a great pleasure to see you.