

Mind the gap – income divide in children's use of digital devices

Study shows young children from lower-income families are spending more unsupervised time than higher-income ones on such devices, to their detriment. Their parents need help to bridge this digital gap.

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Covid-19 has highlighted the indispensability of digital devices in our everyday lives. From mundane tasks such as coordinating daily routines and ordering meals, to working and online learning, as well as keeping in touch with loved ones, these devices have made riding through this pandemic much more tolerable.

In families with children though, there is a constant struggle to strike a healthy balance between access and excess in their digital device use.

The vast majority of young families in Singapore are blessed with a plenitude of devices, including smartphones, tablets, laptop computers, e-readers and digital screen-based toys, for young children. The challenge lies in managing young children's use of these devices so that they derive maximum benefit while experiencing minimal harm.

Excessive device use is a definite concern, with previous research showing that pre-schoolers can be more prone to throwing tantrums when asked to stop using them, or even become less interested in non-digital toys. There is also evidence that too much screen time for toddlers reduces their interaction with people around them and this impedes valuable learning within social settings.

Despite these potential risks with excessive use, devices can offer a wealth of enjoyable and educational content for pre-schoolers. An extensive range of smartphone- and tablet-friendly apps has emerged to cater to this age group, including many that teach language skills, numeracy, art and music. Given their portability, interactivity and multimedia capabilities, touchscreen devices such as smartphones and tablets enable appealing audiovisual content that is accessible and engaging for young children.

PARENTS' CRITICAL ROLE

Toddlers can quickly grasp how to turn on and manoeuvre these touchscreens to demand the content they like. However, parents still play a critical role in ensuring that these everyday devices are populated with cognitively stimulating and age-appropriate apps, managing their use and guiding their children closely.

Pre-schoolers cannot literally be left to their own devices.

This is where robust evidence on device ownership and use by young families in Singapore is vital to provide public education on how parents can choose suitable devices, cultivate healthy device-use habits, curate edifying content and provide requisite supervision.

Data from the Singapore Longitudinal Early Development Study (SG Leads), conducted by the Centre for Family and Population Research at the National University of Singapore and its collaborators, provides illuminating insights on the state of device ownership and use by young families.

This Ministry of Education-funded study (of which we are principal investigator and co-investigator respectively) collected data from 2018 to 2019 from a nationally representative sample of 5,017 Singaporean children aged six and below and their primary caregivers. Children from all socio-economic statuses and racial groups are properly represented in this study.

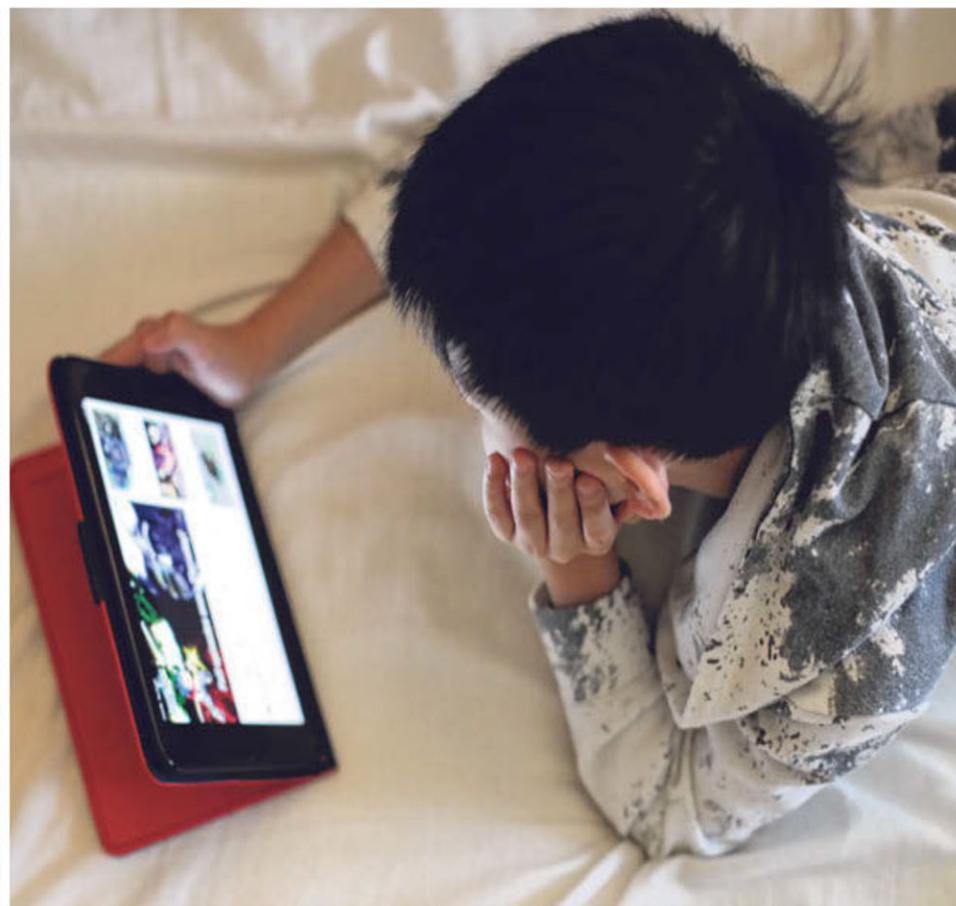
Among the families surveyed, smartphone ownership is nearly universal with only 0.1 per cent of households not owning any. Tablets, which are the next most accessible devices for pre-schoolers, are not as ubiquitous, with over half (52.8 per cent) of families in rental flats not owning them compared with only 10.1 per cent for families in private property.

RENTAL-FLAT KIDS SPEND MORE TIME ON E-DEVICES

Beyond ownership, figures on the extent and context of device use in households of different socio-economic status (SES) is even more revealing. Children's time diary data from SG Leads shows that those up to the age of six from rental flats spend four hours and 28 minutes a week on electronic devices such as computers, tablets or smartphones – almost four times the one hour and 12 minutes for children in private condominiums and landed property.

This difference could be due to the latter having greater access to other materials at home or other activities outside of the home, including professional childcare and enrichment classes. Notably, for children aged three to six, nearly half (47 per cent) of the children living in rental units have access to smartphones and use them more frequently and with less parental supervision as compared with children in other housing types.

The nature of device use also manifests notable trends. For



A study shows that children up to the age of six from rental flats spend four hours and 28 minutes a week on electronic devices – almost four times the one hour and 12 minutes for those in condos and landed property. ST PHOTO: GIN TAY

children aged three to six in rental flats with access to digital devices, 21.4 per cent use it for learning and 27 per cent for games daily, compared with 10.5 per cent and 7.1 per cent respectively for children in condos and private property. The heavier device use and more intense use for games rather than for learning by children in rental flats is striking.

Children from lower-SES families are markedly less well-resourced and have fewer alternative diversions as reflected in data on the number of books they own. Over half of the children living in private condos or landed property have 50 books or more, compared with only one in 10 of children in rental flats.

How parents spend their time with their children is another key difference. Half of the parents living in private condos and landed homes read to their children every day, reflecting the greater flexibility of time higher-SES parents enjoy. Of families in rental flats, 14 per cent of the parents read to their children daily, and 31 per cent never read to their kids.

SUPPORT FOR LOWER-INCOME PARENTS

Arguably, digital devices can help

to bridge the learning gap for children in lower-SES families if they are using them to engage with cognitively stimulating content. Consider for example a parent who is not fluent in English but whose child can access nursery rhyme videos, alphabet and spelling apps, or online storybooks with audio narration. The child could potentially be exposed to a great deal of English from such content.

However, that presupposes that the parent has the wherewithal to download those apps and access such content for the child to begin with. In higher-SES families, children necessarily thrive in home environments where parents are actively imparting language skills and have their learning further augmented by carefully selected digital content. Children in lower-SES families lack such natural and additional advantages.

Support for lower-SES families should, therefore, extend to boosting parents' digital literacy in these regards – learning to distinguish between high- and low-quality device use, understanding the types of online content that are beneficial for children, as well as knowing how to access the content and guide their children's usage.

We should also consider

establishing more comprehensive device loan programmes where lower-SES families are loaned tablets that are pre-loaded with specially curated selections of apps with educational and cognitively stimulating content. Corporate sponsors can be tapped for such support.

We should also make access to educational online materials through the public libraries easier for parents. Such programmes can help to make up for the resource paucity in such households and the parents' lower levels of digital literacy.

Fundamentally, with device use at home, parental guidance is indeed key. Previous research has established that when parents use digital media together with their young children and interact with them in the process, they can boost their children's learning.

Notably, 34.2 per cent of children aged three to six whose mothers have up to secondary education use smartphones and tablets on their own as compared with only 19.5 per cent of children whose mothers have university education and above. For the former, 45 per cent use these devices with parents or other caregivers while for the latter, 62 per cent do so. Again, higher-SES

parents possess both the latitude of time and awareness of the desirability of parental supervision to exercise guidance of children's device use.

The nature of device use also differs markedly with 35.7 per cent of children with mothers of university education and above never using them for learning, compared with 25.7 per cent for children with mothers of secondary education and below. This contrast can be explained by other research that has found that more educated parents seek to actively minimise or delay their young children's digital device use in favour of books, toys and other forms of experiential learning that they regard as superior.

Of children whose mothers have secondary education and below, 47.9 per cent use digital devices for TV shows, movies and music and 28.5 per cent for games every day, compared with 24.1 per cent and 11.2 per cent respectively for children whose mothers have university education and above.

SOBERING STARK DISTINCTIONS

These stark distinctions in families from two opposing ends of the socio-economic ladder are sobering. The systematic advantage that children in higher-SES families enjoy is further amplified by digital device use that is supervised and scaffolded with higher-quality content engagement. By extension, children in lower-SES families are further disadvantaged when their device use may not be ideal in terms of context or content.

SG Leads data shows that 15 per cent of children aged three to six spent more than 21 hours a week on electronic devices, including TV and other electronic devices. Among this group, 64 per cent of the time spent on such devices was not in the presence of parents.

If largely unsupervised and engaging with content that is less educational in nature, their device use could impede their cognitive development. Notably, SG Leads data shows that, for children aged three to six, spending longer hours with electronic devices is linked to lower scores in applied problems and letter-word identification tests. Furthermore, using these devices without parents for half or more of the time intensifies this negative relationship.

Clearly more can and must be done to level the playing field in this regard. In a country like Singapore that is technologising intensively, digital literacy and access of parents and children across the socio-economic spectrum must be buttressed so that parents and children can fully exploit the benefits and not be left behind.

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