

Limburg Aubrey (Orcid ID: 0000-0002-0437-913X)
Fomby Paula (Orcid ID: 0000-0002-2033-8485)
Mollborn Stefanie (Orcid ID: 0000-0002-6683-9146)

Family Socioeconomic Status and Children's Screen Time

Stefanie Mollborn^{a,b}
Aubrey Limburg^b
Jennifer Pace^c
Paula Fomby^d

^aDepartment of Sociology, Stockholm University, Stockholm, Sweden

^bInstitute of Behavioral Science and Department of Sociology, University of Colorado
Boulder, UCB 483, Boulder, CO 80309-0483

^cMidwestern State University, Department of Sociology, 3410 Taft Blvd, Wichita Falls, TX
76308

^dInstitute for Social Research, University of Michigan, 426 Thompson St, Ann Arbor, MI
48106

Running head: Socioeconomic Status and Children's Screen Time

* This study was supported by National Science Foundation grants SES 1423524 and SES 1729463. We also thank the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)-funded University of Colorado Population Center (P2C HD066613) and the Lund University Centre for Economic Demography for development, administrative, and/or computing support. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NSF, NICHD, or the National Institutes. We thank Joshua Goode, Fred Pampel, Richard Jessor, Adenife Modile, Elizabeth Lawrence, Laurie James-Hawkins, Olowudara Oloyede, Kevin Le, Andrew Bennett, Amber Bunner, and Shannon Cavanagh for their assistance. Direct all correspondence to: Stefanie Mollborn, Department of Sociology, Stockholm University, SE-160 91 Stockholm, Sweden; email: mollborn@sociology.su.se.

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: [10.1111/jomf.12834](https://doi.org/10.1111/jomf.12834)

This article is protected by copyright. All rights reserved.

ABSTRACT

Objective: This mixed-methods study examined whether higher-SES children's digital technology use adhered to contemporaneous pediatric guidelines, how it compared to lower-SES children, and why, as analyses showed, higher-SES children's technology use far exceeded pediatric recommendations.

Background: 2013 American Academy of Pediatrics (AAP) guidelines recommended limited "screen time" for children. Higher socioeconomic status (SES) families tend to follow guidelines, but digital technology use—simultaneously a health behavior and a pathway for building human capital—has complex implications.

Method: Quantitative analyses provide new nationally representative estimates of the relationship between social class and 9- to 13-year-old children's technology time (including television), device access, and parenting rules (2014 PSID Child Development Supplement, N=427). Qualitative analyses of 77 longitudinal higher-SES parent interviews articulated explanatory processes.

Results: Higher-SES children used technology as frequently as others and in excess of recommendations. Their device access, activities, and agency in adhering to rules, however, differed from others. Qualitative analysis uncovered processes that helped explain these findings: parents' ambivalence about technology and perception that expert guidance is absent or unrealistic, and children's exercise of agency to use technology facilitated by "concerted cultivation" parenting styles, led to higher-SES individualistic parenting practices that supported children's increased non-television technology use.

Conclusion: Cultures and structures related to children's technology use are in flux, and classed norms and understandings are emerging to construct relevant class-based distinctions around parenting.

Keywords: technology, children, inequalities, parenting, health, mixed-methodology

Author Manuscript

INTRODUCTION

The increasing ubiquity of personal mobile digital devices like smartphones and tablets (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013) has changed technology use from the passive media consumption of the television (TV) era to a more varied and immersive set of activities that includes TV but incorporates content creation, education, and acquisition of technological competencies. The complex implications of school-aged children's engagement with technology have challenged parents, educators, and health care providers to establish technology use guidelines that balance educational and prosocial benefits against risks associated with sedentary activity, social isolation, and loss of privacy.

This study focuses on higher-socioeconomic-status (SES) US families, who tend to follow pediatric guidelines. During the recent period we studied, American Academy of Pediatrics guidelines espoused a "one size fits all" approach to children's technology use, with a recommended one- to two-hour daily limit on screen time (AAP Council on Communications 2013). Given the rapidly evolving pros and cons of digital technology use, did higher-SES children still adhere to these guidelines to the same extent they did during the television era? Were there class differences in children's technology use? Our analyses of quantitative time diary and survey data collected from a nationally representative sample of US children in the Panel Study of Income Dynamics Child Development Supplement between 2014 and 2016 focused on these questions. We present new nationally representative estimates of the relationship between social class and children's time spent using mobile technologies, device access, and parenting rules. These estimates identified an apparent conundrum: Even as mainstream pediatric advice to families in the early and mid-2010s encouraged parents to limit school-aged children's screen time to less than two hours per day, families with high socioeconomic status (SES) were no more likely to adhere to this recommendation than were lower-SES families, particularly with regard to activities other

than watching television (TV). This pattern is not anticipated by contemporary sociological literatures on health and parenting, which expect higher-SES parents to use advantages—in the form of material resources and cultural resources such as norms and boundary-making—to follow pediatric recommendations for their children’s benefit. It is also in opposition to higher-SES children’s longstanding less frequent viewing of television programming compared to others (Hofferth, 2010).

Our qualitative analyses of 77 interviews collected from higher-SES families between 2015 and 2018 interrogated the conundrum: Why were higher-SES children using technology far in excess of pediatric guidelines? These analyses identified intertwined processes that together helped explain higher-SES parents’ acquiescence to children’s frequent technology use: parents’ ambivalence about children’s technology use, their sense that reasonable expert guidance around children’s technology use was lacking, and their encouragement of children’s agency through socially classed parenting styles led them to engage in individualist parenting that permitted increased technology use as a customized response to their child’s particular situation and needs. These analyses afford breadth and depth in understanding the evolution of class disparities in children’s technology use relative to pediatric guidelines.

Both data sources focus on ages 9 to 13, when children increase autonomy yet spend substantial time in adult-directed activities; peers and schools join families in shaping technology use (Rafalow, 2018); and parents’ control and monitoring of technology use vary. These ages also encompass middle school, when our findings suggest that smartphone ownership, which can greatly increase personal technology use, often becomes salient.

BACKGROUND

Technology Use in the Mobile Internet Era

The prevalence, nature, and cultural meanings of technology use—the use of digital media technologies such as television sets, smartphones, tablets, computers, videogame

consoles, electronic reading devices, and smart speakers (Rideout & Robb, 2019)—have shifted in response to rapid technological developments. In 2014, US adolescents spent 33 hours per week using technology outside of school, a 17% increase since 2002 (Fomby et al., 2019). At 23 hours per week in 2014, elementary school-aged children’s technology use outside of school was up 23% since 1997 (Goode et al., 2020). Twenty years ago, technology use was largely constrained to stationary devices used for a single task and connected to a slow internet connection, if any (Kleinrock, 2008). These devices were expensive and often shared with family members (MacGill, 2007). Recent technological developments have made communication more pervasive, internet access faster, and devices more mobile and widespread (Pew Research Center, 2018; Sefton-Green, 2006). Between 2012 and 2018, adolescents’ ownership of or access to internet-enabled devices including smartphones, tablets, and computers increased sharply to near-universal levels (Anderson & Jiang, 2018; Madden et al., 2013).

These devices have increasingly varied uses. Watching television and video content remains the most frequent way young people use technology (Fomby et al., 2019, Goode et al., 2020, Rideout & Robb, 2019), but they also use digital devices for learning and work, consuming and producing media and information, communicating with others, gaming, recreation, and combined purposes (e.g., playing an interactive educational game with peers; Ito et al., 2019). This diversity complicates how the benefits and drawbacks of engagement with technology are perceived, as it can be viewed as a sedentary health behavior, an educational tool, and a cultural symbol imbued with classed meaning (Rafalow, 2018).

This diversity is reflected in stereotypical and socially classed classifications of “good” versus “bad” screens (Seiter, 1999), which may be changing as digital technologies evolve. Children’s technology use can be managed by limiting access to devices or their use of devices, and a typical device has many potential uses. Allegedly “good” uses of technology

include reading, information gathering, producing content, and developing competencies in computer skills and coding. Supposedly “bad” uses, such as watching TV content and playing non-educational videogames, are not perceived to have human capital advantages that could outweigh the drawbacks of sedentary behavior. Although these norms may be slowly changing, the multiple meanings and purposes of children’s technology use can spark anxiety among parents who are unsure how to reconcile potential advantages and disadvantages (Ito et al., 2019). Parents feel responsible for managing this behavior in the “right” way, even if they are not sure what that is (Ames, Go, Kaye, & Spasojevic, 2011; Ito et al., 2019).

Social Class, Parenting around Technology, and Agency

Two ideologies that condition parenting behavior in higher-SES families potentially contribute to the task of how these families manage children’s technology use. The first is a focus on preserving children’s socioeconomic advantages through intensive parenting (Augustine, Cavanagh, & Crosnoe, 2009; Hamilton, 2016; Hays, 1996; Shirani, Henwood, & Coltart, 2012; Streib, 2013) and financial investments in children, particularly in the context of high economic inequality (Schneider, Hastings, and LaBriola 2018). Contemporary constructions of children as socially valuable and requiring protection and contribute to the perceived importance of these efforts (Coontz, 1992; Mintz & Kellogg, 1989; Zelizer, 1994) as do related social trends, including increasing surveillance of parenting (Thelen & Haukanes, 2010) and parents’ heightened sense of economic insecurity and risk (Cooper, 2014; Nelson, 2010).

Second, the classed parenting style of “concerted cultivation” is predominant among higher-SES parents (Cheadle & Amato, 2011; Lareau, 2011). It reflects intensive parenting practices and seeks to transmit higher-SES parents’ advantages to children through fostering a sense of entitlement (Lareau, 2011). In concerted cultivation, children are encouraged not to passively accept adults’ directives, but to exercise agency through verbal interaction and

negotiation with authority figures. Research on children's requests for unhealthy food has found greater use of these strategies among higher-SES children (Perry & Calarco, 2017). Children's, rather than their parents', agency is often underestimated (Pugh, 2014). Research has found that children exercise considerable agency in their own lives (Chin & Phillips, 2004; Corsaro, 2003; Pugh, 2009), with socially classed parenting styles fostering different kinds of agency in children (Lareau, 2011). Children's goals often include increased engagement with peers and popular culture and independence from adult control (Pugh, 2009). Modern technologies are especially well suited to pursuing such aims, which may motivate children to agentially increase their involvement with devices (Ito et al., 2019).

Social Class and Adherence to Pediatric Guidelines

Both parents and children exercise agency around children's technology use in socially classed ways. For higher-SES parents, this includes turning to medical authorities for expert guidance on appropriate child behaviors, including screen time (Auxier, Anderson, Perrin, & Turner, 2020). We analyzed higher-SES children's technology use as an empirical case of adherence to pediatric recommendations to shed light on contemporary parenting inequalities, and the role of SES. We acknowledge that some of the processes we identified potentially transcend social class, a subject for future research.

Pediatric guidelines for screen time. The foremost source of expertise around children's technology use is recommendations from the American Academy of Pediatrics (AAP). When our data were collected, the standard AAP recommendation was for children over age two and adolescents to use technology for less than one to two hours per day (AAP Council on Communications 2013). Experts emphasized the sedentary nature of media consumption and drawbacks for health and brain development. Multiple theoretical perspectives described below anticipate that socioeconomically advantaged parents will adhere particularly closely to these expert recommendations. Based on these perspectives, we would expect children whose

parents have greater socioeconomic resources to spend less time using technology, have more tightly controlled access to digital devices, and have more widespread parental rules that limit technology use and funnel it towards educational purposes. In previous eras, children's technology use—predominantly TV watching but also videogaming—reflected these expectations, being less frequent among higher-SES compared to lower-SES children (Greenberg & Dominick, 1969; Hofferth, 2010; Hofferth & Sandberg, 2001; Rideout, Foehr, & Roberts, 2010).

Fundamental cause theory and medical guideline adherence. The most influential sociological framework for understanding how social class shapes adherence to medical guidelines is fundamental cause theory, which views SES as a fundamental cause of health disparities (Freese & Lutfey, 2011; Link & Phelan, 1995). In this theory, a metamechanism afforded by higher SES is the capability to seek out and apply expert medical information about a health behavior (Link & Phelan, 1995). Socioeconomic privilege increases the resources—including money, information, and social connections—people can leverage to improve their health as soon as a medical intervention or prevention technique becomes available. Thus, this theory would expect socioeconomically advantaged parents to use their greater resources to seek out pediatric information about the impact of children's technology use on their health and follow those recommendations in their parenting practices. Indeed, higher-SES parents are more likely to seek advice about their children's screen time from doctors than any other group and compared to any other source of advice (Auxier et al., 2020). Although fundamental cause theory has almost exclusively been applied to adults managing their own health, King, Jennings, and Fletcher (2014) extended it to understand parenting behaviors on behalf of children.

Cultural capital and medical guideline adherence. A separate literature has focused on the action of social class on human lives not just as a resource, but as a group identity and source

of intergroup conflict (Kramer et al., 2017). Researchers have found that parents engage in behaviors that experts believe improve their children's health not necessarily for health reasons as fundamental cause theory would expect, but rather because performing symbolic "healthy" behaviors and lifestyles can uphold class distinctions, imbue moral value, and safeguard children's higher status (Elliott & Bowen, 2018; Korp, 2008; Luna, 2019; Milkie & Warner, 2014; Mollborn, Rigles & Pace, 2021). Class socialization within the family and exposure to advantaged communities and institutions foster cultural capital, which people leverage to further their socioeconomic privilege (Bourdieu, 1986; Calarco, 2014; Khan, 2011; Lareau, 2011; Mollborn, Rigles & Pace, 2021). Childhood is particularly important for the development of cultural capital (Bourdieu, 1986; Lareau, 2011).

There is a century-long history of moral panics around children's use of new media technologies, which create moral distinctions and award cultural capital to some behaviors but not others (Wartella & Jennings, 2000). Medical and expert guidelines have often fed moral panics for social, rather than scientific, reasons (Hulbert, 2011). Children's technology use today may be another "moral panic" used to build cultural capital and uphold class distinctions (Downey & Gibbs, 2020), which would likely lead to lower use among class-privileged children. But some evidence suggests the opposite: Digital technology use is becoming a form of cultural capital that is encouraged in White higher-SES schools and discouraged elsewhere (Rafalow, 2018), driving emergent class distinctions around technological competencies. In sum, the cultural capital perspective expects class-advantaged parents to adhere to pediatric guidelines in order to bolster their children's cultural capital and reinforce class distinctions. Although privileged parents' reasons for adhering to pediatric guidelines in this perspective differ from the fundamental cause perspective, the expected consequences for children's behavior are the same.

Individualist parenting in defiance of pediatric guidelines. In contrast, a newer theoretical perspective expects that advantaged parents sometimes push back against expert medical recommendations. Reich (2016) studied parents who were not adhering to a particularly contentious set of pediatric guidelines: vaccine refusers. These class- and race-privileged parents crafted an “individualist parenting” ideology that resists medical expertise, emphasizing parent-driven solutions tailored to specific children. In this ideology, parenting intensively is seen as a solution to societal risk (Hamilton, 2016), and children’s bodies are customized projects to be worked on by parents (Talukdar & Linders, 2013; Turner, 1984). When individualist parenting occurs, higher-SES parents tend to reject medical expertise, rely on their knowledge of their children, and view their own parenting as unique and superior. Research on parents’ interpretations of AAP guidelines in the television era suggests that some similar processes may be at work (Evans, Jordan, & Horner, 2011). An individualist parenting perspective would not expect close adherence to pediatric guidelines among higher-SES families, in contrast to the fundamental cause and cultural capital perspectives.

METHOD

Our mixed-method approach combines generalizable quantitative analyses of children’s technology use and technology-related parenting with in-depth qualitative analyses capturing parenting talk (Creswell, Klassen, Clark, & Smith, 2011). Together, these data illuminate whether and why higher-SES children’s technology use does or does not adhere to pediatric recommendations. We follow Kramer and colleagues’ (2017) conceptualization of social class as acting in multiple ways through resources, group membership, and intergroup dynamics.

Quantitative Data

Quantitative data are from the 2014 Child Development Supplement to the US Panel Study of Income Dynamics (PSID; <https://psidonline.isr.umich.edu/studies.aspx>). PSID began in 1968 with a sample of 4,802 US families, including an oversample of low-income families

headed mostly by Black householders. It remains the world's longest-running active intergenerational household panel survey (Panel Study of Income Dynamics 2021). High wave-to-wave response rates and immigrant sample refreshers in 1997 and 2017 have contributed to maintaining population representativeness over time. Children who are descended by birth or adoption from original householders become eligible to participate themselves when they establish their own economically independent households.

The 2014 PSID Child Development Supplement (CDS-2014) was designed to collect information on the experiences, development, and well-being of children aged 0-17 living in PSID families (88% response rate, N=4,333). The study included survey interviews with children's primary caregivers (usually a parent) and children ages 8-17 themselves. A random 50% of families were assigned to complete 24-hour time diaries for each eligible child in the household on one randomly assigned weekday and one randomly assigned weekend day (80% response rate, N=1,588 children). Typically, adolescents completed their own time diaries and caregivers completed them with or for younger children. Respondents recorded each primary activity's start and end time, location, whether the child simultaneously pursued a secondary activity, and who else was present or engaged. Staff coded open-ended descriptions into activity categories (Panel Study of Income Dynamics, 2015). Respondents also reported the type of device used (e.g., television set, computer, tablet, or smartphone).

We used survey interview responses to characterize children's technology environments and time diary data to estimate children's time spent in activities that engaged digital technology. Time diaries are useful for estimating average time use patterns in a population (Frazis & Stewart, 2012), and, compared to surveys, exhibit less bias in tracking time use (Hofferth, 2006; Robinson, 1985). Time diary data from earlier CDS waves have been used to provide comprehensive population-level pictures of children's TV and computer use (Hofferth & Sandberg, 2001; Vandewater, Shim, & Caplovitz, 2004).

To mirror the ages of focal children in waves 1 and 2 of the qualitative sample, our analytic sample is restricted to children aged 9-13 with available survey responses and time diary data (N=427). Among eligible cases, 23% were missing information on one or more variables in the survey data. We used multiple imputation, which assumes that data are missing at random after conditioning on other observed variables, a more plausible assumption than those made by listwise deletion (Little & Rubin, 2014). Fifteen datasets were imputed, and results were weighted to be representative of children living in 2013 with families who had resided in the United States since 1997.

Quantitative Measures

Socioeconomic status. Following previous research (Mullan & Chatzitheochari, 2019) and because research suggests it is the most influential dimension for parenting processes (Cheadle & Amato, 2011), we measured family socioeconomic status using the primary caregiver's educational attainment, coding as at least a four-year college degree (33.5%), some postsecondary education (34.5%), high school diploma (21.9%), or less (9.9%).

Children's technology environments. Measures of children's typical use of and access to digital devices (including TV) and household rules regarding technology use come from the primary caregiver survey interview. Children's device use was measured by whether the child used any devices at home for school, games, communication, or social media in the past 30 days. We report the proportion of all children who used a device for each purpose. Device access was measured by whether caregivers reported having wireless internet, TV, smartphones, tablets, or computers in the household, as well as whether each child had their own cell phone, smartphone, tablet, or desktop/laptop computer, and/or whether the child used a shared computer in the home. Finally, household rules about technology were represented by seven measures including whether there were limits on time and content for TV viewing, videogame play, and social media use. We dichotomized original responses so

that children in households with no rules were coded 0 and all other responses (household has clear and enforced rules, household has general and monitored rules, or household has rules but child makes their own choices) were coded 1. Indicators were summed to create a count of household rules associated with children's technology use (Cronbach's $\alpha=0.8$). In a second specification, we constructed a separate sum score in which "child makes their own choices" (coded 1) was contrasted against all other responses (coded 0).

Children's activities. We used time diary data to identify six types of activities that engaged children's use of technology. These included watching television programming on any device, videogame play on any device, communication (e.g., texting or phone conversations), learning- and work-related activities on any device (including homework), audio entertainment, and recreation including web surfing. We estimated the proportion of all children who spent any time engaged in each of these activities as either a primary or secondary activity on either diary day. This underestimates rates of participation across longer periods of time. Children likely used devices at additional times that were not recorded as primary or secondary activities (Mullan & Hofferth, 2021), so our "total technology time" measure is an underestimate. We then constructed a measure of time spent in each activity during a synthetic week, calculated as the sum of weekday use multiplied by five and weekend day use multiplied by two. Any periods of overlap where technology use was both a primary and secondary activity were counted as a single spell. We then aggregated time spent in these six activities into three measures of technology use: 1) total hours/synthetic week spent using technology, 2) total hours/week spent watching TV programming, and 3) total hours/week spent in technology-based activities other than watching TV programming. The second and third categories summed to greater than the first category because children sometimes watched TV programming as a primary activity while using technology for other activities as a secondary activity and vice versa.

Multivariate regression models also controlled for whether or not a child resided with both biological or adoptive parents, number of other coresident children, and child race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, or other), gender (female or male), and age in years at data collection.

Qualitative Data

This study's primary qualitative data source was 77 parent interviews, some with accompanying home observations. Twenty-one parents participated in two interviews each spaced about two years apart, and another 35 parents were interviewed once. All parents participated at Wave 1, collected during the 2015-2016 school year from two predominantly White neighboring communities, middle-class Springfield and upper-middle-class Greenville, in the US interior West. (Participant and community names and some potentially identifying details have been changed.) Besides the interview and home observation data used here, parent focus groups and key informant interviews were also conducted. Of the 56 parents—mostly mothers—interviewed at Wave 1, 35 were from the 30 fourth- or fifth-grade families who also participated in a home observation. Another 21 Wave 1 interviews with parents of elementary-aged children included no home observation. Wave 1 semi-structured interviews covered a broad range of topics related to children's well-being and health-related behaviors and asked several questions about technology use. Parents were especially eager to discuss technology use and parenting.

At Wave 2, 21 Wave 1 parents from 20 families were re-interviewed during the 2017-2018 school year. Seventeen of these parents had previously participated in a home observation. All families had children aged 9-13. We sought to conduct 20 interviews and invited all 30 observation families. Wave 2 interviews focused more on technology use and covered the transition to middle school that children in nearly every family had experienced. Participants were compensated \$50 per interview or \$200 for a home observation with interview. The

current analysis focused disproportionately on Wave 2 but was informed by all parent interviews and home observations. Although some fathers expressed more favorable views on technology than mothers, the processes analyzed here were similar, so we combined them.

We recruited participants broadly at Wave 1 for a study on “parents, kids, and well-being,” diversifying the sample by identifying participants from different community segments (Lofland, Snow, Anderson, & Lofland, 2006) through social media postings, email listservs, personal contacts, referrals, and public flyers. The resulting nonrepresentative sample was sociodemographically varied and included many neighborhoods and social networks, and families from 23 elementary schools plus homeschoolers. Wave 1 in-home observations lasted several hours on a weeknight, and focus groups were community specific and combined interview participants with other parents. Each observation team included one of three interviewers who were White women in their thirties and forties and one of three younger undergraduate researchers who were an Asian American man, an African American woman, and a white man. The observations lasted for several hours on a school night, from the end of school or extracurriculars until bedtime. Observers always followed the focal child and split up when family members were in different rooms. Handwritten observational field notes were entered into a word processing program. In observations we asked to interview the “primary parent,” who was usually the mother; five families asked for both parents to complete the interview. Interviews were recorded and transcribed.

At Wave 1, parent participants averaged 43 years old, and 80% were mothers. About three quarters were married. A substantial minority were foreign born, and 86% identified as White, 8% as Asian American, and 6% as Latinx. All resided in our middle- to upper-middle-class community sites and largely reflected their class- and race-privileged demographics. For this analysis, to mirror the quantitative analysis we coded family socioeconomic status based on the Wave 1 primary parent’s highest educational degree. Among the 77 Wave 1 and 2

Author Manuscript

interviews, 63 (82%) were with families in which the primary parent had attained a Bachelor's degree or higher. Thus, both child age and parental educational attainment mirrored the high-SES quantitative sample. We do not analyze the 14 lower-SES families here for two main reasons. First, this study is focused on understanding higher-SES children's level of adherence to pediatric guidelines. Second, because we identified the study's higher-SES communities and schools to be important influences on the findings, our lower-SES participants from higher-SES schools and communities are unlikely to represent processes that are typical of lower-SES families in general. The two study communities sometimes yielded distinct findings, but results regarding class and technology-related parenting were similar, so we combined the communities here.

Analyses

Quantitative analyses present descriptive information about children's technology use, device access, and parents' rules about technology use, disaggregated by primary caregiver education with tests for statistical significance comparing each educational attainment category to all others. Multivariate regression models, using ordinary least squares regression for technology time and rules and binary logistic regression for other technology use measures, adjusted for control variables. We assessed higher-SES children's technology use relative to that of lower-SES children, attending to adherence to pediatric guidelines.

Qualitative analyses then explored why higher-SES children's technology use did not adhere to these guidelines, in contrast to other behaviors and eras. Interviews were coded in qualitative analysis software. Responses to questions about technology use were coded, and subsequent analyses identified and coded emergent themes. We went back to the data to examine disconfirming evidence and recheck the prevalence of particular themes. We analyzed the interviews as opportunities for participants to actively construct narratives about their own and their children's lives (Holstein & Gubrium, 1995; Scott & Lyman, 1968).

Through narratives that are situated in social contexts, people construct their identities, manage impressions, and justify behaviors (Swidler, 2001). This talk can shed light on norms, decision-making processes, sense-making, and inequalities. Our interpretive analysis investigated how and why parents say they manage their children's technology use and the implications they believe their decisions may have. Parents rarely talked explicitly about social class; instead, it was implicit in their narratives in ways we analyze here. Our goal was not to adjudicate whether technology use is "good" or "bad," but to explore how parents' sense-making and decision-making around technology reflected processes related to SES.

RESULTS

Social Class Associations with Children's Technology Use

Our quantitative analyses, with descriptive statistics presented in Table 1 and multivariate models in Table 2, evaluated compliance to 2014-era American Academy of Pediatrics recommendations (AAP Council on Communications 2013) by social class. Further analyses examined relationships between class and children's device access, parents' rules, and children's types of technology use. Supplemental analyses added maternal work hours as a control variable to models reported in Table 2, but it usually did not predict technology outcomes and almost all substantive findings did not change; the contrast between parents' some college versus a college degree as predictors of children's participation in videogaming became statistically significant ($p < .05$).

Technology use saturated all socioeconomic groups, with 98-100% of children using digital technologies including TV (Table 1). The total number of weekly hours spent using technology did not vary significantly by social class in bivariate or multivariate analyses, with weekly averages falling between 25 and 29 hours for all groups. This is about double the AAP-recommended maximum at the time. Supplementary analyses found that high-SES children were not significantly different from the overall sample in either their weekday or

Table 1. *Weighted Descriptive Statistics on Technology Use, Ages 9-13, by Caregiver Educational Attainment*

Variable	Overall	n ^a	<High school diploma (n=42)	High school diploma (n=94)	Some post-secondary (n=147)	BA degree or higher (n=143)
CHILD HOURS/WEEK SPENT USING TECHNOLOGY						
Total hours/week spent using technology	27.62		25.13	28.82	28.62	26.53
Total hours/week watching TV content	15.01		16.30	17.53	* 16.12	11.83 *
Total hours/week using non-TV technology	14.14		10.03 *	11.96 *	14.72	16.19 *
CHILD PARTICIPATION IN TECH USE ON TIME DIARY DAYS BY TYPE						
Any technology	99.42%	425 ^b	99.46%	97.59%	100%	100%
TV	96.18%	411 ^c	99.46% *	95.42%	98.17%	93.64% *
Any non-TV technology	96.67%	413 ^c	98.08%	93.32%	98.54%	96.53%
Videogaming	72.45%	309	77.99%	65.89%	68.69%	78.95% *
Communication	27.04%	115	22.54%	28.40%	21.08%	33.63%
Learning/work (outside of school)	11.08%	47	9.11%	13.30%	12.36%	8.89%
Audio entertainment	70.77%	302	36.84% *	79.61% *	70.60%	75.24%
Recreation	47.81%	204	50.38%	32.03% *	38.83%	* 66.63% *
CHILD'S DEVICE USE PURPOSE						
School	87.39%	373	70.81% *	74.64% *	92.82%	95.04% *
Games	88.18%	377	78.38% *	78.36% *	86.37%	99.36% *
Communication	54.14%	231	36.33% *	37.98% *	67.27%	* 56.46%
Social media	37.02%	158	25.33% *	29.23%	42.83%	39.59%
CHILD'S DEVICE ACCESS						
Wireless internet access in household	79.30%	339	62.64% *	71.07%	80.19%	88.71%
Any TV in household	99.42%	425 ^b	100%	100%	99.13%	99.16%
Not using computer/smartphone/tablet in home	7.55%	32	21.23% *	16.47% *	4.19%	1.11% *
Child has own (non-smartphone) cell phone	13.14%	56	6.31%	6.29%	18.87%	13.73%
Any smartphones in household	92.41%	395	93.27%	86.04% *	91.98%	96.77%
Child has own smartphone	23.20%	99	4.88% *	19.53%	21.88%	32.40% *
Any tablets in household	77.07%	329	75.34%	68.28% *	75.92%	84.53% *
Child has own tablet	49.12%	210	50.41%	41.40%	52.37%	50.42%
Child uses personal or household tablet	73.26%	313	74.61%	62.40% *	70.01%	83.33% *
Any computers in household	92.53%	395	71.49% *	86.64% *	96.27%	* 98.77% *
Child has own computer	21.80%	93	4.42% *	15.89%	18.36%	34.35% *
Child uses personal or household computer	79.33%	339	48.15% *	73.64%	75.45%	96.31% *
PARENT RULES ABOUT TECHNOLOGY USE						
Count of any type of rules reported (0-7)	6.20		5.98	6.33	6.16	6.20
Count where child makes own choices (0-7)	0.37		0.03 *	0.33	0.21 *	0.66 *

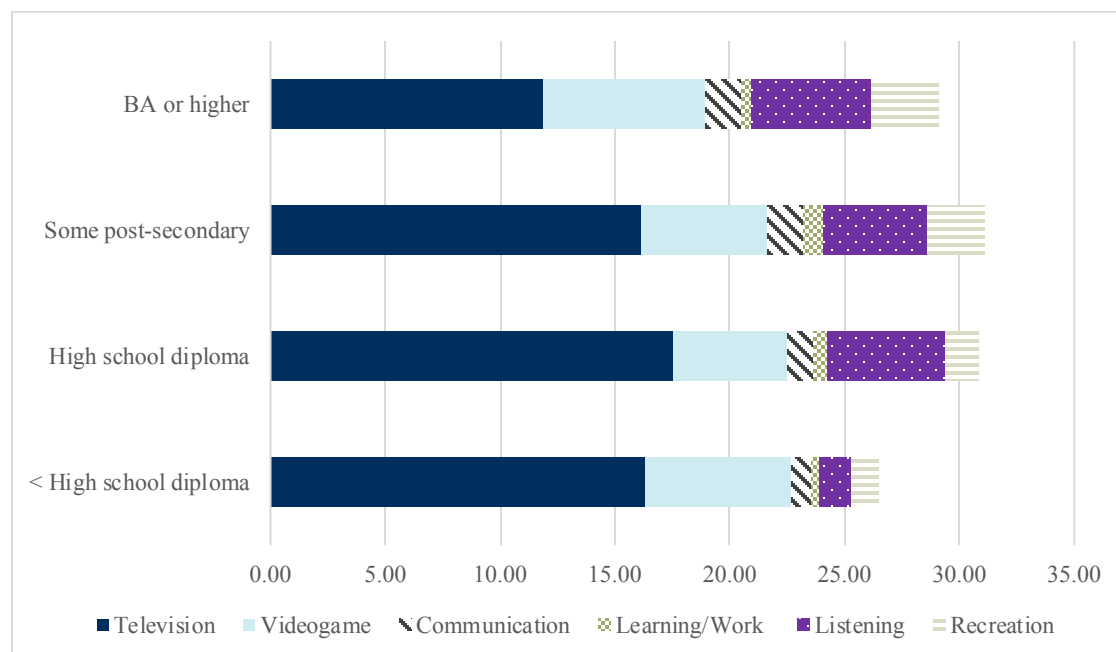
Source: Panel Study of Income Dynamics 2014 Child Development Supplement surveys and time diaries.

Notes: Analyses are weighted. N=427. * p<.05 comparing that education category to the overall mean. ^an=average number of cases coded into this category across the imputed datasets (for categorical measures). ^bExcluded from multivariate analysis for small cell size (<10 cases). ^cIncluded in multivariate analysis with cell size between 10 and 30 cases; interpret with caution.

weekend technology time.

Figure 1 displays time diary reports of children's technology use time disaggregated by activity type and SES, and Table 1 displays the prevalence of participation in activity types based on time diary and survey data, by social class. Having a college-educated primary caregiver was associated with less time spent watching television programming but more time spent in non-TV technology use compared to other SES groups (Tables 1 and 2). In particular, children of college-educated caregivers spent 4 to 6 fewer hours watching television than those in any other SES group (p<.05; Table 1). In contrast, children of college-educated

FIGURE 1. HOURS PER WEEK OF TECHNOLOGY USE, AGES 9-13, BY ACTIVITY AND CAREGIVER EDUCATIONAL ATTAINMENT



Source: Panel Study of Income Dynamics 2014 Child Development Supplement time diaries.
Notes: Analyses are weighted. N=427.

caregivers spent 16 hours per week on non-TV-related technology use, 6 hours more than those in the lowest-SES group ($p < .05$; Table 1). Thus, uniquely, the highest-SES children spent most of their technology time on non-TV-related activities. Table 1 also suggests a socioeconomic gradient in device use for school purposes ($p < .05$; Table 1), but these differences were not significant in multivariate models (Table 2).

Other measures reveal unexpected relationships with social class. Children of college-educated caregivers spent the most time playing videogames at over 7 hours per synthetic week (Figure 1; not significant). This contrasts with UK analyses that found less videogame playing in this group (Mullan & Chatzitheochari, 2019). Over 99% of college-educated caregivers reported that their child used a device for gaming, compared to 78-86% for others ($p < .05$; Table 1, supported by multivariate models in Table 2). Our qualitative analyses found that videogames were largely perceived by parents as problematic, of limited educational value, sometimes violent, and potentially addictive. Some videogames, such as Minecraft

which was very popular in 2014-15, were perceived to be more educational, making videogames a complicated example that combines elements of the stereotypes of “good” and “bad” screen time. Our measures could not disaggregate videogaming perceived as “educational” from other gaming.

Availability of a television set in the household was universal, but higher-SES children had more access to other devices: 99% of children with college-educated primary caregivers used a computer, smartphone, and/or tablet at home, compared to 96% of those with some postsecondary education, 84% with a high school diploma, and 79% with less ($p<.05$; Table 1). Multivariate models (Table 2) found significant educational differences in children’s access to their own smartphone and computer and use of a personal or household computer. In other words, high-SES children tended to have greater access to devices than those with lower SES yet spent a similar amount of time using devices compared to other SES groups.

Parental rules about technology use were common across all groups (Table 1). Children of college-educated caregivers did not have significantly more or fewer parental rules about technology use than others after adjusting for covariates (Table 2). We observed other class differences around rules and negotiation in an alternative analysis, spurred by qualitative findings described below. We examined class differences in survey reports that a child’s household has rules around technology use, but the child makes their own choices. The other response options available to parents were: having clear and enforced rules, having general and monitored rules, or having no rules. The “I have rules, but my child makes their own choices” response option reflects a typically socioeconomically advantaged, “concerted cultivation” parenting style in which parents are encouraging child agency in negotiating with adults and displaying entitlement through exploiting uncertainties in rules (Calarco, 2014; Lareau, 2011). Table 1 shows that children with college-educated caregivers were overrepresented in having technology rules where they make their own choices ($p<.05$), and

Table 2. Coefficients/Odds Ratios from Regression Models Predicting Child Technology Use by Primary Caregiver Education, Compared to Bachelor's Degree or Higher

Outcomes	<High school diploma	High school diploma	Some post-secondary
CHILD HOURS/WEEK USING TECHNOLOGY			
Total hours/week spent using technology	-1.94	0.06	0.53
Total hours/week spent watching TV content	4.38	4.33	3.52
Total hours/week spent using non-TV technology	-6.95	-5.54	-2.63
CHILD PARTICIPATION IN TECH USE ON TIME DIARY DAYS BY TYPE			
Videogaming	0.63	0.53	0.42
Communication	0.79	0.72	0.55
Learning/work (outside of school)	1.04	1.51	1.44
Audio entertainment	0.24	1.43	1.01
Recreation	0.58	0.25	0.38
CHILD'S DEVICE USE PURPOSE			
School	0.26	0.22	0.99
Games	0.02	0.03	0.05
Communication	0.51	0.39	1.65
Social media	0.55	0.35	0.87
CHILD'S DEVICE ACCESS			
Not using computer, smartphone, or tablet in home	19.22	9.85	2.29
Child has own (non-smartphone) cell phone	0.50	0.37	1.14
Child has own smartphone	0.18	0.43	0.50
Child has own tablet	1.61	0.89	1.45
Child uses personal or household tablet	0.73	0.46	0.72
Child has own computer	0.08	0.25	0.36
Child uses personal or household computer	0.04	0.13	0.15
PARENT RULES ABOUT TECHNOLOGY USE			
Count of any type of rules reported (0-7)	-0.31	0.21	-0.02
Count of rules where child makes own choices (0-7)	-0.64	-0.36	-0.49

Source: Panel Study of Income Dynamics 2014 Child Development Supplement surveys and time diaries.

Notes: Reports OLS models for hours/week and rules and binary logistic regression models for all others. Analyses are weighted. Models control for coresident parents and children, race/ethnicity, gender, and age. N=427. *p<.05 **p<.01 ***p<.001.

Table 2 identified significant differences in multivariate analyses. The magnitude of socioeconomic differences in allowing children's choices within rules was often large, and almost no parents in the lowest education category selected this option. Supplemental analyses found that for nearly every technology-related rule indicator, college-educated parents were the most likely to report that they have rules, but the child makes their own choices, although this rule option was still in the minority.

Why Did Higher-SES Children's Technology Use Exceed Pediatric Guidelines?

The quantitative findings identified an empirical conundrum that begs investigation: Why were socioeconomically advantaged parents facilitating children's technology use far in excess of pediatric guidelines? Previous research on social class and parenting—and indeed, earlier research on children's technology use in the television-focused era—would have expected higher-SES parents to be more compliant with pediatric recommendations, leveraging resources to create health advantages for their children. We investigated this conundrum by focusing on higher-SES parents' interview narratives, identifying four synergistic processes that drove up advantaged children's technology use. First, higher-SES parents were ambivalent about technology use, concerned about its drawbacks but also valorizing technological skills' potential for increasing human capital accumulation as a buffer against their children's imagined future economic insecurity. Second, these parents perceived that expert guidance about how to manage children's technology use was absent or unrealistic. Third, parents deployed “concerted cultivation” (Lareau, 2011) parenting styles that encouraged children's entitlement and negotiation with adults, resulting in children pushing back successfully against parents to use technology more often than their parents would have preferred. Fourth, together, these processes motivated higher-SES parents to develop individualist parenting approaches (Reich, 2016) that

typically resulted in children's technology use far exceeding pediatric guidelines. We expect this particular combination of social processes to be unique to higher-SES families, although some of the processes may transcend social class; further research is needed.

Ambivalence. Higher-SES parents described feeling uncertain about how to parent around children's technology use, especially given rapid changes in technologies and device types. Nearly all were ambivalent, emphasizing both advantages and drawbacks of their children's technology use and concluding that they were trying hard to balance these pros and cons, limit their child's access, and enforce rules about technology. April said:

It is so delightful to sit down and watch something really awesome ... or to be able to check in with the grandparents over a Skype call. ... I don't want to villainize it, but I want to plant seeds and kind of pave roads that are really, I think, pretty benign and useful and kind of cool. And making sure that it's not just the go-to when you want to zone out and watch a show.

April viewed television watching ambivalently ("watching something awesome" is good, but "zoning out and watching a show" is bad) but video chatting more positively.

Parents viewed ambivalence around children's technology use as both problematic and widespread among their peers. Sandra discussed how kids having access to smartphones is both good and bad, and it reduces parents' control over their technology use. Frustrated, Sandra said:

The world has changed fundamentally, and you can't put the genie back in the bottle. ... I do think that everybody's just trying to figure out where they're comfortable with the boundaries. And I feel like we all start out pretty rigid, and then there is an erosion of the ethic.

Brenda felt "pressured" by the need to balance technology being "the way of the future" against also being something that "inhibits their creativity." She called children's technology use "the biggest parenting problem of our time" because "nobody knows what to do with all this stuff." A majority of Wave 2 interviewees used the term "addiction" without prompting when discussing their children's technology use, most frequently regarding videogames and smartphones. For

example, Helen said her son gets “really addicted ... If he could, he would spend an entire weekend on the computer playing games.” She told us, “Once he’s in it, he’s got a really hard time to get out of it.” Our field notes described her children working around house technology rules by spending a long time listening to her cell phone’s ring tone options and using its calculator to avoid putting the device away.

This ambivalence around children’s technology use was linked in many parents’ narratives to their children’s socioeconomic futures. Although they worried about addiction, many parents also viewed technological competence as a possible solution to the problem of future socioeconomic insecurity for their children. Erin believed that teaching children to use technology skillfully was important for future educational attainment: “This is the way that our future is headed as the world is going. And so we’re getting these kids ready, and they’re getting prepared, and when they get to college they’re going to know how to use everything.” Margaret said of her daughter, “I think that for her, the use of technology is something that is so ingrained in their brains. That technology can do so many things for them.” Margaret told us that her daughter had been coding since fourth grade. She linked technological competence to children’s future potential for space travel, stem cell research, and artificial intelligence, as well to her daughter’s prospects for attending medical school. Hugo was blunter about his aspirations for his son during a family observation. Field notes showed that after his son “stomps his feet, storms off, and slams his door” upon not being allowed to play a videogame, Hugo told our researcher, “If you want to raise the next Mark Zuckerberg, you should let them play, but very specific things.” The idea that technological competence may secure children’s socioeconomic futures fueled parents’ ambivalence toward restrictive pediatric guidelines. It may not be surprising that most parents facilitated access to mobile devices and computers for their children, usually above

and beyond those provided by all the children's school districts. Televisions tended also to be available, and gaming systems were common. A few high-SES parents stood out at elementary-school age by very strictly limiting their children's device access and use, but by middle school most had eased these restrictions somewhat.

Watching television content, as the most frequent type of technology use in the quantitative data, deserves special mention. Parents tended not to view it as especially problematic, and they varied in how beneficial they considered it. Elaine told us:

Watching [TV together] in the evening is – it is screen time, but it's family-based, we're talking about what we're watching, and we're sitting on the couch, and we make snacks. So you know, that's not screen time that we feel like we have wanted to reduce. We used to do boardgames, and that was fine too. They're not addicted to TV the way that they're addicted to their videogames.

For Elaine, the collective, less addictive nature of TV watching makes it less concerning than gaming, and it can be a family bonding activity. This speaks to the increasingly blurred boundary between earlier stereotypes of "good" versus "bad" screen time. In sum, parents' widespread ambivalence about children's technology use invited a variety of possible interpretations of appropriate guidelines and "good" parenting and opened a door for children to exercise considerable agency, as we discuss below.

Expert guidance. Most higher-SES parents expressed some degree of uncertainty about how best to manage their children's technology use, which is not surprising given contemporary changes in devices, functionality, and portability. Given this uncertainty, parents might be expected to follow advice from expert sources such as pediatricians or academic research, as indeed many did for a variety of other issues, from their children's friendships to their diet to their custody arrangements. Yet we found that few parents described adhering to expert or medical advice about technology use in particular, often implying that guidance was nonexistent

or unrealistic even though pediatric guidelines at the time were prevalent and clear. Brenda's rapidly shifting narrative around expert guidance driving parenting decisions illustrates the bind parents perceived themselves to be stuck in. She said, "Some people ask their doctor. What does the doctor say? Because the doctors, you think, have the research about the brain development." She then shifted to an individualist perspective in which parents, not doctors, are responsible for correctly making sense of research: "And I say to people, find the research on brain development, and all of it is negative. But people don't want to hear that or see that." Brenda continued by justifying why parents' decisions cannot adhere to the research consensus she perceives in the literature by strongly restricting children's technology use: "And [children's technology use] is inevitable, so you have to integrate it. You don't have a choice. ... It's impossible to live a life, for kids, without looking at a screen."

But not all parents agreed that the effects of technology on children were well established. Paul said, "They rush technology to market real fast, and they don't do all the research. Maybe something is bad about it." Sandra expressed frustration at this perceived vacuum of reasonable expert guidance, which she felt put an unreasonable burden on her as a parent:

No one has the answers because there's no right or wrong and because it hasn't been long enough to understand what damage, if any, is coming from it. Or what benefits, if any, are coming from it. ... I just feel like I try and try and try, and what is reasonable? What is reasonable?

In sum, parents typically did not rely on expert guidance, but rather permitted children's technology use that far exceeded pediatric recommendations.

Children's agency. Parents' perceived pressure also came from another common source: Children were typically exercising *far-reaching agency around technology use* in ways that pushed back against parents' goals, engaged with peer and popular cultures, and increased independence from adults (Pugh, 2009). Of course, children exercised agency around non-

technological phenomena in the observations, most notably consuming sugar. But they were the most interested in gaining technology time. In a typical example, our field notes showed that Sally and her son Jonah negotiated repeatedly around technology use in our observation. Jonah had a light homework night and “asks mom and sister to play Magic [a nontechnological card game]. They laugh and decline. He asks to go on the computer [the other set of field notes reported it was to window shop for Magic card accessories]. They negotiate, [mom says] no screen time during the week. Debate, compromise. He moves to computer.” Later, Jonah “asks if they can watch a movie tonight. Mom says no, Friday night is movie night.” Thus, during our observation Jonah spent time on a computer but not watching television, with the same rule applied unequally to different devices.

Similarly, Nora, who acknowledged struggling with setting limits around technology above, described unrelenting pushback from her children:

My son would sit on the couch and watch TV and play videogames all day if he could. He is really hard to manage with it. ... I feel like we are talking to him all day long, every day, about, “Turn it off, screen time is up.” “No—one more play, one more minute, one more game.” ... And parents say they have rules, and they say they don’t encourage it, but it just gets exhausting. At some point you just give up. They [children] pressure you.

In their family’s observation as in many others, such repeated negotiations over technology use were common and seemed to exhaust parents.

Although all children probably exercise agency to use technology, there are reasons why this may be classed, becoming stronger as SES rises. As our quantitative analyses showed above, higher-SES children had greater access to portable non-TV devices, including computers, tablets, and smartphones. This greater access can make it possible for children to exercise agency in using technology. Importantly, device access was not fully under parents’ control. Like many other parents, Nora pointed to the local school system’s recent provision of devices for each

child at school and at home—which was instituted by both school systems in the communities we studied between waves of data collection—as a “disaster.” By increasing children’s access to mobile internet-enabled devices and giving them a valid reason to justify their technology use to their parents—homework—many participants believed that their schools enabled children’s agency to use technology on their own terms, which many felt undermined their authority as parents. Our quantitative analysis of children’s school-based technology use found that this phenomenon was classed, with higher-SES children (who tend to attend higher-SES schools) using devices more frequently for school as described above.

Our qualitative analysis also suggested a prominent cultural reason for children’s agency around technology use that complements the structural factor of device access:

Socioeconomically advantaged parents used a “concerted cultivation” parenting style that teaches children to be agentic in their interactions with adults, negotiating and expressing preferences (Lareau, 2011). As Sally’s and Nora’s negotiations with their children illustrate, socioeconomically advantaged parents in our study often encouraged negotiations with children when enforcing rules. They sought to convince their children to internalize their parenting messages rather than simply comply behaviorally (Mollborn, Rigles & Pace, 2021). April’s narrative illustrates this classed, negotiation- and internalization-based approach to parenting around technology. She described her messages to her daughter as:

Use it [technology] when it’s helpful. Have fun with it ... but don’t let it consume you. So maybe I would love to eventually have conversations like, “How does it feel to be sitting there doing your homework and you ‘get the ding’? Is that distracting? Would you like me to help you with a boundary? Let’s talk about some ideas of how you can sort of sequester off that social piece while you try to get the paper done. Let’s figure this out, because this is hard for me too. What do your friends do? What works for them? What do their parents do? What do your teachers suggest?” Because she’s going to have to figure out how to deal with a lot of different things coming at her at once. And it’s hard.

April could save a lot of time and energy by simply taking her daughter's device away, but instead she encourages conversations to teach her daughter to "figure out how to deal with" technology. This goal of internalization requires parents to let children express their own wishes, patiently engaging with them to reinforce their parenting messages until the child eventually internalizes and agrees with the message. Similarly, because Nora engaged in this negotiation process rather than giving her son an order, he had opportunities to "pressure" her and try to change her parenting decisions.

Letting children make their own choices fosters child agency in negotiation with adults. In the excerpt above, by offering to but not insisting on "helping her with a boundary" and "talking about some ideas" about managing social demands around technology, April taught her daughter entitlement and a specific kind of agency. She asked her daughter to consider her own needs and seek normative information from others in her community when learning to manage technology use. She also taught agency by implying that she would not set a boundary around her daughter's technology use unless her daughter "would like her to." April wanted her daughter to internalize effective ways to manage technology use that were supported heavily by her parents but that she could eventually implement on her own. These were ambitious, socially classed goals that foster child agency and permit negotiation and conflict. April's narrative reflects the negotiation-focused parenting style we saw in their family's observation. Indeed, technology use was the main source of conflict we observed in and heard about from families.

In sum, typical higher-SES parenting styles that encourage child agency through negotiation collided with children's strong desire to use technology more than their parents would like them to. Because of negotiable rules and ubiquitous access to highly portable devices, facilitated by socioeconomically advantaged school systems that introduced required technology into

children's homes and gave children a school-sanctioned reason to use them, technology use was positioned to occur on higher-SES children's terms. This agency disrupted parents' careful management around technology and fostered parent-child conflict.

Individualist parenting. Together, these pressures spurred our higher-SES parent interviewees to take action. They developed individualist parenting approaches to managing technology use that attempted to balance different pressures in a way that was individualized to their particular child's situation and needs. This stood in contrast to parents' typical adherence to expert advice around health behaviors such as diet and exercise. As April—perhaps defensively—put it, “I mean, I don't do a lot of research. I don't read articles, I don't sit online and read online articles about how being online is shitty. Do you know what I mean?” Instead, April relied on her own gut feelings and knowledge of her children to develop an individualist parenting approach to technology use:

I don't have any problem saying no because I feel like Piper has been on her tablet too long. I'll say, “Turn it off, hon.” And she will. So just kind of paying attention to her and her usage ... make sure I keep checking in and give her privacy, but I try to stay engaged. ... I mean, I don't feel like I need [research] to substantiate my opinions about it.

Like many other parents, April expressed an “individualist parenting” approach through her decision that she would, through the careful attention and engagement characteristic of socioeconomically advantaged intensive parenting, individually determine how best to manage her daughter's technology use. April's plan to manage Piper's “more willful” younger sibling's technology use differently, tailoring her parenting to their personalities, further reflects individualist parenting.

Although April was less reliant on research, other parents took an individualist approach that was rooted in both their knowledge of their child and their own expertise or research efforts. Sarah described planning to rely on her husband's technological expertise to “really monitor

their communications and stuff” on devices, interestingly avoiding portraying her own substantial medical expertise as relevant for managing her children’s technology use. Julia also relied on her husband’s technological knowledge to customize devices and apps for their daughter “to flex to her needs as she changes,” for example to allow her to listen to particular music to combat insomnia. Julia characterized this nimbleness to meet Julia’s changing needs as key to their decision-making around technology, reflecting an individualized approach.

When asked how she and parents she knows make decisions around children’s technology use, Sally initially responded, “I think it’s just a gut feel for me.” Yet she went on to emphasize doing her own research to craft an individualistic parenting approach: “I think how you decide is you research guidelines, and you take from that what fits with your family and your child.” Sally viewed the acquisition and interpretation of information about expert guidelines as essential for making parenting decisions around technology, but she felt those guidelines should be interpreted and mediated by parents. She emphasized parents’ agency in “taking from that what fits” that particular child and family. This is the essence of individualistic parenting. For most children in our qualitative and quantitative samples, the combination of individualistic parenting approaches and child agency resulted in digital technology use far exceeding expert recommendations at the time.

DISCUSSION

This study combined recent nationally representative survey and time diary data with longitudinal qualitative interview, observation, and focus group data in families with children aged 9-13 to examine the extent to which higher-SES children’s digital technology use adhered to contemporaneous pediatric guidelines and the reasons why, as our analyses showed, their technology use far exceeded those recommendations. Past research, including work on media use

in the TV era, has found that higher-SES families tend to be more compliant with pediatric guidelines. In contrast, even though our time diary data likely underestimated total technology time, we found that higher-SES US children's technology time (including TV) was similar to other groups, at roughly double the then-AAP-recommended maximum of 2 hours per day. Higher-SES children spent a majority of their time on non-TV-related technology use, had greater access to internet-enabled non-TV devices, used technology more than others for school purposes but also for videogaming, and parents' rules around technology use were more likely to allow the child to make their own choices. Future analyses using other aspects of social class beyond education can expand these findings.

Qualitative analyses used higher-SES parents' narratives to explore why children's technology use exceeded pediatric recommendations. We found that three factors—higher-SES parents' ambivalence about children's technology use fueled by a perception that technological competence may protect their children socioeconomically in an insecure future, parents' perceptions that expert guidance on children's technology use was absent or unrealistic, and children's exercise of agency to increase their technology use that was facilitated by higher-SES parents' "concerted cultivation" parenting styles—led higher-SES parents to craft individualistic parenting approaches to managing their children's technology use. Together, these processes resulted in higher levels of digital technology use compared to expert guidelines. The sample reflected the communities being studied in being largely White, so advantaged class and race status were intertwined. More racially diverse future samples can better disentangle the roles of class and race in the processes reported here.

Our findings emphasize that cultures and structures related to children's technology use are in flux. Parents are struggling to make sense of and inform each other about "right" ways to

parent around technology, children and parents are in conflict over technology use, and classed norms and understandings are emerging. This rapid change has led to considerable exercise of agency among socioeconomically advantaged adults and children alike. Class-based distinctions around technology use may be emerging, for example between consumption of TV and non-TV content. Adults are seeking to draw moral (and implicitly classed) boundaries around their preferred parenting behaviors, and children are pushing back to use technology on their own terms. Our recent follow-up interviews with the families in this qualitative sample found that the advent of the COVID-19 pandemic, with stark increases in children's technology use, has heightened these dynamics. Future research with these and other data should examine the construction of norms, parenting, and child behaviors through agency as an important aspect of class-based distinction and inequalities.

Another interesting implication of this study is the emergence of individualist parenting in a new context. Reich's (2016) study of vaccine refusal emphasized advantaged parents' skepticism to government intervention and inflexible expert medical advice. Although there were echoes of anti-expert sentiments in our participants' widespread opposition to schools providing internet-enabled devices, for the most part parents perceived an absence of pediatric or expert consensus about children's technology use. Our findings suggest that individualist parenting may be relevant for phenomena about which expert advice is not settled, which could undermine the impact of expert recommendations on a broader range of child behaviors.

An interesting development that postdates our study reaffirms its findings and points the way for future research. After our data were collected, new expert recommendations on children's technology use were released that codify the individualist parenting philosophy as the "healthiest" approach. At the time of our data's collection, the American Academy of Pediatrics,

which publicizes influential recommendations on a wide variety of phenomena related to children's health and development, had made a blanket recommendation of less than one to two hours per day of screen time (AAP Council on Communications, 2013). In 2016, the AAP released new recommendations that stated, "In this new era, evidence regarding healthy media use does not support a one-size-fits-all approach" (Moreno et al., 2016:1) because media use carries both risks and benefits for young people. Instead, the new guidelines recommend that parents and pediatricians collaborate to create a personalized "Family Media Plan" for each child. This surprising policy change is rare in lacking specific cutoffs and ceding so much authority to parents. As our findings would predict, expert pediatric advice is now explicitly promoting an individualist parenting approach to managing children's technology use—albeit in collaboration with a medical provider. Whether inadvertently or by design, institutional recommendations now prescribe higher-SES families' highly negotiated and privatized strategic response to emergent technology. This is consistent with the dynamic process of developing pediatric guidelines for child development from earlier historical periods, where guidance reflected privileged families' practices and preferences (Hulbert, 2011). This could potentially be in order to regain perceived authority on parenting-focused issues such as screen time.

This shift toward expert advice that supports individualist parenting, combined with the work parents are doing to solidify social norms that reinforce their parenting choices around technology as healthy and morally superior, may be resulting in the real-time construction of a class distinction around technology use-related parenting. If these processes succeed in solidifying the customized rules around child technology use, to which socioeconomically advantaged parents aspire, as the "right" and "healthy" parenting choice supported by expert recommendations, then we will have witnessed the social construction of a classed health

disparity. Future research needs to document technology-related parenting around lower-SES children's technology use to identify complementary processes and draw comparisons.

The use of norms, narratives, and expert advice as resources to support socioeconomically advantaged parenting—as well as the outsized role child agency is playing for child behaviors and parenting decisions—complicates theoretical perspectives around cultural capital and fundamental causes of health. It is not yet clear to what extent the considerable agency being exercised by higher-SES children to increase technology use may undermine parents' strategies and change the evolution of disparities. Future research should further explore how adults and children take an active role in constructing these processes.

REFERENCES

- AAP Council on Communications. (2013). Children, adolescents, and the media. *Pediatrics*, 132(5), 958. DOI: 10.1542/peds.2013-2656
- Ames, M. G., Go, J., Kaye, J. J., & Spasojevic, M. (2011). *Understanding technology choices and values through social class*. Paper presented at the Proceedings of the ACM 2011 conference on Computer supported cooperative work.
- Anderson, M., & Jiang, J. (2018). Teens, social media & technology 2018. Retrieved from Pew Research Center website: <http://publicservicesalliance.org/wp-content/uploads/2018/06/Teens-Social-Media-Technology-2018-PEW.pdf>
- Augustine, J. M., Cavanagh, S. E., & Crosnoe, R. (2009). Maternal education, early child care and the reproduction of advantage. *Social Forces*, 88(1), 1-29. DOI: 10.1353/sof.0.0233
- Auxier, B., Anderson, M., Perrin, A., & Turner, E. (2020). *Parenting children in the age of screens*. Retrieved from <https://www.pewresearch.org/internet/2020/07/28/parenting-children-in-the-age-of-screens/>.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241-258). New York: Greenwood Press.
- Calarco, J. M. (2014). Coached for the classroom: Parents' cultural transmission and children's reproduction of educational inequalities. *American Sociological Review*, 79(5), 1015-1037. doi:10.1177/0003122414546931
- Cheadle, J. E., & Amato, P. R. (2011). A quantitative assessment of Lareau's qualitative conclusions about class, race, and parenting. *Journal of Family Issues*, 32(5), 679-706. DOI: 10.1177/0192513X10386305

- Chin, T., & Phillips, M. (2004). Social reproduction and child-rearing practices: Social class, children's agency, and the summer activity gap. *Sociology of Education*, 77(3), 185-210.
- Coontz, S. (1992). *The way we never were: American families and the nostalgia trap*. New York: BasicBooks.
- Cooper, M. (2014). *Cut adrift: Families in insecure times*. Berkeley: University of California Press.
- Corsaro, W. A. (2003). *We're friends, right?: Inside kids' cultures*. Washington, D.C.: Joseph Henry Press.
- Creswell, J. W., Klassen, A. C., Clark, V. L. P., & Smith, K. C. (2011). *Best practices for mixed methods research in the health sciences*. Retrieved from <https://obssr.od.nih.gov/training/online-training-resources/mixed-methods-research/>.
- Downey, D. B., & Gibbs, B. G. (2020). Kids these days: Are face-to-face social skills among American children declining? *American Journal of Sociology*, 125(4), 1030–1083. DOI:10.1086/707985
- Elliott, S., & Bowen, S. (2018). Defending motherhood: Morality, responsibility, and double binds in feeding children. *Journal of Marriage and Family*, 80(2), 499-520. DOI:10.1111/jomf.12465
- Evans, C. A., Jordan, A. B., & Horner, J. (2011). Only two hours? A qualitative study of the challenges parents perceive in restricting child television time. *Journal of Family Issues*, 32(9), 1223-1244. DOI: 10.1177/0192513X11400558
- Fomby, P., Goode, J.A., Truong-Vu, K., & Mollborn, S. (2021). Adolescent technology, sleep, and physical activity time in two US cohorts. *Youth & Society*, 53(4), 585-609. DOI: 10.1177/0044118X19868365

- Frazis, H., & Stewart, J. (2012). How to think about time-use data: What inferences can we make about long-and short-run time use from time diaries? *Annals of Economics and Statistics/Annales d'économie et de statistique*, 231-245.
- Freese, J., & Lutfey, K. (2011). Fundamental causality: Challenges of an animating concept for medical sociology. In B. A. Pescosolido, J. K. Martin, J. D. McLeod, & A. Rogers (Eds.), *Handbook of the sociology of health, illness, and healing: A blueprint for the 21st century* (pp. 67-81). New York: Springer.
- Goode, J.A., Fomby, P., Mollborn, S., & Limburg, A. (2020). Children's technology time in two U.S. cohorts, 1997-2016. *Child Indicators Research*, 13, 1107-1132. DOI: 10.1007/s12187-019-09675-x
- Greenberg, B. S., & Dominick, J. R. (1969). Racial and social class differences in teen-agers' use of television. *Journal of Broadcasting & Electronic Media*, 13(4), 331-344.
- Hamilton, L. T. (2016). *Parenting to a degree: How family matters for college women's success*. Chicago: University of Chicago Press.
- Hays, S. (1996). *The cultural contradictions of motherhood*. New Haven, CT: Yale University Press.
- Hofferth, S. L. (2006). Response bias in a popular indicator of reading to children. *Sociological Methodology*, 36(1), 301-315. DOI:10.1111/j.1467-9531.2006.00182.x
- Hofferth, S. L. (2010). Home media and children's achievement and behavior. *Child Development*, 81(5), 1598-1619. DOI:10.1111/j.1467-8624.2010.01494.x
- Hofferth, S. L., & Sandberg, J. F. (2001). How American children spend their time. *Journal of Marriage and Family*, 63(2), 295-308. DOI:10.1111/j.1741-3737.2001.00295.x
- Holstein, J. A., & Gubrium, J. F. (1995). *The active interview* (Vol. 37): Sage.

- Hulbert, A. (2011). *Raising America: Experts, parents, and a century of advice about children*: Vintage.
- Ito, M., Baumer, S., Bittanti, M., boyd, d., Cody, R., Herr-Stephenson, B., . . . Tripp, L. M. (2019). *Hanging out, messing around, and geeking out: Kids living and learning with new media* (Tenth anniversary edition ed.). Cambridge, MA: MIT Press.
- Khan, S. R. (2011). *Privilege: The making of an adolescent elite at St. Paul's School*. Princeton, N.J.: Princeton University Press.
- King, M. D., Jennings, J., & Fletcher, J. M. (2014). Medical adaptation to academic pressure schooling, stimulant use, and socioeconomic status. *American Sociological Review*, 79(6), 1039-1066. DOI: 10.1177/0003122414553657
- Kleinrock, L. (2008). History of the Internet and its flexible future. *IEEE Wireless Communications*, 15(1), 8-18. DOI:10.1109/mwc.2008.4454699
- Korp, P. (2008). The symbolic power of 'healthy lifestyles'. *Health Sociology Review*, 17(1), 18-26. DOI: 10.5172/hesr.451.17.1.18
- Kramer, M. R., Schneider, E. B., Kane, J. B., Margerison-Zilko, C., Jones-Smith, J., King, K., . . . Grzywacz, J. G. (2017). Getting under the skin: Children's health disparities as embodiment of social class. *Population Research and Policy Review*, 36(5), 671-697. DOI:10.1007/s11113-017-9431-7
- Lareau, A. (2011). *Unequal childhoods: Class, race, and family life*. Berkeley: University of California Press.
- Link, B. G., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *Journal of Health and Social Behavior*, 35, 80-94.
- Little, R. J., & Rubin, D. B. (2014). Incomplete data. *Wiley StatsRef: Statistics Reference Online*.

- Lofland, J., Snow, D., Anderson, L., & Lofland, L. H. (2006). *Analyzing social settings: A guide to qualitative observation and analysis* (4th ed.). Belmont, CA: Wadsworth/Thomson Learning.
- Luna, J. K. (2019). The ease of hard work: Embodied neoliberalism among Rocky Mountain Fun Runners. *Qualitative Sociology*, 42(2), 251–271. DOI:10.1007/s11133-019-9412-8
- MacGill, A. (2007). Parent and teen internet use. In: Retrieved from Pew Research Center website: <http://www.pewinternet.org/2007/10/24/parent-and-teen-internet-use/>.
- Madden, M., Lenhart, A., Duggan, M., Cortesi, S., & Gasser, U. (2013). Teens and Technology 2013. Washington, DC: Pew Internet & American Life Project; 2013. In.
- Milkie, M. A., & Warner, C. H. (2014). Status safeguarding: Mothers' work to secure children's place in the social hierarchy. In L. R. Ennis (Ed.), *Intensive mothering: The cultural contradictions of modern motherhood* (pp. 66-85). Toronto: Demeter Press.
- Mintz, S., & Kellogg, S. (1989). *Domestic revolutions: A social history of American family life*: Simon and Schuster.
- Mollborn, S., Ricles, B., & Pace, J.A. (2021). "Healthier than just healthy": Families transmitting health as cultural capital. *Social Problems*, 68(3), 574-590. DOI: 10.1093/socpro/spaa015
- Moreno, M. A., Chassiakos, Y. R., Cross, C., Hill, D., Ameenuddin, N., Radesky, J., . . . Media, C. o. C. a. (2016). Media use in school-aged children and adolescents. *Pediatrics*, 138(5). DOI:10.1542/peds.2016-2592
- Mullan, K., & Chatzitheochari, S. (2019). Changing times together? A time-diary analysis of family time in the digital age in the United Kingdom. *Journal of Marriage and Family*, 81, 795–811. DOI:10.1111/jomf.12564

- Mullan, K., & Hofferth, S. L. (2021). A comparative time-diary analysis of UK and US children's screen time and device use. *Child Indicators Research*, 1-24.
DOI:10.1007/s12187-021-09884-3
- Nelson, M. K. (2010). *Parenting out of control: Anxious parents in uncertain times*. New York: New York University Press.
- Panel Study of Income Dynamics. (2015). *2014 Child Development Supplement: Time diary coding manual*. University of Michigan. Retrieved from:
https://psidonline.isr.umich.edu/cds/questionnaires/cds-14/td_Coders_Manual.pdf.
- Pew Research Center. (2018). Internet/broadband fact sheet. *Internet, Science & Tech*.
- Perry, B. L., & Calarco, J. M. (2017). Let them eat cake: Socioeconomic status and caregiver indulgence of children's food and drink requests. In *Food Systems and Health*: Emerald Publishing.
- Pugh, A. J. (2009). *Longing and belonging: Parents, children, and consumer culture*. Berkeley: University of California Press.
- Pugh, A. J. (2014). The theoretical costs of ignoring childhood: Rethinking independence, insecurity, and inequality. *Theory and Society*, 43(1), 71-89. DOI:10.1007/s11186-013-9209-9
- Rafalow, M. H. (2018). Disciplining play: Digital youth culture as capital at school. *American Journal of Sociology*, 123(5), 1416-1452. DOI:10.1086/695766
- Reich, J. A. (2016). *Calling the shots: Why parents reject vaccines*. New York: New York University Press.
- Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M2: Media in the lives of 8 to 18 year olds*. Menlo Park, CA: Henry J. Kaiser Family Foundation.

- Rideout, V. J., & Robb, M. B. (2019). *The common sense census: Media use by tweens and teens*: Common Sense Media.
- Robinson, J. P. (1985). The validity and reliability of diaries versus alternative time use measures. In F. T. Juster & F. P. Stafford (Eds.), *Time, goods, and well-being* (Vol. 3, pp. 33-62). Ann Arbor, Mich.: Survey Research Center, Institute for Social Research, University of Michigan.
- Scott, M. B., & Lyman, S. M. (1968). Accounts. *American Sociological Review*, 33(1), 46-62.
DOI:10.2307/2092239
- Sefton-Green, J. (2006). Youth, technology, and media cultures. In J. Green & A. Luke (Eds.), *Review of research in education. Vol. 30, 2006 Rethinking learning: What counts as learning and what learning counts* (pp. 279-306). Washington, D.C.: American Educational Research Association.
- Seiter, E. (1999). Power rangers at preschool: Negotiating media in child care settings. In M. Kinder (Ed.), *Kids' media culture* (pp. 239-262). Durham [N.C.]: Duke University Press.
- Shirani, F., Henwood, K., & Coltart, C. (2012). Meeting the challenges of intensive parenting culture: Gender, risk management and the moral parent. *Sociology*, 46(1), 25-40.
DOI:10.1177/0038038511416169
- Streib, J. (2013). Class origin and college graduates' parenting beliefs. *Sociological Quarterly*, 54(4), 670-693. DOI:10.1111/tsq.12037
- Swidler, A. (2001). *Talk of love: How culture matters*. Chicago: University of Chicago Press.
- Talukdar, J., & Linders, A. (2013). Gender, class aspirations, and emerging fields of body work in urban India. *Qualitative Sociology*, 36(1), 101-123. DOI:10.1007/s11133-012-9240-6

Thelen, T., & Haukanes, H. (Eds.). (2010). *Parenting after the century of the child: Travelling ideals, institutional negotiations and individual responses*. Burlington, VT: Ashgate.

Turner, B. S. (1984). *The body and society: Explorations in social theory*. Oxford: Blackwell.

Vandewater, E. A., Shim, M.-s., & Caplovitz, A. G. (2004). Linking obesity and activity level with children's television and video game use. *Journal of Adolescence*, 27(1), 71-85.

DOI:10.1016/j.adolescence.2003.10.003

Wartella, E. A., & Jennings, N. (2000). Children and computers: New technology. Old concerns. *The future of children*, 31-43.

Zelizer, V. A. (1994). *Pricing the priceless child: The changing social value of children*. Princeton University Press.

Family Socioeconomic Status and Children's Screen Time

Stefanie Mollborn^{a,b}
Aubrey Limburg^b
Jennifer Pace^c
Paula Fomby^d

^aDepartment of Sociology, Stockholm University, Stockholm, Sweden

^bInstitute of Behavioral Science and Department of Sociology, University of Colorado Boulder,
UCB 483, Boulder, CO 80309-0483

^cMidwestern State University, Department of Sociology, 3410 Taft Blvd, Wichita Falls, TX
76308

^dInstitute for Social Research, University of Michigan, 426 Thompson St, Ann Arbor, MI 48106

Running head: Socioeconomic Status and Children's Screen Time

* This study was supported by National Science Foundation grants SES 1423524 and SES 1729463. We also thank the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)-funded University of Colorado Population Center (P2C HD066613) and the Lund University Centre for Economic Demography for development, administrative, and/or computing support. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NSF, NICHD, or the National Institutes. We thank Joshua Goode, Fred Pampel, Richard Jessor, Adenifè Modile, Elizabeth Lawrence, Laurie James-Hawkins, Olowudara Oloyede, Kevin Le, Andrew Bennett, Amber Bunner, and Shannon Cavanagh for their assistance. Direct all correspondence to: Stefanie Mollborn, Department of Sociology, Stockholm University, SE-160 91 Stockholm, Sweden; email: mollborn@sociology.su.se.