Position Paper

Digital Media and Early Childhood: Recent Research, Effects and Recommendations

GAIMH
German Speaking Association for Infant Mental Health

Paula Bleckmann (Alfter)
Valérie Brauchli (Zurich)
Marion Hantinger (Salzburg)
Mirjam Hilgerloh (Munich)
Barbara von Kalckreuth (Freiburg)
Annette M. Klein (Berlin)
Larissa Schneebeli (Zurich)
Lieselotte Simon-Stolz (Homburg)
Fabio Sticca (Zurich)
Claudia Uhler (Freiburg)
Martina Wolf (Munich)
Martina Wolf (Vienna)
Agnes von Wyl (Zurich)
Imprint

Publisher, media owner and manufacturer
Gesellschaft für Seelische Gesundheit in der Frühen Kindheit e.V.

Association headquarters: Munich

VR: 15530

Manufacturer and publisher location: Vienna

Office and delivery address:
GAIMH
c/o IFEF
Hernalser Hauptstraße 15/2/9
A - 1170 Wien
www.gaimh.org
info@gaimh.org

Layout
Daniela Koller
Grafik & WebDesign
www.danielaKoller.at

All rights reserved. Any use (including excerpts) is only permitted with the written consent of the media owner.

© März 2022 GAIMH
Content

1. Executive summary .................................................................................................................................... 4
2. Introduction ................................................................................................................................................ 5
3. Media devices and exposure ....................................................................................................................... 7
4. Developmental needs and tasks .................................................................................................................. 9
5. Recent research and research gaps with regard to children’s developmental needs from GAIMH’s perspective .................................................................................................................................................... 11
6 GAIMH recommendations ........................................................................................................................ 21
7. Putting it into practice .................................................................................................................................. 25
8. Break time for parents ............................................................................................................................... 28
9. Afterword ................................................................................................................................................. 29
10. Ongoing research projects in which GAIMH members are participants ................................................ 30
Literature ...................................................................................................................................................... 31
1. Executive summary

Families’ daily lives are heavily influenced by digital media. At the same time, concerns are growing about their effects on the physical, socioemotional, and cognitive development of children between the ages of 0 to 3. As a result of the limits on physical interaction necessitated by the covid pandemic, even kindergarten pupils have increased their exposure to digital media (DJI-Studie, see Feil, 2014). Although the research to date about digital media and children 3 and under is still patchy and sometimes inconsistent, it is nonetheless clear that the overall development of children is imperiled by the ever-increasing consumption of inappropriate and problematic digital media. As ever, the healthy development of children is crucially dependent on direct contact with sensitive, physically present people, and on engagement with the real world with all senses.

For parents, digital media are not only helpful tools on the job, but when used in a careful and targeted way represent a resource for dealing with the requirements and stresses of family life. There are, however, two areas of risk in this context: first, so-called technoference, or parental distraction caused by digital media, which can have a negative effect on the parent-child relationship; and second, the use of digital media for a variety of purposes in childrearing, such as digital babysitting or as a punishment or reward. Such uses may bring about short-term relief, but they do not contribute to emotional maturation or psychosocial development in the long term (Chaudron, 2015).

Habits of media use are established in early childhood and are very hard to change later on. Parents-to-be and parents of children between 0 and 3 should be made aware early about the effects of social media use in this age group. That means, in prenatal classes, play groups, daycare centers, nursery schools, and other similar contexts. Introducing new material into already existing contexts is more promising (Frieden, 2010) than trying to change the behavior and attitudes of individuals.

For this reason GAIMH strongly recommends that this issue be brought to the public’s attention. This is not meant as criticism of parents, but rather as a way of informing them of the various effects that digital media may be having on the development of their children, and to alert them to alternatives and resources to make everyday life less dependent on media. This would be greatly facilitated by professional guidance for parents-to-be and parents of young children. Self-reflection and change may result from developing relationships of trust between parents, children, and professionals.

All professionals involved in guidance, counseling, and therapy in the area of early childhood development should therefore reflect on this issue in all phases of training and education (basic and continuing). Creating a personal media diary and reflecting on one’s own use of digital media, both in one’s professional and private life, is a good place to start.

Current findings on the effects of the use of digital media on children between 0 and 3, and on their parents is rather thin. As a result, further studies on the effects of direct (foreground) and indirect (background) usage of digital media are necessary, as are intervention studies that examine and compare the various support and counseling methods in terms of their efficacy.

At the political level, advertising of products whose stated positive effects on development have not been confirmed in rigorous scientific studies should be banned from social media.
2. Introduction

As an association that promotes overall mental health in early childhood, our purpose in presenting this position paper is to contribute to a critical examination of the usage of digital media. Our particular concern is the direct (foreground) use of digital media by children ages 0 to 3, and their indirect exposure when parents and siblings are engaged in the use of digital media. As an interdisciplinary professional association, our target audience is all professionals, specialists, and decision-makers who deal with early childhood, beginning at conception and continuing throughout pregnancy.

Digital media, including Tablet PCs and smartphones, have become basic devices in almost all homes and are used by almost all adults. In 2019, 93% of all children in Germany and 99% of all households had a smartphone; 96% of all households had a television, and 63% a tablet PC (Feierabend et al., 2020). The situation in Austria (Saferinternet.at, 2020) and Switzerland (Waller et al., 2019) is comparable. Studies have shown that even children below the age of 4 come in contact with digital media (Feierabend, Plankenhorn & Rathgeb, 2015). Because the use of Tablet PCs and smartphones is intuitive, even children below the age of 3 are able to perform simple fine-motor activities such as swiping and unlocking these devices (Ahearne et al., 2015). Although there are at present no representative data on the younger age group from 0 to 3, study findings do show that in younger children, the receptive use of digital media (video, film) is more prevalent than interactive use (apps, computer games), whereas the situation is reversed in older children.

The digital penetration of all phases of life has meant that it has become simple for adults and children to operate smartphones and Tablet PCs. As a result of pandemic-related limits, the amount of screen time spent by nursery school children has increased (DJI-Studie, see Feil, 2014; Saferinternet.at, 2020; Bernath, Waller & Meidert, 2020). This is especially true for disadvantaged social groups. Social service organizations report an increase in problematic development in children between the ages of 0 and 3. To what extent digital media play a role in this development will be the subject of future research.

Working from a home office is another recent innovation whose effects have yet to be studied.

The fact that digital media have pervaded all aspects of family life presents parents, but also professionals, with new situations and questions – and not just since the pandemic – regarding appropriate ways to handle them: How much time should children spend using digital media, and what effects does that have on their development? How do parents and professionals approach these media, and why and how do they and their children use them? How are relationships and the development of attachment between parents and children from 0 to 3 affected? What strategies are effective over the long-term to limit digital media use such that it does not disturb development? And what role should professionals play so they may assist parents?

The debate over digitalization and the pervasiveness of digital media in private and social life oscillates between euphoria over new heretofore unexpected possibilities, especially in the area of education, and fears that even extend to cultural and civilizational pessimism. The development of new cultural technologies, whether the invention of the alphabet, the printed book, television, or today’s digital media, has always presented humanity with new sets of issues with which to grapple.
This position paper examines the questions above from a transdisciplinary, critical perspective. It presents the findings of current research from a number of disciplines, including research on the effects of media, developmental psychology, attachment, and neuropsychology, along with the experience and knowledge of practitioners from the GAIMH gained over many years. Where possible, potential research- and experience-based approaches are formulated, along with recommendations for their implementation in practice. Our focus concentrates on the period from the beginning of pregnancy to the third year of life. When necessary, we will also consider older age groups. Given the dependence of children on their parents, their behavior will also be examined.

The overview of the research on the effects of the use of digital media on child development comprises studies of normally developed children. It would go beyond the scope of this paper to report on studies of the use of digital media with handicapped or disabled children.
3. Media devices and exposure

In order to adequately judge the research findings on the effects of digital media use, it is necessary to provide some information about the media devices and exposure common in German-speaking countries:

In Germany, the Medienpädagogische Forschungsverbund Südwest (MPFS) [Southwest Media Educational Research Association] conducts regular representative studies on child and adolescent media use. The miniKIM study concentrates on 2- to 5-year-olds, the KIM study on 6- to 13-year-olds, and the JIM study on adolescents between the ages of 12 and 19. In 2020, the miniKIM study interviewed 623 parents about the media use of their 2- to 5-year-olds (Kieninger et al., 2021). In that study, almost all households had at least one television, one computer, and one mobile phone or smartphone. Although 2- to 3-year-old children have a range of devices that is of manageable size, the number increases with age, and the number of devices that even 2- to 3-year-olds have access to has increased considerably since 2014. For example, child computers from 3% to 15%, Tablet PCs from 2% to 10%, and televisions from 2% to 11%. Over the same time period, total daily screen time increased to 68 minutes in 2020, almost doubling from 2014, although this should not be overinterpreted because the increase can partially be ascribed to the pandemic. Table I presents media device rates by age group.

These rates of device ownership are also reflected in the use of digital media: according to parents, digital games played on a PC, console, mobile phone, smartphone, or tablet took up a mere 2 minutes per day in the 2- to 3-year-olds, and 9 minutes in the 4- to 5-year-olds. On the other hand, 2- to 3-year-olds spent 57 minutes per day, while 4-5-year-olds spent 80 minutes daily viewing videos. Only a few in the younger age group played digital games. Books are the leading medium used by 2- to 5-year-olds; however, moving images are the leading digital media, which includes television (16 minutes), paid streaming services (16 minutes), free video portals (12 minutes), and online television programming (13 minutes), all of which can be accessed from smaller devices such as tablet PCs and smartphones. Looking at the older children, starting at the age of 5, it is evident that almost all children look at television daily or at least once or several times a week, thus, more frequently than they play outside or hang out with friends, even though, when asked, they say that they favor the latter two activities over television (in third place). In addition, mobile phones, digital games, and Internet use are firmly anchored in leisure activities. Smartphones and the Internet are in daily use among adolescents. Most take streaming music, viewing online videos, regular broadcast television, and video streaming services for granted (Feierabend et al., 2020, Spitzer 2021).

Table 1
Comparison of devices possessed by children and adolescents

<table>
<thead>
<tr>
<th></th>
<th>miniKIM 2020</th>
<th>KIM 2020</th>
<th>JIM 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-3 years</td>
<td>4-5 years</td>
<td>6-13 years</td>
</tr>
<tr>
<td>CD-/MP3-/…player</td>
<td>13%</td>
<td>20%</td>
<td>38%</td>
</tr>
<tr>
<td>Game console</td>
<td>1%</td>
<td>8%</td>
<td>41%</td>
</tr>
<tr>
<td>Child computer</td>
<td>15%</td>
<td>23%</td>
<td>14%</td>
</tr>
<tr>
<td>Mobile phone/smartphone</td>
<td>3%</td>
<td>5%</td>
<td>50%</td>
</tr>
<tr>
<td>Computer/laptop</td>
<td>n.a.</td>
<td>n.a.</td>
<td>18%</td>
</tr>
<tr>
<td>Television set</td>
<td>11%</td>
<td>16%</td>
<td>34%</td>
</tr>
<tr>
<td>Tablet PC</td>
<td>10%</td>
<td>18%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Comments:
miniKIM study conducted in 2020, N = 600 (Feierabend et al., 2015);
KIM study conducted in 2020, N = 1,216 (Feierabend et al., 2021);
JIM study conducted in 2020, N = 1,002 (Feierabend et al., 2020).

Despite methodological differences, the figures for media devices and exposure are comparable to representative studies from Switzerland – at least for children starting from the age of 4. In Switzerland, the ADELE+ study looks at children between the ages of 4 and 6, the MIKE study from 6 to 13, and the JAMES study at adolescents from 12 to 19. There have to date been no representative studies in
Switzerland for children between 0 and 3. Figures for device access in the nursery as well as device possession across the various age groups are shown in Table 2. With regard to media exposure of 4 to 6-year-old children the ADELE+ study reports that watching television is the most important screen time activity for this age group, followed at a considerable distance by video games, tablets, and mobile phones. Average screen time was about 56 minutes per day (Bernath, Waller et al., 2020).

Representative studies about media devices and exposure of children and adolescents are conducted regularly in Germany and Switzerland. However, for the age group of 0 to 3 years, the studies are either outdated (Feierabend, Plankenhorn & Rathgeb, 2015) or nonexistent (Switzerland). The available figures from Germany and Switzerland are comparable, but of considerably shorter duration than in several other European countries (De Craemer et al., 2015).


Table 2
Device access in the nursery (ADELE+), and device access by children and adults (MIKE & JAMES)

<table>
<thead>
<tr>
<th></th>
<th>ADELE+ 2018</th>
<th>MIKE 2019</th>
<th>JAMES 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-6 years</td>
<td>6-13 years</td>
<td>12-19 years</td>
</tr>
<tr>
<td>Music player (CD/cassette)</td>
<td>52%</td>
<td>56%</td>
<td>n.a.</td>
</tr>
<tr>
<td>Game consul (desktop or portable)</td>
<td>2%</td>
<td>27%</td>
<td>39%/37%</td>
</tr>
<tr>
<td>Child computer</td>
<td>10%</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Mobile phone/smartphone</td>
<td>1%</td>
<td>47%</td>
<td>99%</td>
</tr>
<tr>
<td>Computer/laptop</td>
<td>0</td>
<td>14%</td>
<td>73%</td>
</tr>
<tr>
<td>Television</td>
<td>1%</td>
<td>n.a.</td>
<td>26%</td>
</tr>
<tr>
<td>Tablet PC</td>
<td>2%</td>
<td>2%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Comments:
ADELE+: survey in 2018, N = 919 (Bernath, Waller et al., 2020);
MIKE study: survey in 2019, N = 1.103 (Waller et al., 2020);
JAMES study: survey in 2018, N = 1.174 (Suter et al., 2018).
4. Developmental needs and tasks

During the first three years of life, infants and toddlers are especially attuned to sensitive interaction with their attachment figures, which is how they develop socioemotional, cognitive, and physical skills. We will now describe briefly several of the most important processes in order to create a basis for categorizing the findings on digital screen time.

Even when born at term, infants are immature and therefore dependent on support, protection, nurturing, and regulation from outside to compensate for their as yet underdeveloped ability to self-regulate. From birth, infants are primed for social interaction, and they turn their attention preferentially to human faces and voices. Their parents, for their part, have a universal biologically anchored intuitive capacity for communication with their baby, which makes it possible for them to understand their baby’s signals and make themselves understood (“intuitive parenting”). However, this ability varies greatly in form. The baby experiences a flood of sensory impressions as well as emotions and tensions that continually threaten to overwhelm her. Parents who are attentive and attuned can help their baby deal with these experiences, and over time these repeated interactions help the baby to self-regulate.

This sensitive parental attention and attitude is also described by the terms containment and mentalization – in other words, the attachment figure’s ability to support (contain) and give meaning to (mentalize) a baby’s experience by their physical and emotional presence. For example, if the baby is very tense or overwhelmed by emotions, the attachment figure can cushion or absorb the baby’s or small child’s emotions, contain them, and make them understandable. Depending on the situation, the baby’s tension may be regulated by feeding, cradling, carrying around, or by placing her in the crib. The intolerable emotional state can then dissipate until, eventually, the baby has been calmed and feels well again. These repeated experiences of co-regulation are internalized and eventuate in the ability to self-regulate.

An attachment figure’s sensitivity and the skill in containing and mentalizing play an important role in the development of a child’s attachment during the first years of life. Children who are able to turn to an emotionally available attachment figure overwhelmingly develop a secure attachment. It has been shown that a secure attachment is essential for the healthy physical and psychological development of children (Grossmann, Grossmann & Waters, 2006). Securely attached children have an easier time later on in processing emotionally stressful situations, and they demonstrate greater cognitive abilities as well (Weinfield et al., 2008). Secure attachment to an attachment figure differs from various types of insecure attachment, such as avoidant or ambivalent attachments (Ainsworth et al., 1978). Aside from these so-called “organized” attachment structures, there is also a type of attachment that is characterized in children by disorganized behavior in stressful situations (Main & Solomon, 1990). Disorganized attachment is associated with adverse child development.

Mentalization implies the ability to imagine the desires, intentions, emotions, and thoughts of others while nonetheless remaining conscious of one’s own needs. It is important, for example, for parents to empathize with their infant’s inner world. A parent can then interpret their baby’s signals as expressing her inner needs, which can then be responded to appropriately. This ongoing responsive mirroring and reflection of the child’s emotions and thoughts help her to understand her own emotions and to regulate them (Sharp & Fonagy, 2008; Meins et al., 2001).

By parental sensitivity, we mean the reliable perception and prompt and adequate response to the child’s signals (Ainsworth et al., 1978; De Wolff & IJzendoorn, 1997; Verhage et al., 2016).
In addition, **emotional availability** describes not only the parents’ sensitivity, but also the structure, continuity, and lack of obtrusiveness and rancor in their own relationship. It also implies a readiness to be engaged by their child (Biringen, 2008). An attachment figure’s skill consists in meeting the child’s ever-growing abilities, and to integrate these into their own parental behavior. Of course, interactions between attachment figure and child may founder on the misunderstanding and misinterpretation of the child’s signals. But what is crucial is whether the adult in the situation is able to recognize these miscommunications, respond sensitively, and bring the interaction back into flow. In addition to calming the fallout from misunderstandings, this patient, curious, and forgiving attitude contributes to the development of secure attachment. Miscommunications that remain unresolved are stressful for the child over time.

The sense of security and safety in the relationship with an attachment figure is also important for **playing and learning**. Thus, a child who feels secure in familiar surroundings and situations, or in the presence of attachment figures are more likely to explore their world, play, and gather fresh experience. In stress situations, which include long-term emotional stress, the child will cease to explore and seek contact and closeness to her attachment figure until inner equilibrium is restored.

Development is a complex matter in which existing and newly acquired skills influence each other. Thus, for example, **motor skills foster cognitive advances**, which in turn challenge those motor skills. Grasping opens up a multitude of possibilities for exploring objects, and an environment is reexperienced while standing, a position that further stimulates cognitive advances. Coarse and fine motor skills make it possible to intervene in and understand the environment, explore objects, and experiment with them. Babies discover the relationship between their own behavior and its consequences quite early – for example, the sounds they make by shaking a rattle – and in this way they experience their self-efficacy. This feeling of mastery encourages further exploration.

In stimulating settings, a child will initiate her own early educational processes. The experience of self-efficacy engendered by solving problems when confronting the world plays an important role in acquiring understanding and awareness.
5. Recent research and research gaps with regard to children’s developmental needs from GAIMH’s perspective

5.1 Effects of children’s use of media

In the following, we will examine the current state of the research with regard to the connection between direct screen time by children (“foreground”) and early child development. We will focus on relevant studies from 2007 on, because January 9, 2007 was when Apple’s iPhone was launched, which represented a revolution in digital media (Block, 2007). The results will be discussed from six perspectives.

5.1.1 Socioemotional competences and well-being

Studies dealing with the relationship between media use and socioemotional competences or well-being have been relatively rare in comparison to other developmental parameters, and the findings vary. Studies to date report on the relationship between screen time and less social competence; more aggression among peers; increased relational, but not physical, aggression; as well as more frequent emotional and externalizing problems, and decreased self-control (e.g., Hinkley et al., 2018; Ostrov, Gentile & Mullins, 2013; Pagani, Fitzpatrick & Barnett, 2013; Corkin et al., 2021; Twenge & Campell, 2018).

Other authors have found no significant connection between screen time and externalizing behavior, resilience and curiosity, or problems with peers or self-efficacy (e.g. Hinkley et al., 2014; Przybylski & Weinstein, 2019; Tansriratanawong et al., 2017).

The BLIKK study (Children and adolescents and the use of electronic media) found, among other things, that 50% of 2- to 5-year-old children extended their allotted screen time which, according to the parents, led to hyperactive behavior (Riedel, Büsching & Brand, 2016).

The GAIMH perspective

| Over the course of the first years of life, intense and rapidly changing emotional states occur frequently, which are absorbed, smoothed out, and made tolerable for the child by the empathic care provided by attachment figures. These primary experiences contribute to the child’s increasing ability to self-regulate and to respond empathically to others in her environment. If this outside regulating care is lacking (Tronick et al., 1978) or interrupted (see 5.2.1 Technoference), the child will remain stressed, which may be manifested by agitation, negative affect, or withdrawal, but which are often not recognized as such (Fraiberg, 2003). Frequent repetition of this state of affairs can result in an insecure attachment relationship (Madigan et.al., 2006), which can negatively affect development as a whole. |
5.1.2 Cognitive, motor, and language skills

The connections between the use of digital media and various indicators of cognitive and motor development also vary. Cross-sectional or experimental studies with low sample sizes show positive correlations, while none of the epidemiological studies do.

Negative correlations were found in studies of overall IQ, general cognitive development, motor, language, and mathematical skills, as well as executive functions (e.g., Aishworiya et al., 2019; Madigan et al., 2019; van den Heuvel et al., 2019).

No significant correlations were found by Antrilli & Wang, 2018; Neuman et al., 2014; Taylor, Monaghan & Westermann, 2018. These studies also tested reading and visual-motor skills.

Positive correlations were found between interactive media use and language, cognition, and fine motor skills by Nobre et al., 2019. However, there are no comparative studies with children.

In an experimental study, children between the ages of 23.5 and 27.5 months were able to learn new words with the help of videos in the absence of human interaction, without any evidence of long-term developmental effects (Kirkorian et al., 2016).

By contrast, other experimental studies showed that children between the ages of 24 and 35 months can learn new words not only by direct interaction, but also comparably well by mediated synchronous interaction (i.e., by live chat). Learning was considerably worse when the child only viewed the video (Roseberry et al., 2009; Roseberry, Hirsh-Pasek & Golinkoff, 2014).

This would indicate that verbal interactions during the use of electronic media (e.g., co-viewing) somewhat decreases their negative effects on language development. They are not, however, better than the sole direct interaction with attachment figures (Mendelsohn et al., 2010).

Somewhat better fine motor skills were found in children between the ages of 24 and 42 months who regularly use a tablet, whereby approximately 80% of the children did so with one of their parents (Souto et al., 2019). It seems obvious that this support and guidance has a positive effect.

In comparison to reading printed books, reading ebooks was associated with less verbal communication and less collaboration between parents and small children (Munzer et al., 2019).

The GAIMH perspective

As receptive media, electronic media primarily engage two sense organs, the eyes and ears, and as interactive media, involving swiping and clicking, the sense of touch, and, minimally, fine motor skills limited to a two-dimensional surface (Koch, Herbert & Bleckmann, 2017). Three- and multidimensional engagement and experience with actual objects gets shrunk to two dimensions, even when the images move. “Learning content” is pre-structured by the program so that self-initiated, self-guided, creative exploration and experience engaging all the senses is largely precluded. When an attachment figure is present, use is somewhat enlivened. However, it never achieves the effects of self-initiated learning in terms of emotional resonance that contributes to the integration of what has been learned. The use of digital media cannot open up this world of experience.

Live interaction with attachment figures and the possibility of exploring the environment are essential and sufficient for overall development. Equitable educational
opportunities are consistently presented as grounds for the use of digital media during the first years of life, especially in daycare centers and nursery schools. What fails to be considered is that secure attachment to an attachment figure supports play and exploration and makes early forms of learning possible.

5.1.3 Overweight and fitness, eye development

There have been relatively many studies with consistent results on the relationship between TV time and overweight. There are many indications that increased screen time along with an unhealthy diet and decreased movement is associated with an increased risk of overweight and decreased fitness (e.g., Fitzpatrick, Pagani & Barnett, 2012; Padmapriya et al., 2019; Sisson et al., 2012). There have as yet been no studies of children below the age of 3 examining what affects persistent focus on a video screen have on the development of shortsightedness (Lagrèze, 2021; Wang, 2020; Wong et al., 2021), although WHO has issued a recommendation. According to WHO, 3- to 4-year-old children should spend three hours moving about, if possible outside in order to benefit from the positive effects of daylight, and spend at most one hour sitting in front of a screen, and sleep 10 to 13 hours.

The GAIMH perspective

Screen time is often associated with snacking so that the healthful breaks between meals are not maintained. When associated with a lack of movement, the result can be overweight, which itself decreases the fun of movement. The fear that focusing on a video screen negatively affects the development of the eye and leads to shortsightedness has not been confirmed in older children, and has yet to be studied in children below the age of 3.

5.1.4 Sleep behavior

A recent review (Janssen et al., 2020), looked, among other things, at the connection between daytime and evening screen time and various sleep indices in children below the age of 5. The results vary. Some studies showed that screen time, especially with smartphones and tablets, is associated with decreased sleep quality in infants (0 to 1 years), youngest children (1 to 2 years), and small children (3 to 4 years) (Twenge, Hisler & Krizan, 2019). Other studies found no or positive effects.

The GAIMH perspective

Sleep is a rhythmic event that is easily disturbed. With the support of attachment figures, increasing quantities of nourishment at mealtime, and the changes in light in the day-night rhythm, and short periods of sleep immediately after birth develop into longer sleep times. Time spent outside, whether sleeping in a baby carriage or moving about, has a positive effect on sleep. This is true for all age groups. Here too, a secure supportive relational base paves the way for healthy development. The use of digital media is stimulating, and can make it difficult to fall asleep, and decreases sleep quality. All electronic media should therefore be out of sight for at least one hour before sleep time.

5.1.5 Play and imagination
There are as yet no findings of associations between “foreground” screen time and play and imagination for this particular age group. However there are studies that have examined the connection between “background” screen time and play. Experimental studies have shown that “background” screen time is associated negatively with the duration of time children play (Evans Schmidt et al., 2008), as well as children’s attention span during play (Courage et al., 2010; Evans Schmidt et al., 2008).

The GAIMH perspective

| Playing is an elementary requirement for exploring the world with all senses. A child can engage with her surroundings in a secure relational space that gives feedback (Papousek, 2001). Parents often don’t know how diverse and stimulating, in other words how conducive to development, daily life can be from the perspective of the child if she is allowed to participate or follow her curiosity in safety. Many parents feel pressured trying to figure out how to play with their child. Given this sense of insecurity on the part of the parents, they sometimes fill the gap with commercially available playthings, some of which claim to foster development. But they are rarely able to initiate play in the sense discussed above. As a result, it is a good idea to observe and instruct parents and children participating in a playgroup or during home visits or other types of contact. |

5.1.6 Reward system, addictive behavior, Internet addiction

There have to date been no studies for the 0 to 3 age group. However, Evers-Wölk & Opielka (2019) produced a general overview for all age groups.

The GAIMH perspective

| Both parents and professionals worry about the development of addiction and the increase in the risk of addiction as a result of early contact with digital media. The best protection is a secure attachment and an environment that protects and stimulates the maturation of our extremely complex brain. Emotional centers dominate during the first years of life, and require coregulation by an attachment figure. The structuring functions of the cerebrum, especially of the frontal lobe, are also developed with the help of such co-regulation, with the goal of achieving self-regulation, impulse control, action planning, tolerance for frustration, and perseverance. The reward system plays a dominant role in this process. On the one hand, it is a drive, but it can also pave the way for addiction by way of instant gratification. Digital media are conducive to such an outcome and are often used as a quick reward. The experience that life continues even without rewards should be a given for parents and children based on everyday experience, and its acknowledgment is a critical prerequisite for the demands of daily life, school, professional training, and academic study. |
5.2 Effects of parental media use

5.2.1 Technoference, background media exposure, and home office

Parental media use and the effects on child development that result from it is a new field of research, which during the pandemic included media use in the home office.

The fundamental problem with digital technologies is that they tend to demand complete attention, which is then withdrawn from the child (Waldenfels, 2016; Dwyer, Kusklev & Dunn, 2018; Misra et al., 2016; Przybylski & Weinstein, 2019). This state is known as **absent presence** (Gergen, 2002). Even a television running in the background leads to less attentive behavior on the part of adult attachment figures, and to less verbal and nonverbal communication between attachment figure and child (Kirkorian et al., 2009; Christakis et al., 2018). The infinite possibilities have a strong attractive effect, a phenomenon also called **immersion** or **absorption**. This can lead to longer periods in which a parent is either completely or partially inaccessible to the child.

In our modern society, parent-child interaction is often interrupted by mobile phones. This technological interruption is known as **Technoference** (McDaniel & Coyne, 2016a). McDaniel (2020) provides a comprehensive overview of technoference, with more than a dozen individual studies and interventional recommendations derived from them. Even when mobile technologies are merely visible, the quality of face-to-face interaction can be negatively affected (**mere presence effect**).

However, it is as yet unclear whether a decrease in parental sensitivity and responsiveness resulting from smartphone use in the presence of children is a transient or more permanent effect. Children experience all of these phenomena in the home office: absent presence, absorption, technoference, and the **mere presence effect**. In a recent review (Braune-Krickau et al., 2021), the authors came to the conclusion that absorption has a stronger effect on parental sensitivity and responsiveness then do brief interruptions of interaction (technoference). On the other hand, in a longitudinal study, high levels of technoference correlated with reports by parents about their own compulsive or problematic media use, and their children exhibited externalizing behavior more frequently as they developed (McDaniel & Radesky, 2018b; Reed, Hirsh-Pasek & Golinkoff, 2017; Alvarez Gutierrez & Ventura, 2021).

**Other study results:**

The use of smartphones by mothers was associated with less eye contact and less verbal and nonverbal communication with their child (Radesky et al., 2015). Even when nursing or bottle feeding, mothers spoke less often with their baby when they were distracted by digital media (Ventura, Levy & Sheeper, 2019). In a still-face experiment involving a mother or father, a phase of rigid facial expression was replaced with a phase of interaction with the smartphone, during which the parent was not allowed to respond to their baby (Myruski et al., 2018; Stockdale et al., 2020). During the smartphone phase, the children initiated less contact and showed fewer positive affects and more negative ones. Behavior during the reunion phase was less “demanding,” possibly because of earlier frustration when resuming contact with a parent who was focused on their smartphone. When mothers used their smartphone more intensively, their children exhibited fewer positive affects during the still-face phase, and a more difficult reunion (Myruski et al.,
Parents who used their smartphone during parent-child interactions were assessed as being less sensitive, and they responded verbally and nonverbally less often to their children’s signals for attention. According to the “displacement” hypothesis, time spent with technology or media displaces or decreases “quality time,” that is, a parent-child relationship with conscious engagement (Coyne et al., 2014). This can lead to a decrease in the quality of the parent-child interaction (Kildare & Middlemiss, 2017).

There are associations between more intensive parental smartphone use and problematic behavior and sleep and eating disorders in children (McDaniel & Radesky, 2018a; Riedel, Büsching & Brand, 2016).

An observational study at a playground showed that lengthier use of smartphones by parents is associated with less parental sensitivity (Wolfers et al., 2019).

Even when sensitivity is stable, it can be affected to a considerable degree by external or situational factors (Lindhiem, Bernard & Dozier, 2010; Nievar, Van Egeren & Pollard, 2010). When this happens, a child’s signals may be partially or completely blocked out such that parents respond to them only in part or not at all.

**The GAIMH perspective**

As previously described, a vibrant interaction with attachment figures is the basis for the complex development of a child. A high level of distraction constantly leads to interruptions in the interaction, and these interruptions, which the child finds surprising and often inappropriate, leave her irritated and alone.

The switch to working at home during the pandemic while caring for children was a completely new experience for many parents. The demands of caring for young children often interfered with the concentration necessary to fulfill their professional obligations. This conflict was only exacerbated by close quarters and the lack of opportunities to unwind (Bujard et al., 2020). The withdrawal of attention by the attachment figure in the absence of a clear reason why triggers agitation and, in the end, resignation in babies (Fraiberg, 2003). It is not yet clear what sorts of long-term consequences for attachment quality and emotional and physical health this will have in children, and it will require further study. Guidance for how to juggle the demands of a home office while caring for a baby or small child is urgently needed.

**5.2.2 Functions of media use**

The use of digital media must be observed in a nonjudgmental and nuanced manner, even when it is obviously dysfunctional. From the perspective of the parents of young children, the smartphone, for example, has important functions (McDaniel, 2020; Galovan & Drouin, 2020):

- 58% of parents cited stress relief in crisis situations
- 65% reminder of their child’s positive characteristics
- 65% reminder of the positive aspects of being a parent
- 75% seeking strategies for more effective parenting
- 79% seeking ideas for interacting with their child
Parents also seek ways in which to satisfy their own specific needs, such as maintaining social
contacts or contacting support persons in crisis situations. There are a number of counseling
models for dysfunctional media use, such as the obsessive use of social media (Olson et al., 2021;
Brevers & Turel, 2019); however, there are as yet none aimed at younger parents specifically.
Such counseling might model itself on those addressing digital addictions (Bleckmann & Mößle,
2014). From the perspective of child protection it is important to find appropriate stabilizing supports for parents whose use of digital media is
dysfunctional.

The GAIMH perspective

Parents, like all persons, seek confidants, recognition for accomplishments, belonging, and
autonomy. These needs compete with the primary needs of babies and small children. This
raises the question what actual approaches may be developed and strengthened to satisfy these
basic needs. Just how much parents are dependent on a supportive community is expressed in
the Nigerian proverb “It takes a whole village to raise a child.” Parents in small families, and
especially single parents, are often overwhelmed, feel insecure and lonely, and seek to
maintain their equilibrium by making contact, getting information, and relaxing. The
smartphone and other digital media are always close at hand and function well as stress
regulators. However, it should be noted that the disengagement from connection is often so
abrupt, and for the child so inexplicable, that she may experience irritation and be left to deal
with her distress by herself. The use of digital media by parents, as justifiable as it may be,
should be clearly separated from caregiving and other interactions with the child. Of course,
not everything can be accomplished while the child is asleep, especially at the beginning when
sleep is so irregular. Nonetheless, the child should be informed, and withdrawal should occur at
an appropriate time and kept as short as possible, perhaps using a timer. Generally, children
have gotten use to other daily interruptions, such as when parents bathe, cook, or prepare
meals.

In summary, when parents are constantly distracted by digital media, their attention, eye
contact, language, and overall interaction are interrupted. Emotional withdrawal, even though
the attachment figure is physically present, is confusing and stressful. Too often, the child’s
crying and agitation is calmed – but not resolved – using a smartphone, creating a vicious cycle
of which the parents are often not aware. An app that shows the frequency and duration of
smartphone use may prove useful.

5.2.3 Constant digital monitoring and the violation of privacy

Other, less studied forms of digital media use in families with small children include digital
monitoring, such as by baby phones with built-in cameras or GPS trackers. “Sharenting” denotes
the spread of child photos or videos by parents over social networks. This may violate the privacy
rights of the children or their rights to their own images (Fankhauser & Fischer, 2017).

The GAIMH perspective

One legal aspect involves privacy protections. We must assume at all times that data are being
collected constantly, and that their commercial exploitation is very probable. Astonishingly,
however, many users are unaware that the private sphere is being opened up, or they simply
take it for granted. Parents should be made aware of this intrusion, and appropriate measures
discussed with them.
5.3 Intervention studies

The efficacy of interventions for screen time reduction is examined in three articles that substantiate the reduction effects (DeMattia, Lemont & Meurer, 2006; Maniccia et al., 2011; Schmidt et al., 2012). In a fourth review article, no reduction effects were found, despite some individual effective interventions (Wahi et al., 2011). These review articles all looked at the amount of time spent with electronic media. Two questions are of interest: first, what kinds of targeted interventions may reduce the use of media contents that are harmful to development? Second, can dysfunctional usage patterns that may be viewed as early signs of addiction be modified by specific interventions? Unfortunately, there is very little data regarding these questions. A recent review article of intervention studies in 2- to 14-year-old children concluded that a reduction in screen time was associated with an increase in the duration of sleep and earlier bedtimes, particularly on weekends (Martin, Bednarz & Aromataris, 2020).

Mößle (2012) reported that, especially for younger children, time displacement goes a long way toward explaining the small but significant negative effects of electronic media consumption on development. Electronic media, which in comparison to direct interaction with others or the environment engage fewer senses (Koch, Herbert & Bleckmann, 2017), displace the time spent on other activities that are more conducive to development.

5.4 Summary of the current research and outlook

For a number of reasons, the findings of previous research must be interpreted with care. First of all, we must recognize that almost no reliable data from longitudinal studies is available on the use of electronic media by children between the ages of 0 and 3, primarily because this is such a recent phenomenon. In particular, there are too few longitudinal studies that cover more than two measurement points, and which measure the central aspects of child development at each measurement point, and integrate them into the analysis.

Current findings are fragmentary and contradictory. This heterogeneity may be traced to a combination of content and methodological characteristics of the studies that have been conducted. For one thing, the concept of digital media is very broad. More recent studies consider only the use of modern, mobile devices, while others include television consumption. Then again, the methods used and the study designs differ greatly, including cross-sectional and longitudinal studies, experimental and field studies, telephone surveys and behavior observations, all with larger or smaller samples. In addition, the studies have been conducted in various parts of the world so that cultural aspects must be taken into account.

In research on the effects of media, experimental studies are viewed as the weakest category because the lab setting is not as similar to everyday realities. In addition, the interests of sponsors in their media products may influence the experiment. In his longitudinal study conducted in Berlin, Thomas Mößle came to the following sobering conclusion: bought for learning, used for gaming.

We recommend that the collection of data on electronic media use and exposure in the family during early childhood be standardized for future research. The recommendations made by the CAFE consortium (Comprehensive Approach of Family Media Exposure; Barr et al., 2020), and the previous, somewhat differently formulated recommendations by Bleckmann und Mößle (2014), suggest that data collection ask more nuanced questions:
1. What usage times are we seeing?
2. For how long are the time intervals of digital media use uninterrupted?
3. What contents are being accessed?
4. What functions or goals are involved in use? These also include dysfunctional mood regulation, babysitting, the replacement or displacement of real social contacts.
5. Is the exposure foreground or background, or technoference?

The experience gained in several decades of (child-) media effects research (Mößle, 2012) may be summarized in a few simple principles:

The opportunities and risks depend:
1. On the age of the user: the younger the worse.
2. On the duration of use: the longer the worse.
3. On day-to-day versus laboratory setting: the effect in day-to-day use is less desirable than what may be presumed based on experimental studies.
4. On the time period between data collection and consequences: short-term better, long-term worse.
5. On help with processing: unsupervised use by children is worse.

Digital media are present in daily life and present families and researchers with both challenges and opportunities. The effects on children from the pregnancy to the third year of life have not been well researched. This gap should be closed by high-quality studies.

5.5 Summary of the GAIMH perspective

The studies presented here demonstrate negative effects on physical, socioemotional, and cognitive development in early childhood when the child interacts directly with digital media. This results in a loss in the intensity of experience as a result of a disequilibrium between visual, auditory, and touch perception, and of multisensory perception. Sensory-motor integration, which in turn propels brain maturation, is slighted. Long-term positive effects on normally developed children have not been demonstrated in any of the available studies. Over the course of the lengthy pandemic, screen time has expanded in families so that even children between the ages of 0 and 3 are indirectly and directly affected. For professionals, digital media provide a good way to maintain contact with families. Guiding families back toward a more sensible use of these media is an urgent task if negative consequences are to be avoided.

Because digital media have become firmly anchored in everyday life, and many types of professionals deal with parents and children from 0 to 3, and may themselves have grown up with digital media, we are not questioning their primary use per se. One’s own use should be examined critically before seeing parents in a professional setting. New self-awareness may be experienced as irritation, restriction, and control, and even elicit resistance and rejection. This process of confrontation and reflection mirrors that experienced by parents during consultation and therapy. They may also react with irritation and feel restricted and controlled.

It is not easy to raise this controversial topic successfully in professional circles, much less to open the discussion up with parents. Your wealth of experience, your sensitivity, and nuance will stand you in good stead. There is unanimity that screen time should be curtailed, and that this is a difficult task. Media competence, that is, the ability to goal-center digital media use, but also to forgo it and to evaluate media contents critically, should be skills that parents and attachment figures have or develop. The child commission in the German parliament has therefore requested a stepped approach to fostering media maturity in which the protection of small children from
negative effects is paramount. Parents should be addressed as multipliers and persons of responsibility, and given support (Kinderkommission, 2019). We recommend involving all professional groups that deal with children and parents in early childhood from pregnancy to the third year of life. It is important that they be specifically trained during all phases of training in the area of digital media use involving children and their parents (Section 9). For children with special needs, digital media have their defined place in guidance, counseling, and therapy.
6 GAIMH recommendations

6.1 For practice

All parents want the best for their children. This makes them approachable, but at the same time highly easily insulted. They may tend to take their own use of digital media and their positive experiences with them as a given, and without thinking assume the same effects in their children. And the eagerness with which children take to digital media would seem to prove their parents right. The understanding that the use of smartphones in the adult world should not be part of one’s relationship with children requires guidance in turning this understanding into practice.

One key to engaging with parents is a familiar and protected setting, as is afforded by established and reliable relationships. This includes contacts with professionals, in which interest and cooperation may be fostered. In a group, horizontal relationships and the experiences of other participants can be motivating and supportive.

A second key is a respectful attitude toward the parents, even when the use of digital media is obviously dysfunctional. This attitude requires that the topic not be raised in a confrontative manner, but rather that information be introduced sensitively in the context of current observable interaction. This should be done while at the same time guiding and encouraging parents in how to introduce play and activities into their relationship with their child. Other day-to-day situations, such as eating, sleeping, tantrums, language acquisition, may be discussed in order to find new approaches that do not involve digital media.

Playgroups, home visits, and consultations are good opportunities to observe dysfunctional foreground and background use of digital media. These observations can then be respectfully summarized in words for the parents and children to respond to. Concrete instruction, encouragement, and guidance in the resolution of daily conflicts without digital media can then be tried out on the spot. This helps parents to feel secure and supported. With the security provided by professionals, and parents’ trust in them, frustrating experiences that their child may have, which previously were squelched or avoided by media distraction, may be anticipated and resolved. The recognition that children can eat, play, and calm themselves without media may be viewed as a developmental step for both parents and child. The cooperation they experience, the competence of the child, and her self-efficacy may prove satisfying, encouraging and motivating for everyone involved.

In Germany, issues surrounding “electronic media” will for the first time be tested at 3 years during regular early diagnostic screening. Because infants and small children are already confronted with electronic media both actively and passively, our current understandings and knowledge about potential consequences should already be implemented during the first diagnostic screening at 4 to 6 weeks. At that time, questions should be asked concerning current personal and professional media consumption, and the associated level of exposure experienced by children. Questions should address quality, that is, what devices are present and where are they located, and quantity, that is, duration of exposure in what situations, for what reasons, and with what content.

For starters, concrete ideas for structuring and dosing digital media use to protect children should be considered. Encouraging media-free parent-child interactions involving play, movement, varied sensory stimuli, while encouraging parents to engage with other parents will help develop
a sense of security, self-efficacy, and competence. A respectful attitude should be maintained even in the face of obviously dysfunctional digital media use. Each contact with the parents should leave ample time for any questions about the suitability and practicability of recommendations in their daily life. This aspect of the process should be taken on by qualified medical personnel.

It is a good idea to have a questionnaire to be filled out in the waiting room. The responses can then form the basis for conversation. The following topics should be addressed:

- What digital media are present? Where are the devices located? How easy or difficult are they to access?
- In what situations do parents use smartphones, tablet PCs, computers, and televisions?
- For the child: reward/punishment, mood- and self-regulation, calming, distraction, babysitting, conflict resolution, education?
- For the parents: work equipment, communication, information, distraction, relaxation…?
- How much total time do parents and siblings spend with media: smartphone, tablet, computer, TV? How much of that is in the presence of a small child (0 to 3)?
- Are there rules for media use in the family? Are they adhered to?
- Do the parents know what their child is watching, what she is playing with? Are they present or not?
- What devices are the child permitted to use?
- How often and for how long does the child play with or use digital media?
- What does the child do with the digital media (contents)?
- What alternatives to digital media use can the parents imagine?
- What obstacles do the parents foresee or experience?

6.2 Toward an expansion of prevention, counseling, guidance, and therapy

Given the previous remarks and explanations, GAfMH makes the following recommendations:

- The imparting of knowledge and skills on topic of “digital media and early childhood” as an mandatory component of all aspects of training (basic and continuing) for professional groups engaged in guidance, counseling, and therapy in the early childhood years.
- Integration of a personal media history and media counseling into pregnancy care for prospective mothers and fathers, with inclusion of the recommendations in maternity policy guidelines.
- Integration of a personal media history and media counseling in the early diagnostic screening for children starting in the 4th to 6th weeks of life (in Germany, U3, and inclusion of the recommendations in the child guidelines of the Joint National Committee [G-BA]). The contents should reflect the purpose and duration of the use of digital media by the child, her background exposure, and the use of digital media by the parents.
- Strengthening preventive child protection by early assessment of parental overload with the help of information from the maternity log and observation of the current psychosocial situation.
- Recognition and financing of personal media histories and counseling as primary prevention by insurance providers and other responsible funders.
- Raising the age categorization “without age limitation” to “from 3 years onward,” as it has already been done with PEGI categorization (Pan European Game Information offers age categories for videogames in 38 European countries).
Controls on advertising of electronic media products for children between the ages of 0 to 3. Unless their use and efficacy have been scientifically researched, products should not be permitted to be labeled as promoting child development. The effects on child development should be documented in longitudinal studies against a non-digital comparison/control group.

Financing of substantial transdisciplinary research on the effects of digital media use by children and attachment figures, including the know-how gained by practitioners in the field (cf. Section 7).

Financing of intervention research on the efficacy of various preventive approaches, taking into account obstacles to access in various social milieux, and given educational levels, limited communication skills, cultural sensitivities, and parents with complex psychosocial stressors.

Expansion of information and counseling capacities for the purpose of dealing with the current pandemic-related or later post-pandemic stresses experienced by families, taking into account the increase in the consumption of digital media. This will also require rapid qualification of personnel for this work.

6.3 Basic knowledge for qualified professionals

All professionals involved in guidance, counseling, and therapy in early childhood should familiarize themselves with the issues surrounding “digital media use in families with babies and small children.”

Previous experience has shown that it is not easy to impart new knowledge. Additionally, this is an area that is highly emotionally charged, and any critical examination of it may be interpreted as insulting, personally critical, or controlling. Developing an observational, but not moralizing, attitude based on scientifically well-founded knowledge and understandings (see Sections 3-5), together with a self-reflective attitude toward one’s own use of digital media will make it easier for parents to engage. Their individual diversity, varying needs, and requirements necessitate sensitivity and flexibility. In the following, we will describe approaches to parents that are playful and not insulting. Practical tips and one’s own discovery of screen-free alternatives that promote development make it possible for parents to experience self-efficacy and competence (Section 7).

Many of the foundations for this will probably not have been discussed at all, or only fleetingly, in training as it has been conducted to date. As a result, many professionals have taken it upon themselves to acquire at least some of these foundations. In the future, the acquisition of fundamental knowledge and skills should be a mandatory part of training and study. Continuing education for professionals already working in the field should be expanded to include the following topics:

- A critical focus on one’s own media history: what media, from book to smartphone, have I used? Which do I used today? When, how often, for how long, what sorts of contents, in what situations, and for what purposes? To what extent did my parents or other attachment figures regulate or guide my usage?

- Reflection on one’s own experience with the “power of digital habits,” in order to empathize with the position parents are in. This will help parents to engage with professionals. Changing parents’ habits that might stand in the way of their child’s healthy development is a developmental process that can be started as early as during pregnancy. The goal is to structure and limit digital media use, among other things, to screen time when the child is asleep, and none when the child is awake. To avoid
technoference, engagement with digital media and disengagement from the child should occur only with an explanation.

- Awareness of the current state of research on digital media use by babies and small children: there is no evidence for the long-term positive effects of digital media in early childhood. On the other hand there is considerable evidence of negative physical, emotional, and cognitive effects. This is because it limits and disturbs the close interaction between attachment figure and child, which is the basis for the biopsychosocial development of the child and her parents.
- Awareness of the attachment figure’s digital media use. Distinguishing between background media exposure and technoference, which have varying effects in interrupting interaction, sensory overload, continuous monitoring, and violating privacy.
- Awareness of the central roles and functions that digital media, especially of smartphones and tablet PCs, which are ubiquitous and always accessible. For parents, they serve to be in contact others, as an information source, for distraction and entertainment, and to release tension. In the childcare context, they may take on the functions of babysitter. Additionally, they may free up time for other activities or just to give the parents a break, as a way to resolve disputes among siblings, and as a reward or punishment.
- Reflection on these roles and functions, especially in the tension between short-term functionality and long-term developmental harm for the child. Identification of potential obstacles to the use of alternatives to digital media use, to assist parents in their efforts.
- Awareness of and understanding for the insecurities and conflicts that arise in the transition to parenthood. Insecurity with the child and the new role, and the loneliness that is often felt after loss of professional and social engagement frequently lead to Internet use. The virtual community found there can be felt as a relief, but it can also be confusing and anxiety-provoking. Guidance from a qualified professional may make sense in this context.
- Awareness of obvious and hidden advertising and manipulative strategies regarding “early education.”
7. Putting it into practice

7.1 Introducing the topic in practical work

rarely question their effects on the development of their child. How can they be motivated? As discussed above, media are firmly anchored in our everyday lives. Because of this, parents to ask these important questions? Three exercises have been developed for baby-parent playgroups involving families of diverse origins and varying levels of education:

- In an autobiographical exercise, parents are encouraged to tell stories, which may lead them to express emotional memories and experiences with electronic and digital media, which in turn may lead to self-reflection. A more conscious use of digital media may develop from this process. Working through one’s own attitude toward personal digital media consumption, as well as a growing awareness about the effects on children, may lead them to make more considered decisions and eventual changes, with the goal of more controlled and limited use.
- The “time pie” exercise makes visible how parents fill their workdays and free time with activities, and how they divide their time. This applies to children as well. This can lead to critical and ongoing reflection about the amount of time that children should spend with digital media.
- The mindfulness exercise has parents compare the image of an apple with an actual apple, in other words, the visual perception on a screen in comparison to an actual apple that is experienced with all senses.

The first thing that is touched upon is the personal and emotional level. By talking about their experiences and thinking about their significance, parents work through their perceptions. This may lead to questions about alternatives to media usage in daily life. Parents are supported in reaching considered decisions about the purposes to which they and their children use media. This makes possible changes in day-to-day life which, in the group context, can be tested under the guidance of professionals. The exercises can be done independently, in the group or individually, and can be varied depending on the individual and their culture.

7.1.1 Alternatives to the mobile phone in children’s daily lives

Everyone involved in the area of early childhood development asks questions about the practicability of alternatives to digital media in daily life. The following suggestions are aimed at parents. They are meant as a basis for expanding the discussion during on-site therapy, guidance, and counseling.

Instructive daily routine

Children love to be included, and to do what the adults do. They learn by imitating models. Allowing them to playfully participate in everyday actions as early as possible is not only fun, but very instructive. Here are a few ideal places to do this:

With all of its often colored equipment and utensils, the kitchen offers an ideal place for play. A whisk becomes a microphone or puppet. Taking utensils out and putting them back in their drawer are satisfying activities. Cooking, with all of the preparations involved, provides
complete sensorimotor, cognitive, and sensory-emotional experiences. Setting the table and considering how many people will need a plate can lead from counting people to the abstractions of numbers and quantities.

Doing laundry can also be a multisensory activity and play. For example, colored clothespins can be made to talk, or stuck together to become dragons and dinosaurs. The various cloths feel different and have different shapes and purposes and can be put on as disguises. Even putting the clothes in the washer and taking them out of the dryer can be made into a game. And many small children like to climb into laundry baskets and push them around. All of these activities are forms of exploration.

Watering plants and taking care of animals together foster a sense of responsibility in children.

What all of these activities have in common is that they confirm the child’s self-efficacy in creating new activities, and in addition, the back-and-forth between child and attachment figure is deeply satisfying.

Daily activities

Creating a list of activities in the area increases the likelihood that they will actually be done: particular playgrounds, woods, meadows, water, farms and zoos, etc.

Daily rhythms

Children love media, which is why it makes sense to institute firm rules for their use. Making it clear why these rules are necessary will eventually help the child to accept them, and the parents to tolerate protest.

Here are three tips:

- Use an alarm to signal the end of screen time.
- Repetition: it doesn’t always have to be something new. Even in a sequence that is shown repeatedly, there may still be things to be discovered. Talking about what has been viewed can often forestall protest about the end of screen time.
- Take a critical view of your own habits: how often, and for how long, and to what end do I use electronic media?

Out of sight out of mind

Electronic media shouldn’t always be visible or audible, otherwise they will be a constant potential seduction. This is true for both children and adults. Why not drape the screen with a colorful cloth during the day?

Comforting, reward, boredom

In stressful situations, media can be comforting or be used to divert the child from undesirable behavior. However, the temptation is great to use media to calm the child. One should always try interactive approaches to resolve or contain emotionally difficult situations rather than reaching for electronic media. Difficult situations in public are particularly challenging for parents, who should try not to escalate the situation by reacting. The approach described previously can be further developed, and counseling is available for the purpose.
Boredom is part of life, and it is what makes possible the development of something new. A prepared non-screen activity can be helpful in a waiting room or car. By playing guessing and finger games or telling stories, waiting times can be turned into quality engagement and play times.

**Attachment figure instead of electronic screen**

Children need live interaction and feedback. They learn through dialogue and the sharing of experience, knowledge, and emotions. They scrutinize their attachment figures and recognize from their responses whether what they are doing is appropriate or not. By this interplay of responses, they learn to recognize and evaluate their own feelings. When an attachment figure is distracted by electronic media or is otherwise unavailable, important developmental processes may be disturbed. To understand this, parents may find it helpful to experience sudden disengagement, for example in role-playing. Children whine, defy, and cry, and as a result parents often feel pressured, especially when it occurs in public. Fatigue, hunger, and frustration can also upset a child. This is where a parent’s personal engagement and ability to contain and mentalize are the best response.
8. Break time for parents

Family life requires the constant coordination and balancing of the different needs of parents and children. Bringing up children is strenuous and requires breaks. During a structured day, children experience times in which their parents disengage from them. Experience has shown that if there is a secure attachment, frustration can lead to fresh exploration and play. From this, children eventually learn to occupy themselves independently, even in the presence of the attachment figure. The temptation is great to use electronic media as a stopgap in stressful situations. When doing this, it is important to use them consciously, ensure that the contents are suitable, and that viewing time is limited. Nonetheless, alternatives to screen time should be paramount. A few suggestions (see also “Instructive daily routine”):

- Water is very challenging. Small children can spend a lot of time at the sink with a few cups and a little water.
- Everyday utensils that children can easily handle: what’s better than plastic bowls, packaging, towels, pockets into which “treasures” can be hidden and rediscovered?
- A place to paint and draw within sight with thick colored pencils (no brushes); for older children, scissors and glue may be appropriate.
- Toys that had been seen as boring or had been neglected may make a comeback after a while.
9. Afterword

It is been our purpose to furnish you with information based on research and clinical practice that will enable you to understand the important issues surrounding “Digital media and early childhood,” and to make sensible adjustments based on it.

We will update this as new information becomes available. Please contact info@gaimh.org for more information.
10. Ongoing research projects in which GAIMH members are participants

**Children and Digital Media (KiDiM)**
Marie Meierhofer Institut für das Kind, Zürich
Dr. Fabio Sticca and Valérie Brauchli (M.Sc)
www.mmi.ch/kidim

**Smart Baby Study**
Karl-Heinz Brisch and Marion Hantinger

**REALLY THERE**
Prof. Dr. Paula Bleckmann and Prof. Dr. Eva-Maria Bitzer

**Smart Start**
Zürcher Hochschule der Angewandten Wissenschaften (ZHAW)
Prof. Dr. Agnes von Wyl, Larissa Schneebeli (M.Sc), and colleagues

**Smart Toddlers**
Zürcher Hochschule der Angewandten Wissenschaften (ZHAW)
Prof. Dr. Agnes von Wyl, Larissa Schneebeli (M.Sc), and colleagues

**SEMKI – Study of the Effects of Multitasking on the Mother-Child Interaction**
Internationale Psychoanalytische Universität Berlin
Prof. Dr. Annette Klein and Aleksandra Mikić (M.A. Psych.)


www.sos-kinderdorf.de/kinderdorf-saarbruecken/aktuelles/auch-spielen-will-gelernt-sein-43512

www.bzga.de

www.researchgate.net CAFE -Consortium

www.dak.de/dak/download/studie-mediensucht-ergebnisse-2508664.pdf