Cyberpsychology, Behavior, and Social Networking
Volume 21, Number 8, 2018

DOI: 10.1089/cyber.2018.29120.bkw

EDITORIAL

"Alexa, Are You My Mom?" The Role of Artificial Intelligence in Child Development

Brenda K. Wiederhold, PhD, MBA, BCB, BCN

For a brief moment in 2017, Mattel almost brought artificial intelligence (AI) into your nursery. The proposed product, Aristotle, was designed to ''use the most advanced AI-driven technology to make it easier for [parents] to protect, develop, and nurture the most important asset in their home—their children,'' according to a press release.[1]

Aristotle was a full-featured, voice-activated room hub and Wi-Fi enabled camera, capable of answering questions, monitoring sleep, reading bedtime stories, and even playing a lullaby to soothe a crying baby, among other features. Like Amazon Alexa and Google Home, the device integrated with the Internet of Things (IoT) to meet the user's needs—but while Amazon and Google are just beginning to roll out AI products marketed directly for children, Aristotle was fully promoted as a device that would grow with a child, from baby to tween.

That promotion may have been its ultimate downfall. Ultimately, Aristotle was scrapped after parents, pediatricians, and politicians raised privacy concerns. Like Amazon Alexa and Google Home, Aristotle would have been capable of collecting information from a child and uploading it into cloud servers. Although user activity information was encrypted, the potential for security breaches, data sharing with third parties, and always-on video and microphone capabilities was a real and pressing problem. Additionally, Aristotle forced people to confront still-unanswered questions about the efficacy of virtual assistants that play a hand in raising children.

At the same time, the growing adoption of AI products for children—namely, Amazon Echo Dot Kids and the growing kid-friendly capabilities of Google Assistant for Google Home—raise the same concerns that pushed Mattel to scrap Aristotle. Amazon and Google's AI products have similar features, and subsequent updates will create products that are more responsive, more in-tune with a child's needs, and more closely integrated with our daily lives. Was Aristotle simply ahead of its time? If so, what are the possible repercussions of children raised with AI?

The way children interact with technology is changing. According to a report from the American Academy of Pediatrics, ''In 1970, children began to regularly watch TV at 4 years of age, whereas today, children begin interacting with digital media at 4 months of age.''[2] AI-enabled voice assistants are increasingly becoming part of that equation. The Pew Research Center notes that roughly half of U.S. adults use digital voice assistants, and about 8% use devices such as the Echo.[3] To that end, smart home technology will continue to become more ubiquitous over time, much as the Internet evolved from a novelty to an essential way for children to interact within their social circles, and augmented reality transformed from a science-fiction pipe dream to a series of face filters on popular social media apps.

With the proper security measures in place, improved privacy legislation, and increasing mainstream adoption, it stands to reason that the voice assistants of the near future will mirror the capabilities of Aristotle in all but name. After all, the increasing use of digital media does offer significant benefits by supporting early learning, satisfying a child's curiosity, and even encouraging the development of healthy coping skills. For example, if a child expresses to Alexa that they feel sad, the AI offers a positive, solutions-based response: ''I'm sorry to hear that. Talking to a friend, listening to music, or taking a walk may help.''

However, the role of AI in child development should not be taken lightly. Parents are being asked to place a large amount of trust in technology companies and their capacity to provide meaningful, research-backed resources and interactions for children. According to a 2016 report titled ''Children and Adolescents and Digital Media,'' the American Academy of Pediatrics notes that ''very few of the commercially available apps found in the educational section of app stores have evidence-based design input with demonstrated learning effectiveness'' and instead focused on rote academic skills (such as ABCs and colors) rather than established curricula. While it is enticing to consider a world in which Alexa can help your child develop their reading and language skills, the fact remains that AI does not replace a parent's and educator's individual attention.

As the adoption of personal assistants evolves, parents will continue to play a key role in the way children interact with digital media by modeling healthy behaviors and usage. Much has been written about the dangers of smartphone addiction and Internet addiction. One of the best solutions for unhealthy media behaviors—including an over-reliance on AI—is for parents to model for their children when they should and should not rely on technology during their daily routines. In that same vein, it is vital for parents to teach their children that devices such as Alexa and Google Home are simply tools. For example, children who are used to instant gratification may instinctively turn to Alexa to answer homework questions or entertain them when they feel bored. Instead, it is important for children to experience the discomfort of confronting an obstacle, the triumph of problem-solving, and the ability to recognize their own autonomy.

Earlier this year, Amazon responded to a statement by the Campaign for a Commercial Free Childhood (CCFC) and critical letters from Sen. Edward Markey and Rep. Joe Barton, which accused Amazon of ''acting irresponsibly by urging parents to unleash an AI-driven Alexa product into their children's lives, without first ensuring that it will not harm their cognitive and emotional development.''[4] Amazon's response pointed out that technology isn't a replacement for parenting or social connection, and instead, the company's services are intended to support parent–child interactions with their technologies as they see fit.

On the one hand, Amazon's response feels like a non-answer. On the other hand, the vagueness of the response places greater responsibility on parents to manage the interactions their children have with AI—and, by extension, digital media in general. Voice assistants are simply more advanced versions of computers, TVs, and other forms of media that have quickly melded into our daily lives. They aren't replacements for parent involvement, nor should they be—especially today, as questions about privacy concerns struggle to keep pace with rapid advancements in consumer technology. The best parents may be able to do for their children is to remain engaged, supportive, and informed. In our connected future, children still need a helping hand.

References

1. Mattel, Inc. Mattel's nabi® brand introduces first-ever connected kids room platform in tandem with Microsoft and Qualcomm—Aristotle™ [press release]. https://news.mattel.com/news/mattel-s-nabiR-brand-introduces-first-ever-connected-kids-room-platform-in-tandem-with-microsoft-and-qualcomm-aristotleTM (accessed July 3, 2018).
2. Reid Chassiakos Y, Radesky J, Christakis D, et al. (2016, October). Children and adolescents and digital media. Pediatrics 2016; 138.
3. Olmstead K. Nearly half of Americans use digital voice assistants, mostly on their smartphones. www.pewresearch.org/fact-tank/2017/12/12/nearly-half-of-americans-use-digital-voice-assistants-mostly-on-their-smartphones/ (accessed July 3, 2018).
4. Markey EJ, Barton J. [Letter written May 10, 2018, to Jeffrey Bezos]. http://commercialfreechildhood.org/sites/default/files/devel-generate/das/Markey%20Barton%20letter%20_Amazon%20Echo%20Dot%20Kids%20Edition%205.11.18.pdf (accessed July 1, 2018).

Brenda K. Wiederhold
Editor-in-Chief