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Running head: Children's media use, parental supervision and attitudes

Touchscreen Generation: Children's current media use, parental supervision methods and attitudes towards contemporary media.

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1 **Abstract**

2

3 **Aim:** To explore media preferences and use among young children, as well as to obtain
4 information about parental supervision methods and beliefs about media. **Method:** Ninety
5 parents of 3- to 6-year-olds, recruited from a relatively economically advantaged area in the
6 United Kingdom, completed a media opinion survey. **Results:** Although traditional television
7 remains the favourite type of media platform among young children, touchscreen devices are
8 gaining in popularity, and may promote simultaneous multi-screen use. Moreover, parents
9 believe that the effects of media on developmental outcomes are generally positive. However,
10 they do monitor the content of traditional and new media their children are exposed to.

11 **Conclusion:** This study shows an emerging evidence of concurrent multi-screen use among
12 very young children. More detailed examination of early media multitasking, and its relationship
13 to cognitive and behavioural outcomes, is necessary.

14

15 **Keywords:** children, media multitasking, media supervision, parents, touchscreens

16

17 **Key notes**

- 18 • This study explored young children's (<6) media preferences and use, parental
19 supervision practices and media attitudes.
- 20 • Young children engage in media multitasking by concurrently using more than one
21 screen device and media multitasking is predicted by preference for and use of
22 touchscreen devices.
- 23 • Parents strictly monitor foreground and background media content, but are liberal about
24 controlling the amount of media use.

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1 Introduction

2 There is no doubt that the rapid development of digital technology has changed how we
3 communicate, work and spend our free time. Although many would agree that easy access to
4 multifunction digital devices, such as smartphones or tablets, and high-speed Internet has
5 improved our lives, brought about more freedom, and saved the time needed to complete many
6 daily tasks, very little is known about the impact that modern technology has on adult cognitive
7 and psychosocial functioning. Even less is known about how digital environment will influence
8 developmental outcomes.

9 In 'Western' culture, today's older children and adolescents are undoubtedly *digital*
10 *natives* – children, for whom digital technology is fundamental to daily routine (1). Their
11 environment is saturated with electronic devices (2) and children appear to fully embrace
12 opportunities provided by new technology to reduce boredom and to allow efficient use of their
13 leisure time (3). However, there is a paucity of research that addresses the extent of new media
14 use among younger children (< 6 years) and the effects of the digital environment on how they
15 play, learn and interact with others. Traditionally, research has focused on the effects of
16 television on the developmental outcomes, with a particular interest in how television viewing
17 relates to learning, attention and behaviour. Many researchers and clinicians have expressed
18 concern about the potentially deleterious effects of heavy television exposure or viewing
19 inappropriate content (4, 5, 6). However, over 40 years of research has failed to provide
20 consistent conclusions about the long-lasting impact of viewing on children's behaviour and
21 cognition.

22 Considering that today's youngest digital natives are exposed to a rich multimedia
23 environment on a daily basis, it is questionable whether traditional, single-screen television
24 viewing remains a favourite childhood pastime. Previous literature suggests that adolescents
25 and young adults are extensive media multitaskers, who constantly access single or multiple
26 digital platforms to engage with parallel media activities (7, 3, 8, 9). At the centre of young
27 people's multitasking activity is a computer, a *meta-medium* that allows the simultaneous use of
28 several media streams (e.g., film, text, music) and constant switching from one activity to

1 another (10). Very young children may lack cognitive and motor skills required to use a
2 computer or operate a keyboard and mouse successfully. However, easy-to-use touchscreen
3 devices such as tablets and smartphones that afford the same multitasking functions may
4 provide a suitable alternative platform to engage in media multitasking from a very young age.

5 Tablets are becoming increasingly prevalent among preschool children. In the UK, 53
6 per cent of 3- to 4-year-olds use a tablet at home, with one in seven preschoolers owning their
7 own (11). Moreover, qualitative findings show that, unlike TV viewing that usually occurs at set
8 times, young children's touchscreens use is irregular yet frequent (12). However, no quantitative
9 research investigates whether the availability of these devices affects children's media use.
10 Commercial adult media research suggests that touchscreens do not replace but are used in
11 conjunction with traditional screen viewing. For example, 84 per cent of tablet/smartphone
12 owners use these devices for other activities (e.g., web surfing, games, messaging) while they
13 watch TV (13). One way, in which children learn behaviour, is the observation of others (14).
14 Thus, young children who have access to or own a tablet or a smartphone may model their
15 behaviour on their parents or older sibling screen use and engage in a similar form of media
16 multitasking.

17 However, a decision whether a child can have a tablet, and how she can use it, depends
18 on a parent. Ultimately, parents shape children's home environment, and parents' rules and
19 supervision practices are strong predictors of how much children engage with digital devices
20 (9). Nathanson (15) proposed three ways in which parents monitor their children's media
21 exposure. "Active" supervision requires parents to discuss media content with children. In
22 contrast, "restrictive" supervision imposes rules relevant to the amount of content or exposure.
23 Finally, "covieing" involves watching a programme with a child. These different forms of
24 monitoring allow parents to control and shape their children's digital environment across the key
25 domains of media exposure (i.e., content, amount and context). However, their implementation
26 is contingent on parents' beliefs about media effects (16), as well as family factors that may
27 either facilitate or hinder the use of these practices (17). Specifically, the literature suggests
28 that, on the one hand, parents seek information about age appropriateness and content of films

1 and electronic games, and comply with industry-imposed ratings (18). On the other hand, they
2 are reluctant to observe paediatricians' recommendations to reduce children's screen time (19)
3 or may even disagree with such advice (20).

4 Qualitative research provides some explanation for inconsistencies in parents' approach
5 to supervising children's screen use. Typically, parents use screen devices when occupying
6 children with alternative activities is more challenging, such as, for example, when doing
7 housework or in busy public or constrained spaces (e.g., in a doctor's waiting room, in a car
8 etc.). Moreover, screen devices are used as means of reward and punishment or conflict
9 reduction (12, 17). Parents also believe that digital media may be beneficial to children's
10 cognitive and social development. For example, educational programmes and games are seen
11 as a good source of learning opportunities (12), whereas video calling applications allow face-
12 to-face communication with extended family (21). Finally, contrary to the concerns about
13 children's media exposure expressed by childhood experts (4), parents believe that, in general,
14 traditional media, such as, for example, television and computers, have a positive role in
15 children's development and that early involvement with technology is beneficial for their
16 children's prospective school achievements and employment (12, 20).

17 In sum, parental attitudes towards technology and supervision practices appear to play a
18 vital role in determining how children use screen media at home. However, much of the
19 evidence comes from the studies that were either conducted before the rapid expansion in use
20 of touchscreen devices or are qualitative and thus, do not allow exploring the associations
21 between measured variables. Therefore, the overarching goal of this study is to gain more
22 insight into the major domains (i.e., children's and parents media use, supervision methods and
23 knowledge and beliefs about popular media) that shape the family media environment using
24 quantitative methods. Specifically, the first aim of this study is to document young children's (<6
25 years) current media preferences and use. The second aim is to examine whether young
26 children engage in simultaneous multi-screen activities and whether early 'multitasking' with
27 media is related to the use of touchscreen devices. The final aim is to investigate parents'
28 monitoring methods and beliefs about contemporary media.

1 **Method**

2 *Participants*

3 The study was approved by the local Ethics Committee. Before the study began, parents
4 had received a letter providing information about the project and contact details of the Principle
5 Investigator. Participants were 90 parents of 3-6-year old children (boys, n=46; girls, n=39; a
6 further 6 participants failed to provide information about gender); 9% of respondents were
7 fathers. Children's mean age was 4.23 years (SD= 0.78). Information about parents' education
8 is provided in Table 1. Although the data regarding participants' ethnicity and income were not
9 collected, the sample was recruited from preschools and schools predominantly attended by
10 children from White middle- to high-income families.

11 *Materials*

12 A self-reported questionnaire adapted from Funk, Brouwer, Curtis and McBroom (22; see
13 Supporting Information) contained questions about parents' level of education and media
14 habits, child's age and gender. Furthermore, parents answered questions regarding their
15 children's media preferences and media use, media supervision methods, and beliefs about the
16 effects of media on developmental outcomes.

17 *1.1. Children's media preferences and media use*

18 To measure opinion of their children's media preferences, participants were asked to rate the
19 popularity of six common screen media platforms (TV, DVD, computer, tablet, game console
20 and smartphone). Further, three items measured how much time children spent in an average
21 week on watching TV and films, using a tablet &/or a smartphone and using a computer. In
22 addition, parents rated the frequency of their child using a tablet to watch TV and films, play
23 entertainment games and access educational applications (apps). Finally, to assess multi-
24 screen use, parents were asked to rate how often their child simultaneously used more than
25 one screen device.

26 *1.2. Parents media use*

27 Parents' entertainment media use was assessed with two items that measured how often
28 participants watched TV/films and played tablet/smartphone games.

1 1.3. Supervision methods and ratings familiarity

2 Two questions, each comprising of four items, examined *the ways* (i.e., different forms of co-
3 viewing and/or restrictive supervision based on, for example, industry ratings), in which parents
4 supervised children's media content. The first question assessed how parents monitor the
5 appropriateness of TV programmes and films and the second assessed monitoring of games
6 and apps. Further, four items were used to assess *the strictness* of supervision in relation to
7 traditional and new media content. Specifically, two items assessed how strictly parents
8 monitored the content of television/films watched by a child and games/apps played by a child
9 (i.e., *foreground* exposure to media). Further two items assessed how strictly parents monitored
10 the content of TV/film and games/apps played *in the background* when a child was present in
11 the room. Finally, one item measured whether parents monitored the overall amount of screen
12 time.

13 Familiarity with industry ratings for media content was assessed with two items.

14 1.4. Beliefs about popular media

15 Two questions investigated parents' beliefs about the effects of popular media. The first
16 question measured how parents perceived the severity of four media features that were
17 understood to be deleterious (i.e., inappropriate language, inappropriate behaviour, violent
18 content, fast editing pace). The second question measured parents' perception of the potential
19 positive and negative effects that different features of media might have on children.

20 *(Insert Table 1 here)*

21 Procedure

22 Two hundred and ten questionnaires were distributed to parents of 3- to 6-year-old
23 children attending two primary schools and four preschools in a semi-rural county of England.
24 Parents completed the questionnaires at home and returned the forms to the school office or a
25 preschool manager. The schools and preschools assisted in the data collection process by
26 sending text message reminders to eligible parents. The final response rate was 43 per cent.

27 Results

28 1.1. Children's media use and media preferences

1 Adopting the procedure employed by Funk and colleagues (22), children's average
2 weekly media use was calculated by taking the mid-point of each response option, on a scale
3 ranging from 0 to 15 hours. On average, children spent 13.42 hours per week using different
4 types of media, and most time - 8 hours per week - was spent on watching television and DVDs
5 (see Table 2). Independent-samples t-test was used to test gender differences in media use.
6 The results showed that boys used tablets/smartphones significantly more than girls, $t(82) = -$
7 3.448 , $p=.001$, 95% CI: -3.56 to -0.96 and there was a trend (not significant) for boys to use
8 more media overall, $t(82) = -1.877$, $p=.064$, 95%CI: -5.19 to 0.15 .

9 *(Insert Table 2 here)*

10 Figure 1 shows a detailed breakdown of children's media preferences (rather than use),
11 estimated by parents. The results of a one-sample t-test (test value = 3, which represents
12 'neutral' on the response scale) show that television, tablet and DVD mean ratings appear on
13 the 'most favourite' side of the scale ($t(89)=10.515$, $p<.001$, 95%CI: 0.86 to 1.26 ; $t(88)=4.005$,
14 $p<.001$, 95%CI: 0.22 to 0.67 and $t(87)=3.964$, $p<.001$, 95%CI: 0.28 to 0.82 , respectively).
15 Moreover, the results of a paired-samples t-test show that, compared with tablets and DVDs,
16 television remains the favourite type of media platform among this age group ($t(88) = 2.755$, p
17 $=.007$, 95%CI: 0.14 to 0.85 and $t(87) = 4.675$, $p<.001$, 95%CI: 0.34 to 0.86 , respectively).
18 Finally, the results of a paired-samples t-test reveal that tablets are as favoured as more
19 traditional DVDs, $t(87)= -0.537$, $p=.568$.

20 Conversely, the three remaining media platforms: computer, game console and
21 smartphone have mean ratings on the 'least favourite' side of the scale ($t(80)= -4.486$, $p<.001$,
22 95%CI: -0.93 to -0.36 ; $t(83) = -6.120$, $p<.001$, 95%CI: -1.21 to -0.62 and $t(83) = -4.96$, $p<.001$,
23 95%CI: -0.90 to -0.38 , respectively). Therefore, it is reasonable to conclude that they are
24 relatively unimportant/infrequently used by 3- to 6-year-olds. Consequently, preference ratings
25 for these platforms were excluded from any further analyses.

26 *(Insert Figure 1 here)*

27 Finally, children's use of tablets was explored (Figure 2). Most frequently, children used
28 tablets to access educational games and apps, followed by playing entertainment games.

1 Conversely, children rarely used tablets to go online. The results of the one-way ANOVA
2 showed that compared with girls, boys used tablets significantly more often to play
3 entertainment games, $F(82) = 8.459$, $p=.005$ and to access educational apps/games, $F(81) =$
4 4.448 , $p=.038$.

5

6 *(Insert Figure 2 here)*

7 1.2. Children's media 'multitasking'

8 Over 40% of children in the sample have concurrently used more than one screen
9 device. This breaks down into 23.0% multitasking rarely, 17.8% multitasking sometimes, and
10 just 3.3% multitasking often. There was no significant difference in the frequency of multitasking
11 between boys and girls, $t(82) = -1.304$, $p=.196$. Controlling for child characteristics (i.e., age and
12 gender), multi-screen use was positively associated with the amount of time children spent
13 using *touchscreen devices* ($\beta=.396$, $p<.001$). However, neither the amount of television nor the
14 amount of computer use predicted multitasking. Similarly, entering preference rating scores for
15 the three most favoured media platforms into a regression model showed that a preference for
16 a tablet was positively associated with media 'multitasking' ($\beta=.271$, $p=.012$), whereas the
17 preference for television and DVDs was unrelated to multi-screen use (both $p>.05$). These
18 results support our prediction that a preference for tablets and the use of tablets is crucial for
19 early years media multitasking.

20 2.1. Parents media use

21 To assess parents' pattern of media use for entertainment purposes, the parents
22 reported how often they played tablet/mobile games and how often they watched television and
23 films. The frequency ratings of tablet/mobile games use fell on the 'never or hardly ever' side of
24 scale, whereas the frequency of television and film watching fell on the 'often' side of the scale.
25 The results of the paired-samples t-test indicated that, compared to playing tablet/mobile
26 games, parents watched television significantly more frequently, $t(86) = -13.391$, $p<.001$, 95%
27 CI: -1.11 to -0.82.

28 2.2. Media supervision methods and familiarity with the industry ratings

1 Figure 3 shows that parents mostly rely on industry ratings to judge whether television
2 programme/film or a game/app are appropriate for their child; and they do so equally for
3 monitoring traditional television as well as the new media (i.e. digital games and apps).
4 However, parents' familiarity with the ratings of conventional and new media is not the same
5 (Table 3). Parents appear to be confident in their understanding of television and film ratings;
6 over 70% are 'very familiar' with the ratings. In contrast, only 30.7% of parents are 'very familiar'
7 with the ratings of games and apps and 17.0% are 'not familiar at all'. The results of the paired-
8 samples t-test confirmed that parents are significantly less familiar with the ratings for games
9 and apps than they are with the ratings of television programmes and films, $t(87)=8.099$,
10 $p<.001$, 95% CI: 0.72 to 1.20.

11 *(Insert Figure 3 here)*

12 *(Insert Table 3 here)*

13 In order to determine which parental characteristics are associated with ratings
14 familiarity, two regression models were built. In a model in which TV ratings familiarity was the
15 outcome variable (controlling for maternal and paternal education) the frequency of television
16 watching was not a significant predictor ($\beta= .046$, $p=.702$). Conversely, games/apps ratings
17 familiarity was positively associated with the frequency with which *parents* played digital games
18 ($\beta= .283$, $p= .017$).

19 Finally, Figure 4 presents how strictly parents supervise children's media exposure. The
20 results of a one-sample t-test (test-value = 2, which represents 'moderately' on the response
21 scale) show that parents' mean monitoring ratings of *foreground* content of TV/films and
22 games/apps fall on the 'strictly' side of the scale, $t(89) = 9.044$, $p<.001$, 95%CI: 0.43 to 0.68 and
23 $t(85) = 9.579$, $p<.001$, 95%CI: 0.46 to 0.70, respectively. Similarly, the mean ratings of
24 *background* TV/films and games/apps content monitoring appear on the 'strictly' side of scale,
25 $t(88) = 6.157$, $p<.001$, 95%CI: 0.32 to 0.64 and $t(84) = 6.501$, $p<.001$, 95%CI: 0.34 to 0.64,
26 respectively. Conversely, the overall amount of screen time is monitored 'moderately', as the
27 mean ratings were not significantly different from the test-value of 2, $t(88)=-1.833$, $p =.070$. In
28 addition, pairwise comparisons between four content variables (i.e., foreground TV/film,

1 foreground games/apps, background TV/film, background games/apps) show that parental
2 monitoring of content is equally rigorous for all (all p-values >.05).

3 *(Insert Figure 4 here)*

4 2.3. Parents beliefs about popular media

5 When asked to rate the *severity* of various features of television and film that are thought
6 to be detrimental to young children's development, parents seem most concerned about the
7 violent content (Figure 5). The results of the paired-samples t-tests show that, compared to
8 inappropriate language, inappropriate behaviour and fast pace, violent content was rated as the
9 most harmful ($t(89) = -6.020$, $p < .001$, 95%CI: -.63 to -.32; $t(89) = -4.088$, $p < .001$, 95%CI: -3.5 to
10 -1.2, and $t(74) = 10.845$, $p < .001$, 95%CI: 1.11-1.61, respectively). Conversely, compared to
11 inappropriate language and behaviour shown on the screen, parents appear to be least
12 concerned about the effects of fast editing pace ($t(74) = 7.625$, $p < .001$, 95%CI: 0.65 to 1.11 and
13 $t(74) = 9.915$, $p < .001$, 95%CI: 0.88 to 1.33, respectively). Interestingly, 16% of parents did not
14 rate how harmful the editing pace was, some leaving a question mark as a response.

15 *(Insert Figure 5 here)*

16 *(Insert Figure 6 here)*

17 Finally, parents expressed their beliefs about the effects of the popular media on children's
18 development (Figure 6). The results of a one-sample t-test (test-value = 2, which represents
19 'somewhat negative' on the response scale) show that parents believe that: (1) overall, the
20 effects of popular media on children's development are somewhat positive, $t(85) = 10.613$,
21 $p < .001$, 95% CI: 0.83 to 1.22; (2) the effects of watching fast-paced programmes are somewhat
22 negative, $t(83) = 1.885$, $p = .063$; (3) the effects of watching educational shows are positive,
23 $t(88) = 39.119$, $p < .001$, 95%CI: 2.24 to 2.48; and (4) the effects of watching violent content are
24 very negative, $t(88) = -16.903$, $p < .001$, 95%CI: -1.82 to -1.44.

25

26 **Discussion**

27 The aim of this study was to explore and document children's current media preferences and
28 media use. Moreover, we set out to establish if young children (<6 years) engaged in

1 concurrent multi-screen use and whether early years media 'multitasking' was related to a
2 preference for new touchscreen media, for example, tablets. Finally, this study examined how
3 parents supervised their children's media use and their beliefs about the impact of media on
4 developmental outcomes.

5 Consistent with the previous literature (23) 3-6-year-olds still prefer television to the
6 newer forms of media. The average amount of weekly television viewing reported by parents in
7 this study appears is similar to the amount reported by Funk and colleagues (approximately 8
8 hours; 16). However, the overall weekly media consumption is higher; 13.42h per week vs.
9 12.14h reported by Funk et al. (22). Moreover, based on parental estimation, tablets have
10 become equally as preferred as more conventional DVDs. Further evidence that young
11 children's media preferences and consumption patterns might be changing is supported by the
12 finding that over 40 per cent of children's reported weekly media time is spent on using digital
13 platforms such as tablets and smartphones and - to a lesser extent - computers. Importantly,
14 this study found an emerging evidence of simultaneous multi-screen use among very young
15 children. Moreover, media 'multitasking' was positively related to children's preference for
16 tablets and the use of tablets/smartphones. It appears that the availability of small touchscreen
17 devices that allow for most of the content to be accessed directly from the home screen with a
18 simple touch or a swipe of a finger (21), facilitates engaging with multiple media streams even
19 at a very young age.

20 Currently, very little is known about the relationship between media multitasking and
21 cognition. The literature is scarce and presents inconsistent results. For example, some findings
22 point to the detrimental effects of frequent multitasking on the performance in laboratory tests of
23 executive function (8), and a negative relationship between multitasking and self-reported
24 cognitive functioning (24). Conversely, other studies failed to support the findings that heavy
25 media multitasking is related to poor cognitive performance (25), or even provided evidence for
26 a positive relationship between media multitasking and the ability to integrate information from
27 multiple sensory systems (26).

1 Although there is no convincing evidence for the deleterious effects of multitasking, the
2 changes in children's media preferences and the simultaneous use of the several media
3 streams pose a challenge for parents' supervisory practices. The findings from this study show
4 that, mostly, parents rely on industry ratings to judge whether media content is appropriate for
5 their children. However, their self-reported familiarity with the ratings of digital games and apps
6 is poorer compared to their knowledge of television and film ratings. Perhaps this stems from
7 the finding that over 50 per cent of parents in our sample do not play digital games or if they do,
8 it is infrequent. Although it is reasonable to assume that many of the surveyed parents have
9 adopted various aspects of modern technology at work or personal lives, unlike their *digital*
10 *native* children, they had spent their formative years before a rapid technology expansion, and
11 as *digital immigrants*, have yet to adapt to the changed environment (1).

12 The lack of familiarity with games/apps ratings and the cultural divide between *digital*
13 *natives*, for whom the use of digital media comes naturally and *digital immigrants*, who still need
14 time to get a full grasp of a new digital environment (1), are not the only challenges related to
15 media monitoring. Undoubtedly, it is much easier to supervise the use of a family television set
16 in the living room than it is to control children's activity on touchscreen devices that are portable
17 and can be easily taken to the bedroom. Anecdotal evidence suggests that despite the
18 availability of parental control settings, four in five parents do not turn it on, which creates the
19 possibility of children accessing inappropriate content. This is of particular importance, as past
20 research into the relations between television viewing and children's cognition and behaviour
21 suggests that content, rather than the amount of media, is a stronger predictor of developmental
22 outcomes (6, 27). Moreover, parents appear to be the least concerned about the amount of time
23 their children spend in front of various screens than they are about harmful foreground and
24 background content. Yet, the simultaneous use of several media platforms could mean that the
25 overall amount of media exposure is much higher than what parents perceive to be the
26 appropriate amount for their children. For example, older children manage to fill 7.38 hours
27 physically spent in front of screens with over 10 hours of media content (9).

1 Finally, the findings from this study show that parents' ratings of harmful media features
2 mostly mirror the concerns of researchers and clinicians. Parents consistently rated violent
3 content and inappropriate language/behaviour presented on the screen as very harmful.
4 However, despite the recently increased interest among media researchers in the effects of fast
5 editing pace on children's attention and executive function (28, 29), it appears that many
6 parents may be unaware of the suggestions regarding the potentially deleterious effects of fast
7 pace made in the scientific literature. Alternatively, it may be difficult for parents to objectively
8 quantify what constitutes a 'fast' editing pace and, in consequence, their responses could be
9 biased. Nevertheless, perhaps parents should be made aware of the experts' concerns
10 regarding the potentially harmful effects of exposure to rapidly edited material to allow them to
11 make more informed choices about their children's media diet.

12 Although the data reported in this article are exploratory in nature, they are important as
13 they point to the evidence of the new type of screen behaviour emerging among 3- to 6-year-
14 olds. It appears that children begin to engage in simultaneous multiple screen use at a very
15 young age, which may influence their cognitive functioning and poses challenges to parental
16 supervisory practices. Yet, the findings from this study are limited by a relatively small number
17 of responses and ethnically non-diverse (White) sample. Moreover, the area from which
18 participants were recruited represents one of the most advantaged locations in the United
19 Kingdom (30). Finally, multi-screen use was assessed with a single question, which only
20 allowed a glimpse into children's behaviour. Further, more thorough, investigation of young
21 children's media habits is necessary to make more robust inferences.

22 In summary, this exploratory study documented current media habits of 3- to 6-year-old
23 children. The findings suggest that traditional television remains the favourite type of media
24 platform among this age group. However, new touchscreen devices, such as tablets, are
25 gaining in popularity and facilitate children engaging in multiple screen use, which may create
26 new challenges for parental media supervision methods. Conversely, parents appear to use the
27 new media platforms infrequently (at least for entertainment purposes) and are less familiar with
28 industry ratings for digital games and apps than they are with film and television programmes

1 ratings. Finally, future studies should carry out a more detailed examination of concurrent multi-
2 screen use among pre-schoolers and primary school children to gain a better understanding of
3 its relationship to cognitive and behavioural outcomes.

4

5 **Acknowledgements:** We would like to thank our anonymous reviewers for their helpful
6 feedback. Work on this manuscript was supported by a doctoral scholarship from the University
7 of Essex received by Katarzyna Kostyrka-Allchorne.

8

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1 Table1. The highest level of education reported by parents.

Qualifications level	Highest educational level (%)	
	Mother (n=84)	Father (n=77)
GCSEs, BTEC and lower level vocational qualifications	34.4	42.2
A-levels and intermediate vocational qualifications	35.6	17.8
Diploma in higher education or a university degree	23.3	25.6
Missing information	6.7	14.4

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1 Table 2. Children's weekly media use (hours per week).

	TV/DVD		Tablet/smartphone		Computer		Total	
	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>
All children	8.00	(3.75)	3.98	(3.35)	1.44	(2.80)	13.42	(6.19)
Girls	8.30	(3.54)	2.60	(2.43)	1.00	(2.12)	11.90	(4.74)
Boys	7.70	(3.98)	4.90	(3.41)	1.80	(3.34)	14.40	(7.13)

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1 Table 3. The frequencies of parents' familiarity with industry ratings for traditional and new
2 media.

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Familiarity rating	Television and film (%)	Games and apps (%)
Not familiar at all	0.00	17.00
Vaguely familiar	5.60	25.00
Quite familiar	20.00	27.30
Very familiar	74.40	30.70

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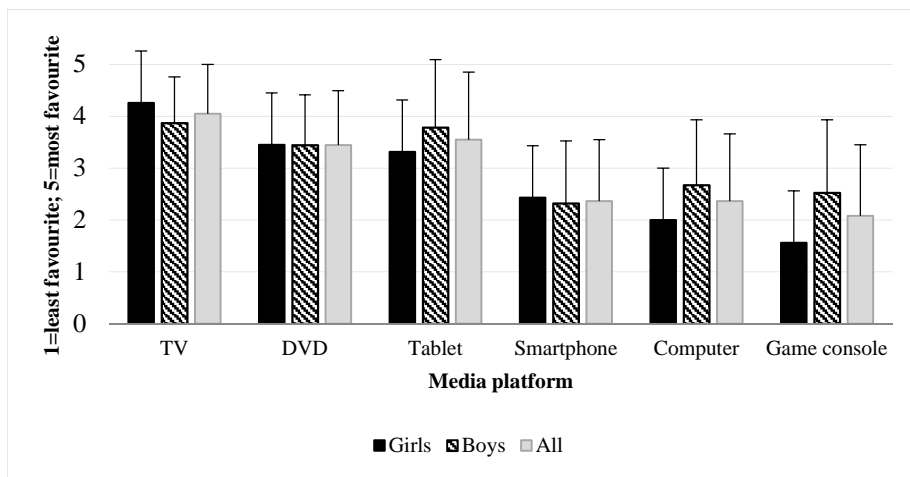
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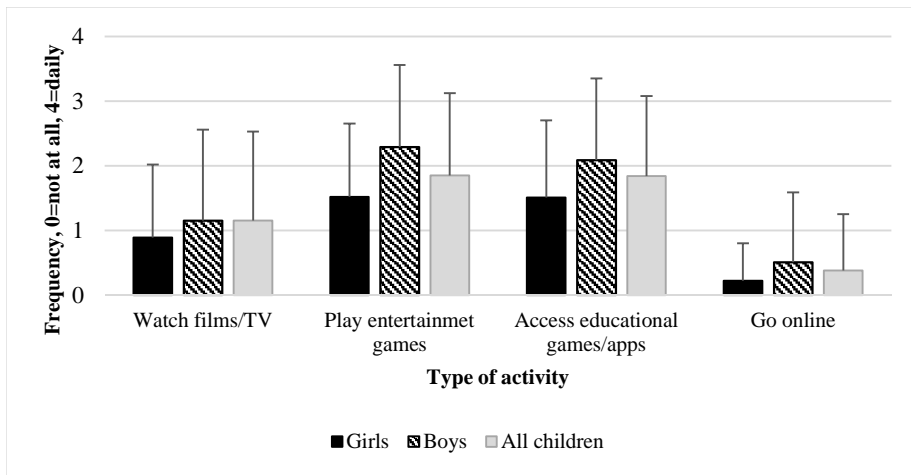
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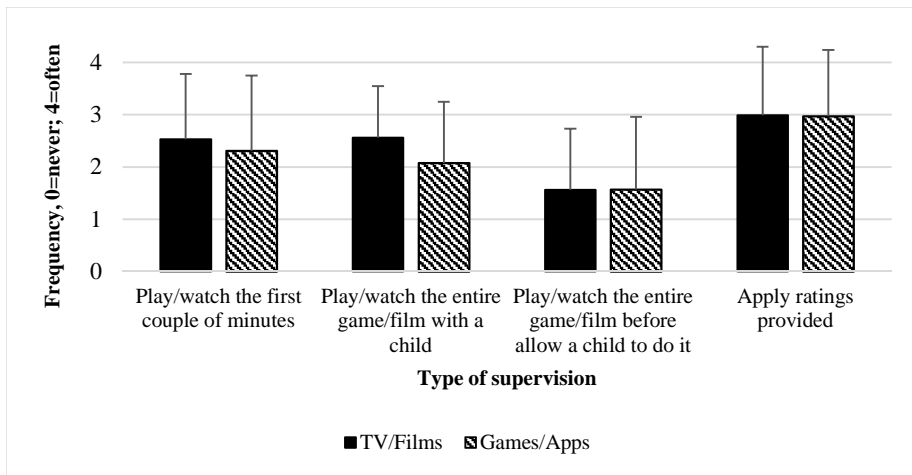
- 1 Figure 1. Children's media preferences by platform (error bars represent standard deviations).
- 2 Figure 2. Children's frequency of tablet use for various media activities (error bars represent
3 standard deviations).
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- 5 Figure 3. Parents' media supervision methods (error bars represent standard deviations).
- 6
- 7 Figure 4. The strictness of media supervision (error bars represent standard deviations).
8 *Denotes where mean ratings were significantly different from the test-value of 2.
- 9
- 10 Figure 5. Ratings of severity of harmful programme features (error bars represent standard
11 deviations).
- 12
- 13 Figure 6. Parents' beliefs about developmental effects of popular media (error bars represent
14 standard deviations). *Denotes where mean ratings were significantly different from the
15 test-value of 2.
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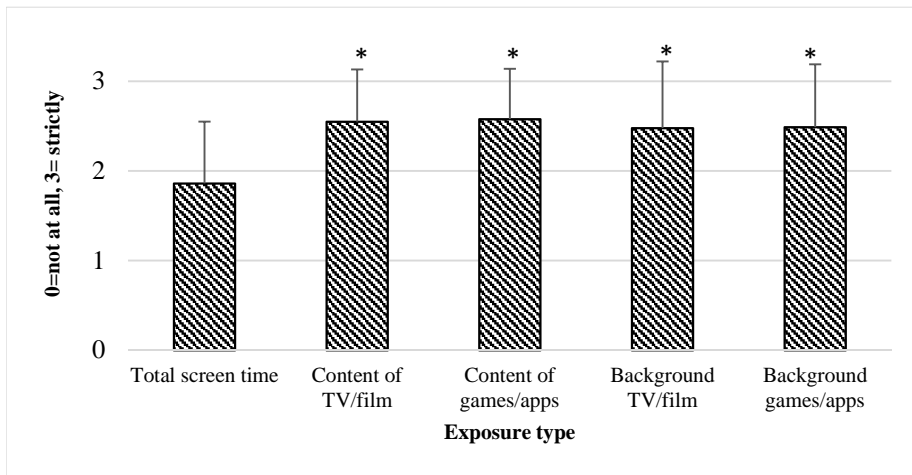
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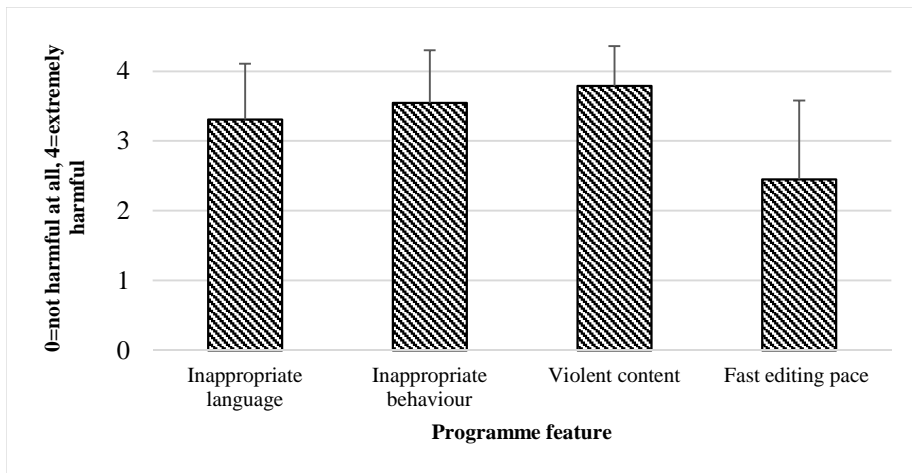
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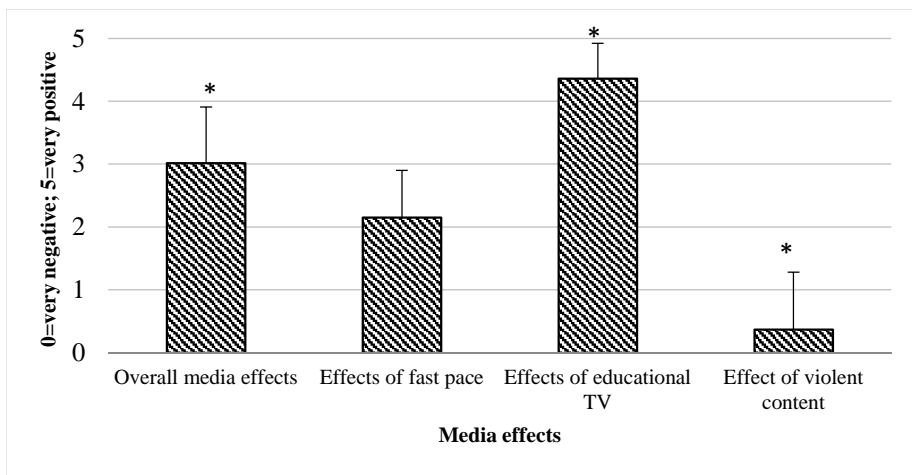
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