1:1 Devices: Is This Good for Our Children?

Katie Talarico, MSEd

Educational technology, in the form of 1:1 programs and computer-based teaching, is costing our schools millions of dollars.

Are 1:1 school devices good for our children? Are they worth the cost?

Please consider the following research:

Educational benefits are questionable

- The National Education Policy Center has called for a pause on personalized learning because of "questionable educational assumptions . . . self-interested advocacy by the tech industry, serious threats to student privacy, and a lack of research support" (1).
- As technology use increases, academic achievement often decreases (2,3,4,5,6).
- 1:1 devices create a distracted learning environment (7,8,9).
    - Multitasking is associated with significant cognitive losses.
    - Those who think they multitask well generally do not.
    - ONE multitasking student distracts students around him/her.
    - Just the OPPORTUNITY to multitask (available on all devices!) reduces effective IQ.
    - Multitasking while studying causes new info to go to the "wrong" area of the brain, making it harder to retrieve.
- Reading comprehension has been shown to be lower on screens than in print (10,11).
- Handwriting benefits learning (12).
- Students who take notes with paper and pencil have a better grasp of the material than those who take notes on a laptop (13).

Health risks are significant

- Screen time is associated with subsequent attention issues and ADHD symptoms in studies of children ranging from age 1 to age 24 (14,15,16).

- Screen time is associated with obesity, irregular sleep, behavior problems, psychological difficulties, impaired academic performance, digital eyestrain, type 2 diabetes, and cardiovascular disease (17,18).

- Sleep is essential to physical and mental health. The blue light emitted from screens suppresses melatonin production and directly affects circadian rhythms and sleep patterns (19,20).

- "Light-at-night" (often homework time) has been linked with cancer, diabetes, heart disease, obesity – and, more recently – depression and suicide (21).

- Myopia diagnoses have doubled, and researchers have related it to increased screen use. Macular degeneration – which can cause blindness – is also associated with blue light exposure (22).

- "Electronic Screen Syndrome" refers to symptoms related to mood, cognition and behavior that result from interactive screen exposure – even from educational material. Screen use may act as a stimulant to young nervous systems (23).

- Brain Scans of "internet/gaming addicts" show *brain atrophy* in the frontal lobe, the striatum, and the insula. Can subtle damage occur in children even with "regular" screen use? Kids put on "screen fasts" show a surge in frontal lobe function when screens are temporarily eliminated (24).

- Screen use negatively affects communication skills and ability to empathize (25). A 2014 study from UCLA showed that middle schoolers' ability to recognize "non-verbal emotions" through facial expressions went up after just 5 days at a device-free camp (26).

- Problematic computer use (internet addiction) is a growing social issue (27). 50% of teens feel they are "addicted" to devices – and 59% of parents agree (28).

Data security issues threaten kids' privacy and expose them to unwanted targeted marketing

Inappropriate content is inevitable

- Despite filters, students can – and do – access inappropriate material during school; including pornographic, violent, and degrading images/information. Sometimes this is accidentally encountered, and sometimes kids just get past the filters.

Many Silicon Valley executives send their kids to tech-free schools (29, 30, 31).

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