

High screen use among children can lower emotion understanding

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Today's children spend an inordinate amount of time in front of screens, whether smart phones, tablets or computer screens. New research suggests this can affect the ability of children to understand emotions. Credit: Colourbox

When it comes to mobile devices, today's children may be guinea pigs in a gigantic experiment. They are the first humans to ever grow up in a smart world—a world that would have seemed like science fiction just a few decades ago. From infancy, their lives are filled with all kinds of interactive technology, like intelligent speakers and an invisible internet

that spans the globe and connects everyone and everything. And they are surrounded by screens.

Now, NTNU scientists have found a connection between the amount of time children spend looking at screens and the development of one of the most fundamental social skills, understanding our own and other people's emotions.

Can hinder emotion understanding

Since 2007, a group of roughly 1000 children have participated every other year in the Trondheim Early Secure Study (TESS), a large community study at the Department of Psychology, NTNU. The study, which involves a series of comprehensive tests and interviews, has also looked at screen time as a factor in children's mental health development.

Now, analyses of TESS data collected between 2007-2012, when participants were four, six and eight years old, has found a link between children's screen time and the development of emotion understanding.

Emotion understanding is our ability to understand our own and other people's emotions. Low emotion understanding can lead to poor social competence as well as difficulties adapting to groups and forming friendships.

Face-to-face better than face-to-screen

"We found that high screen use—TV watching for girls and gaming for boys, at age 4—predicted a slightly lower level of emotion understanding when these children were six years old, compared to children who had not used screens that much," said Věra Skalická, a postdoc at the

Department of Psychology and lead author of an article about the research.

"We also found that children who had a TV in their bedroom when they were six years old had slightly lower emotion understanding when they were 8, compared to children who did not have a TV in their bedroom."

Skalická said that most of a child's basic emotion understanding is developed between 4-6 years of age, which makes these findings that much more important.

One of the tests used to evaluate emotion understanding involves the child study participant hearing a story with an emotional component, such as one about a girl whose toy gets broken. Next, the child is shown four faces with different [emotional](#) expressions—for example neutral, happy, angry and sad—and is asked to point at what he or she thinks the girl in the story feels. The scores of such tests, combined with information about screen time given by the parents, provided the basis for the results.

Time thieves

Between 2012 and 2018, the percentage of Norwegian households with tablets increased from 37 percent to 72 percent. Moreover, 95 percent of Norwegians own smartphones, and about as many have TVs and computers at home.

Among Norwegian 13- to 16-year-olds, 62 percent use screens three hours or more per day—outside school. Numbers from the UK show that British five- to seven -year-olds on average spend four hours every day watching TV, gaming and using the internet.

Other studies have shown that high screen use is linked to less physical

activity, which can lead to different lifestyle diseases, and can affect mental health, sleep patterns, and even cause addiction. As a result the World Health Organization has recommended a maximum daily [screen time](#) of one hour for children under five years of age, and no screen use at all for children under two.

Less time for social interactions

But why would screen use predict lower understanding of emotions? Skalická said the main problem may be that time spent in front of a screen is time lost for social interactions.

A child's ability to understand emotions is first and foremost learned through interactions with primary caregivers, who can help acknowledge and explain the emotions experienced by the child or other people.

"Children need time to process impressions. When there is interaction with adults, the adults can adjust to the child's level and use words that he or she understands," Skalická said.

Lars Wichstrøm is a professor at the Department of Psychology, and TESS principle investigator. Like Skalická, he stresses the importance of parents talking to their children about what they experience on their screens. He also says the study is a warning sign that no screen should be used as a babysitter, as "neither the TV nor the iPad gives you any answers in return."

Different effects on boys and girls

The researchers did find gender differences in their results, but the reasons for these are not clear. High use of TV impaired the emotion understanding of girls, but not boys.

The researchers wonder if girls might have higher needs for [social interaction](#) to develop normal emotion understanding.

Similarly, gaming affected boys but not girls. The boys in the study were more interested in digital games than girls, and they spent more time playing them. However, neither gender spent large amounts of time gaming at four years of age.

Having a TV in the bedroom at age six led to lower emotion understanding at age 8, irrespective of gender. Skalická said there are several possible explanations for this finding.

"Studies from the US have shown that children watch more television if they have one in their bedroom. Parents also estimate less accurately how much time the child spends watching TV, and they don't know as much about what the child is watching. Having a TV in the child's bedroom is also associated with doing fewer activities as a family," she said.

More screen use today

When the TESS researchers investigated screen use between 2007 and 2012, only TV-watching and gaming were included in the study. In subsequent years, the researchers have included additional types of media in their work. The study participants are now 16 years old, which will allow TESS researchers to look at topics such as social media, gaming, the development of depression and sleep disorders, as well as school dropout rates.

Technology is developing at a lightning pace, and Wichstrøm points out that much has changed in the seven to 12 years that have passed since some of the data were collected.

The results "might look different today. When we started, a lot of the screen use consisted of TV watching, and much of that had educational content—traditional TV shows for kids," he said. "Now, [children](#) will be watching a lot more movies and commercial shows than before, and some of these have very flat storylines that portray a limited range of emotions. The effect of screen use is potentially even higher today, just because the use is greater now."

More information: Věra Skalická et al. Screen time and the development of emotion understanding from age 4 to age 8: A community study, *British Journal of Developmental Psychology* (2019). [DOI: 10.1111/bjdp.12283](https://doi.org/10.1111/bjdp.12283)

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