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THE IMPACT OF USE OF TECHNOLOGY

IN EARLY CHILDHOOD DEVELOPMENT

MA thesis

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Abstract

The impact of use of technology in early childhood development

In the 21st century, children are growing up surrounded by digital media. The long-term effects that early age experience with digital media technology have on children's development and learning needs to be considered. This research is questioning how different media may affect children's growth mentally, physically, socially and emotionally, identify the roles of parents and caregivers and find out learning possibilities. This research aims to answer the above questions in the context of Ethiopian children. Data was collected using online questionnaire from 154 families who have children ranging from age one to seven residing in Addis Ababa, Ethiopia. The results collected indicate that most children have access to digital media technology. The collected data shows that the children's mostly available and used devices are television and mobile phone. The purposes why the children use digital media technology tools are equivalently for entertainment as well as for learning. Less than 3% of families have responded that their children's extensive viewing of screen media resulted in eye pain. However more than 84% of children actively engage in physical activities through playing indoors and outdoors. The number of responses collected show that parents and caregivers involvement in communicating about children's media use as well as play activities is significantly high (more than 71%). The outcome of this research can be relevant for parents, caregivers, educators as well as policy makers to understand and play better roles in the children's development.

Keywords: *Ethiopian children*, *screen time, technology use, child development, social interaction, physical skills*.

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Introduction

Digital media technology is used nowadays worldwide with almost 3.2 billion people of the world's current population online (International Telecommunications Union, 2015). Although technology gives opportunities for entertainment and education, its influence on susceptible people such as the preschooler children under the process of foundational growth requires careful attention. Fourteen percent of preschoolers (aged 6 to 23 months) watches at least two hours of media per day and one third of children under 3 have a television in their bedroom (Zimmerman, Christakis, & Meltzoff, 2007a). One out of four of 3 year olds use internet daily (Bernstein & Levine, 2011) and 28% of 3 to 4 year olds now use mobile devices (Ofcom, 2014).

Children are naturally born into becoming digitally literate starting very early age, they are actively using and are occupied in information highway where they entertain themselves, play and learn. During the first three years of childhood, the brain creates about 700 new neural networks every second. Establishment for vital developmental functions such as hearing, language and cognition are laid during this time, creating an important base for higher-level functions (Zero to Three, 2015).

Children as young as 2 years of age are becoming experts at using technology becoming digital native from a very early age. However, it is vital to ponder the influence this early age experience possibly causes on their development. Early childhood is when most of the brain's critical development takes place. Therefore practices during this age strongly impact children's functioning yet to come (Irwin, Siddiqi, & Hertzman, 2007). For that reason, the increasing extent and manner of access young children have to screen media technology both at home and at school has directed various researchers to examine how the use of screen media use is affecting them psychologically and physically. Unlimited acquaintance to traditional media use, such as watching TV, has been related with obesity, sleep problems, aggressive behavior and attention deficits in preschool children (Christakis, Ebel, Rivara, & Zimmerman, 2004; Christakis, Zimmerman, DiGiuseppe, & McCarty, 2004; Grøntved & Hu, 2011; Thompson & Christakis, 2005).

Moreover, they are usually engaged with multiple screens at the same time (Sigman, 2012). There is concern that engagement with screen media technology is interfering with social interaction, cognitive, and language constructing practices significant in early childhood development. TV and tablet screens do not offer the same concrete practices as multidimensional

performances such as reading books, coloring, building with blocks, playing outdoors with friends.

Today's regular home is saturated with screen media and young children now have unprecedented access to digital media devices. An (Ofcom, 2014) survey found that among families with children aged 8 or under, 72% of children had used a mobile device to play games, watch movies or use apps. In the same study similar results were also found that 29% of 3 to 4 year olds had used a personal computer or laptop at home, 12% used a mobile device and connect to the internet and of those that did, 58% connected to the internet did so in order to access games. Finally, it is claimed that 12.5% of 3-4 year olds spend over 4 hours a day in front of screens at home (Fletcher, Whitaker, Marino, & Anderson, 2014). However, TV continues to be the medium children spend most time using (Fletcher et al., 2014; Ofcom, 2014).

The amount of screen time can have adverse effects on children's health and development (Christakis, 2004). The effects of TV screen time on a developing child can be widespread and a number of examples are discussed in this research paper.

Background of the Problem

The Convention on the Rights of the Child (CRC) is a internationally recognized outline that decrees all countries to address the multiple features of child development. Ethiopia is one of the countries that have signed this agreement. Since 2015, there has been development of Ethiopia's policy and legal landscape to protect the rights of children. Although there have been many accomplishments, critical gaps remain.

In 2010, Ethiopia sanctioned a national, multi-sectorial Early Childhood Care and Education (ECCE) Policy Outline, as well as a strategic operating plan and strategies, with a memorandum of understanding signed between the Federal Women's and Children's Affairs, Ministries of Health and Education. Those ministry offices are updating the policy framework to address well-known gaps and make alignment with global ECD standards.

According to the Ethiopian Federal Ministry of Education, 26.8 million children are enrolled in approximately 40,000 schools in the country. Enrolment has increased at all levels of primary and secondary schooling, and the gender gap is minimizing. Despite improvements in school enrolment, there is a less amount of both boys and girls passing from primary to secondary. There is a high dropout rate across the primary cycle (less than 6 out of 10 students

complete primary education). The number of secondary schools in the country relatively to primary schools in the country have ratio of 1:10 even though majority of Ethiopia's population are young. There are tireless challenges that add to low student learning outcomes and the foundational development of children with convertible skills that equip children to be productive members of the world.

In the Ethiopian context, 80% of Ethiopian population lives in rural areas. In these rural areas, access for electricity and technological devices is very limited. This research was conducted in the capital city of Ethiopia i.e. Addis Ababa. According to early childhood development country profile data retrieved from nurturingcare.org and UNICEF Ethiopia, there is no data available concerning Ethiopian children's development in early learning.
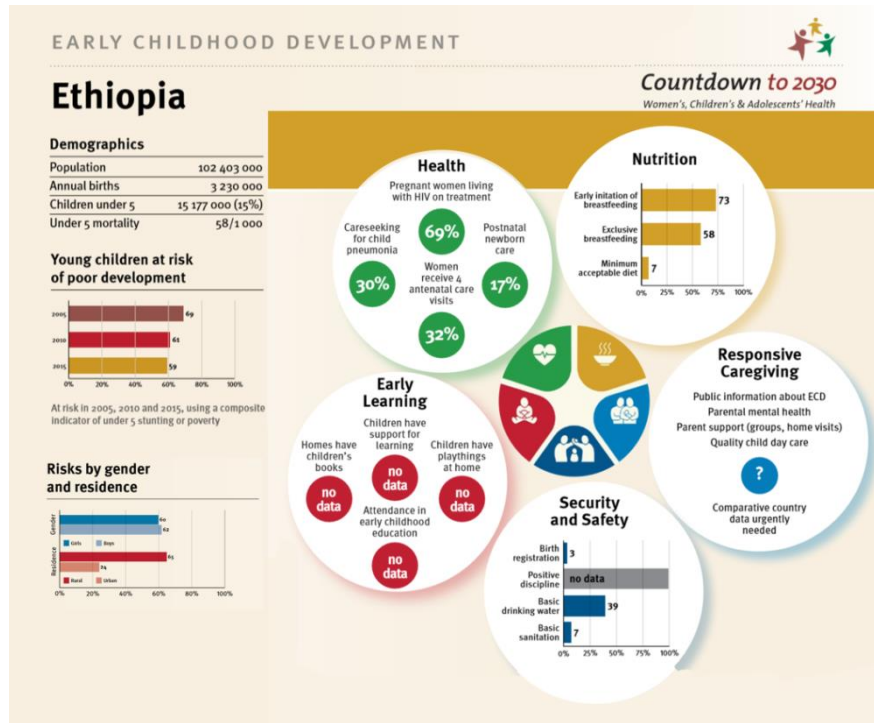

Figure 1. Early childhood development country profile, Ethiopia

Developmental Relevance

These days, children starting at very early age show effortless ease and natural confidence in using screen media devices. They can easily understand and follow instructions and hints given pictorially about their activities (Napier, C. 2013). With the increasing availability of screen media devices and software, children with physical and emotional disabilities also can use computers with ease.

Studies have progressed beyond the simple question of whether computers can help young children learn - it is believed that they can. Researchers desire to understand how to paramount benefit of these technologies in aiding healthy child development and what types of best use practices should be facilitated. To make appropriate and beneficial use of technology, the design of the content and that of the use design setting are two of the essential gears.

There are various concepts as to how exposure to screen media during infancy and toddlerhood might affect child development. Firstly, there are negative influences caused by time consuming technology use causing missing enriching experiences and cognitively stimulating activities with parents or caregivers. These childhood enriching experiences include reading and playing involving social interaction during this age which result with positive developmental outcomes. Correspondingly, it is very important for parents as well as caregivers to actively involve and communicate with children in order to frame children's vocalizations at this age to assist language development (Hart & Risley, 1995; Shimpi, Gámez, Huttenlocher, & Vasilyeva, 2007). However, it has been observed that for every hour of media use a child under 2 uses by themselves, 52 fewer minutes a day are spent interacting socially (Vandewater, Bickham, & Lee, 2006).

In the existence of a digital screen media parents and caregivers have been perceived to be paying less attention, becoming less involved, spending less time speaking to their children or speaking to their children in shorter sentences (Christakis, 2004). Children's language and social development may be at risk because they are not spending enough time engaging in productive conversation articulating themselves, rather spending more time concentrating on screen media passively, which is receptive (Plowman, McPake, & Stephen, 2010).

Screen media use and Physical Health

Previous studies have shown an association between passive screen media viewing and accumulation of excessive body fat in young children (Blair et al., 2007; Jackson, Djafarian, Stewart, & Speakman, 2009). Similarly, Dennison, Erb, and Jenkins (2002) found that higher levels of passive screen media viewing in 1 to 5 year old children was significantly linked with likelihood of being or becoming overweight. Studies have also reliably shown that excessive digital screen time overuse with childhood obesity (Harrison, Burns, McGuinness, Heslin, & Murphy, 2006; He, Irwin, Sangster Bouck, Tucker, & Pollett, 2005; Subrahmanyam, Kraut,

Greenfield, & Gross, 2000). While it would be expected that the link between numbers of hours spent passively using screen media and weight issues was due to a displacement in time that could have been spent being active in physical movement. Researches have also shown the inactive nature of passively watching screen media content creates a higher possibility of health risks. Jackson et al. (2009) found that the amount of physical activity of 2 to 6 year olds was not adequate in relation with time spent using digital screen media technology. An intermediation done by Harrison et al. (2006) showed that less time spent on passive activities was an effective way to increasing physical activity in reducing obesity.

Studies have also shown associations between screen media use time and childhood sleep. The first study to examine the association between screen media use in early childhood and duration of sleeping hours found that as the amount of screen media use time increases it was projecting less hours of sleep (Cespedes, Gillman, Kleinman, Rifas-Shiman, Redline, & Taveras, 2014). It is essential to understand that getting enough amount of sleep is crucial during the children's early development and problems such as short sleep duration and irregular sleeping hour schedules at this age have been linked with future challenging outcomes including language issues, obesity, and hyperactivity and reasoning deficits (Touchette, Petit, Tremblay, & Montplaisir, 2009). Extensive viewing of screen media can also result in eye discomfort, fatigue, blurred vision, headaches, desiccated eyes and other indications of eyestrain.

Screen Time, Social Interaction and emotional Development

Interpersonal interactions during early childhood are very important in establishing and building relationships, founding confident attachments and growing socio-emotionally (Balbernie, 2013; Raval, Goldberg, Atkinson, Benoit, Myhal, Poulton, & Zwiers, 2001; Zeanah, Berlin, & Boris, 2011). A research study inspecting the psychosocial effects of early childhood passive screen media exposure on children found that passive media viewing at or earlier than 29 months was foretelling symptom of a higher chance of peer rejection and unfair treatment by peers (Pagani, Fitzpatrick, Barnett, & Dubow, 2010). Social and emotional skills grow starting from early age through regular social relations (Sigman, 2012). Screen media is one obstacle that can hinder these important early interactions (Pagani et al., 2010; Radesky et al., 2014; Radesky et al., 2015).

There has been a different of 'ethical fears' (Cohen, 1987) rising in relation to young children's use of screen media and new technologies. These include concerns about the apparent negative influence of media on children's emotional and social development, in addition to concerns about the way in which children are becoming sited as commercial marks by multinational companies (Kirkorian, H. L., Pempek, T. A., Murphy, L. A., Schmidt, M. E., & Anderson, D. R. 2009). These concerns are not to be discharged entirely; it is important to consider the way in which childhood is being fashioned and molded by influences coming from different political, economic and social practices.

Studies also recognize the important role that prevalent media content culture plays in laying the foundation and development of identifying oneself and self-esteem of children (Marsh, 2005b). Many children grow an understanding of themselves through the norms and values set by media content. The children set the media as a reference or a standard in achieving different personalities and try out different characters. Their social and cultural value domains are influences by their favorite popular media narratives. Activities related to favorite media characters, television programs and films offer the worth of imitating relationships with family members and acquaintances with their peers (Plowman, L., McPake, J., & Stephen, C. 2010); the narratives the children absorb from media content in addition to culture become the cement which connects together the diverse building blocks of their lives. It is essential for parents, care givers and educators to comprehend the role that media plays in modern-day childhoods; to dismiss it as 'trends' is to take too lightly their influence.

Improved information flow and collaborative communication between educators, children and families can open up new opportunities for culturally approachable literacy-enriched use that associates with children's wellbeing and proficiency. The use of children's culturally appropriate media technologies in educational institutes can provide acknowledgment of their personalities and the things they value, thus improving their self-esteem positively and inspiring children to engage in learning (Marsh Marsh, J. 2003).

2.4 Learning from Screen Media

The negative effects of early childhood exposure to screen media use—either passive screen time use such as watching television or movies on mobile phone or computers or interactively and actively navigating mobile and tablet applications has been discussed so far.

However, the potentially positive learning and entertaining benefits of screen media should also be considered. Regarding and making the most of children's out-of-school practices can result in better outcomes than just engaging them in schools. It also offers acknowledgment to the new ways of learning they are practicing outside classroom and admits that some of these emerging skills, knowledge and understanding resulting from use of media need to be developed.

There are evidences showing that watching high-quality educational programs can have benefits for children older than 2 years of age in relation to social skills, language skills and school readiness (Lerner & Barr, 2014). In addition, a number of studies have reported that television shows such as Sesame Street and Blue's Clues can help improve learning outcomes in children aged between 3-5 years which can carry on into their learning outcomes in adolescence (Zimmerman et al., 2009; Zimmerman & Christakis, 2005).

Study results from researches do not give the impression to support a positive impact of educational media contents on younger children. A review by Garrison and Christakis (2005) found assertions made by a range of TV programs of having educational benefits for children 2 years and younger to be unsupported by evidence. This is due to the "video-deficit" or "transfer-deficit" phenomenon whereby children at very young age find it very challenging to learn information from a media content when compared if the same information communicated through a live presentation and interaction with a human (American Academy of Paediatrics, 2011; Anderson & Pempek, 2005; Schmitt & Anderson, 2002; Sigman, 2012). Furthermore, children at very young age find it challenging to figure out elements of media programs that are not grounded in their prior knowledge and understanding of everyday practice of things around them (Lillard, Drell, Richey, Boguszewski, & Smith, 2015). This can have a undesirable influence on learning as a very young children's decision-making function is overloaded as they struggle to understand what they are watching through media (Lerner & Barr, 2014).

Promoters of digital learning believe that although "video deficit" can occur when being exposed to passive media such as television and watching videos through different platforms, the same outcome may not result from using interactive media (Ginsburg, K. R. 2007). An experimental study conducted in 2010 obtained support to this theory which found results that 30 to 36 month old children who watched a video involving a task or two way communication with viewers containing an interactive element performed in comparison to children who participated in a live demonstration of the same task, performed considerably better than those children who

watched the content only through media (Lauricella, Pempek, Barr, & Calvert, 2010). Results from different studies recommend that children's learning from a screen media can be improved by provisional, collaborative experiences with media. Similarly, studies show that 15 month olds were more likely to transfer learning from a touch screen media device to a real-world when their parents or caregivers actively involved with them during use (Lerner & Barr, 2014; Zack, 2010).

Parental involvement in children's media use

Parents need to be able to make well-informed choices, decisions and get involved in their children's media use and they need to be aware of the consequences of early exposure and overuse. Raising children in an age of progressing media technology is challenging, and may result in some misunderstanding and uncertainty (Plowman, McPake, & Stephen, 2010). Sigman(2012). A guide to the number of hours and minutes screen media technologies are used per day should be developed in order to give parents apposite, quantifiable and age-appropriate guidelines. This would benefit in establishing appropriate usage habits during infancy rather than trying to correct inappropriate exposure to media in later life (Christakis, 2004). It is in general understood that media content used through television or mobile devices can have positive influence on children's academic skills (Parenting in the Age of Digital Technology: A National Survey, 2013). Parents need to be aware of the complications associated with screen media overstimulation in early childhood, and that most researches find no advantageous influences of screen time, particularly in very young children up to age two (Linebarger & Walker, 2005; Zimmerman et al., 2007b). Some suggestions that can give guidelines for parents include:-

1. For children older than two years it is advised that only high-quality, age-appropriate, educational programs should be viewed.
2. Parents need to actively follow up and get involved through communicating about the media content their children are exposed to. As with television, it is very important for parents to decide which technology and content is best for their children and how they monitor and set rules for use. Violence on media content should be avoided, and when encountered, children should be helped to understand it. Providers can recommend age-appropriate educational content.
3. Clinicians can specifically raise the issues of interactive mobile media use with parents of young children; commonly presents possibilities for teachable moments.

4. Clinicians strongly highlight the benefits of parents and children using interactive media together to enrich its learning value. In case of mobile device use, parents are encouraged to try a game or app beforehand, and play it together with the child, and communicate with the child about it afterward to see what is learnt or experienced by the child.

Scientific and social relevance

This research is conducted at a very small scale collecting data only from 154 families in the capital city which is not representative for the situation in rural areas as well as smaller urban areas in Ethiopia. However the relevance of the research is to explore the impact of use of different screen media technology use of Ethiopian children aged less than 7 years old and explore the effects on their social and physical development. This is relevant for parents, caregivers, educators as well as policy makers to understand and play their roles in the children's development which affects the children's performance in later years achieving the best outcome affecting the children's development in a healthy manner.

Objective of the research and research questions

The purpose of this research paper is to study the influence associated to screen time in the first seven years of children's lifetime on their physical, socio-emotional development and identify educational opportunities. The mechanisms by which parents can play role in minimizing negative impact of screen media use on child development will also be discussed. The type of screen media devices, purpose of use and the amount of exposure time will also be explored with the targeted study sample population.

This research has four key questions and purpose:-

1. To identify young children's access to use of media and technology (Key research question:-what are the patterns of use of Media?)

2. To evaluate the impact of use of media on young children (Key research question:-what are the impacts of use of media on physical and socio-emotional development of preschoolers?)

3. To identify parents 'and caregivers' involvement towards children's use of media (Key research question: - What is parents' and caregivers' involvement and understanding towards children's use of media?)

4.   To identify attitude towards early years learning using media (Key research question:-
What do they think are the educational opportunities afforded by media?)

Methods

Research Design

The research design methodology, data and analysis planning shall be discussed in this chapter. The type of research design used is quantitative. The study instrument used is questionnaire survey. Online survey and paper based questionnaires were used. This research tool was chosen in order to collect relatively large number of participant's data in short time. Context of data collection was limited for parents of Ethiopian children living in Ethiopia. The sample population size was limited to 154 participants in total. Criteria based non probability sampling was used. The criteria for participation were to be a parent of Ethiopian child, living in Ethiopia, with a target age group of children from age 1 up to age 7. The study population (n = 154) and the equivalently distributed for ages of the population ranged between 1 to 7 years *(M=4, SD= 2.160)*. Equal number of data was collected of children (*n=22*) was collected from each age group in order to get an average result that can represent each age equivalently.

Table 1: Study Population Demographic Variables

Variable	Frequency	Percentage %
Child's age in years		
1	22	14.3%
2	22	14.3%
3	22	14.3%
4	22	14.3%
5	22	14.3%
6	22	14.3%
7	22	14.3%
Total	*154*	*100%*
Child's gender		
Boy	77	50%
Girl	77	50%
Total	*154*	*100%*

As part of collecting study data through questionnaires, socio-demographic information was obtained at including children's age and gender. The questionnaire for this research was distributed through Google forms and some printed on paper. This study maintained ethical

boundaries by keeping the participants' data anonymous. The participants did not collect personal information except their children's age and gender. Written informed consent was not needed for themselves or on behalf of their children.

The whole questionnaire is attached as an appendix at the end of the research paper. However the main sections of the research tool are as listed below. The questionnaire is prepared for Ethiopian parents of children aged one to seven. The questionnaire consists of seven sections.

Section 1 – Personal Information

Section 2 - Children's media use

Section 3 – Prevalent activities while using media

Section 4 – Purpose of media use

Section 5 – Device and Internet Use

Section 6 – Parent's or Care giver's involvement

Section 7 - Children's other activities

What is measured using each section of the questionnaire and its relevance in answering the research questions are as listed below:-

1. What are the patterns of use of Media? (Questionnaire sections 2 and 5)

2. What are the impacts of use of media on physical and socio-emotional development of preschoolers? (Questionnaire sections 3 and 7)

3. What is parents' and caregivers' involvement and understanding towards children's use of media? (Questionnaire section 6)

4. What do they think are the educational opportunities afforded by media? (section 4)

Data analysis

To analyze collected data quantitative data analytics software is used. To organize and analyze responses, after the questionnaire is sent, responses will be automatically saved in the Google spread sheets. To access these responses, simply the form is opened and when clicking on the responses tab the results from participants who have responded so far are found, along with several options. The responses in Google form show responses in a form of as a summary as well as individually. The Google forms summary automatically creates the summary data in graphs as well as a spreadsheet and opens it in a new tab.

Results and discussion

Results

The following section presents the results of the responses collected from the questionnaire as shown in the tables 2 and 3 below. The data from the questionnaire responses show in response to the question children use television (51.9%) and mobile phone (46.1%) for 1to 3 hours per day. Other devices like tablet especially console game and laptop/ computer are not use by more than 85% of the children. Most children (61%) sit still while using media. 50.5% of the children use media for learning. 81% of the children who use mobile devices, laptop or computer do not go online. The majorly visited site by 55% of the children who go online is YouTube. Most parents (72.6%) discuss with their children while using media either or both before, during and after watching media content. Most children (97.1%) are active playing indoors with other kids (59.7%).

Table 2: Percentage of responses for the child use of questionnaire item (*n=154*)

Questionnaire question					
Indicate the amount of time per day your child uses the following devices.	*Number of hours per day*				
	0hr /day	*1-3hrs/day*	*3-5hrs/day*	*5-8hrs/day*	*>8hrs/day*
Television	22.1%	51.9%	11.7%	7.8%	6.5%
Mobile Phone	50.6%	46.1%	1.9%	1.4%	0%
Tablet	85.7%	12.3%	1.3%	0.7%	0%
Console Game	96.1%	3.9%	0%	0%	0%
Laptop/ Computer	91.5%	7.8%	0.7%	0%	0%
What kinds of activities does your child do while using media?	*Prevalent activities*				
	Sits still	*Sings*	*Dances*	*Plays*	*Talks*
	61%	27.3%	44.2%	20.8%	28.6%
What does your child use media for?	*Purpose of media use*				
	Entertainment		*Learning*		
	49.5%		50.5%		
Does your child use the internet?					
	Yes		*No*		
	19%		81%		

If yes, for how long?	Number of hours per day				
	0hr /day	*1-3hrs/day*	*3-5hrs/day*	*5-8hrs/day*	*>8hrs/day*
	15.2%	54.5%	21.2%	3%	0%

Please indicate which ones	Mostly viewed websites		
	YouTube	*Telegram*	*Facebook*
	55%	35%	10%

Does your talk about media programs with your child? If so, when?	Parents' or care givers' involvement			
	Yes, during	*Yes, after*	*Yes, both*	*No*
	29.8%	7.1%	35.7%	27.4%

What other activities does your child do during the day?	Number of hours per day				
	0hr /day	*1-3hrs/day*	*3-5hrs/day*	*5-8hrs/day*	*8hrs/day*
Reading	49.4%	40.3%	10.3%	0%	0%
Coloring	31.8%	52.6%	8.4%	7.2%	0%
Playing outdoors	16.2%	40.9%	32.5%	10.4%	0%
Playing indoors	3.9%	50%	40.9%	5.2%	0%

How does your child play indoors or outdoors?	Social interaction during play		
	Individually	*With other kids*	*With parents*
Never	7.8%	9.1%	29.8%
Often	70.7%	31.2%	55.2%
Most of the times	21.5%	59.7%	15%

Table 3:- Children's favorite media content

.1.	MBC3 (Arabic)
.2.	Ethiopian Children Tv የኢትዮጵያ ልጆች ቲቪ
.3.	Mobile Games
.4.	Animation movies
.5.	Advertisement and music
.6.	Cartoon Network (Arabic)
.7.	Mickey Channel

Discussion

The terms associated with aspects of children's digital media technologies use culture considered in this study are:

'Media' is a term used for materials and resources in different formats and contents which are used for communication. 'Digital technologies' is used to refer to technological contents that have been made conceivable through digitization. In this study, the following media are considered: television, mobile phone, tablets, console games, computers and laptops.

The phrase 'console games' is used in this paper to refer to computer game apparatuses which are connected to a television screen e.g. PlayStation, Nintendo, X-box.

The term 'parents' is used to refer to grownups who have parental accountability for children, whether biologically or not.

There have been various studies conducted concerning children media use in different parts of the world. However, none of these studies have explored the media use of children under the age of seven in Ethiopia. This study showed that many young Ethiopian children's lives are media-rich and that they are developing a wide range of skills, knowledge and understanding of media from birth. Through engagement with a wide range of media and technologies from birth, children develop 'media literacy', which refers to 'the ability to access, understand and create communications in a variety of contexts' (Ofcom, 2014).

The study reported that children are surrounded by a wide array of media and technology in the home and they actively use it from a young age. The findings from the Zero to Six studies will be stated selectively in this chapter, as the comparison between results from similar research conducted with children in the United States of America.

Patterns of children's media use

Pattern of media use is different from pattern of media access. However, the data showed that the children in this research are keen users of a range of media technologies from birth. This study took place from March to May 2020, during the school lockdowns due to COVID 19. During these times, since schools have been closed children are more likely to spend time inside their homes and are therefore their screen use is likely to increase.

Amount of media use per day

On a typical day, the mean number of hours children engaged in screen media use (including watching television and using mobile phone was 3 hours and 6 minutes. This is one hour and eight minutes longer than the average time spent on screen use by American children in the Zero to Six (Rideout et al, 2003). In the case of using computers and playing console games only very few children had access to these devices at their homes. Therefore, the average number of hours per day the children used these devices was significantly much lower. In addition, these studies took place at a very globally special situation due to the COVID 19 lockdown, which could also account for the difference in comparison to previous studies.

Ownership of at least one mobile phone per family was almost common. There appeared to be the children are able to use mobile phones with minimal adult support, with 49.3% of parents reporting that their child uses a mobile phone to watch videos, take photo, view contents and play mobile games stating that this had been done independently. However, using phones, playing mobile games with the parents' or caregiver's involvement was not part of most families' communication practices with their young children.

Favorite programs and channels

Parents were asked to name their children's favorite media content or program. Different programs were named, but the most frequently mentioned favorites are as listed in 'table 3' under the results section.

Most of the children's favorite programs were age-appropriate. The MBC3 Arabic Tv and Cartoon network Arabic channel transmits very popular Animation movies (such as Paw Patrol, Sesame street, Miraculous Ladybug, Dora, Ninjago, DC Super heroes and so on) and other children programs dubbed in Arabic language. Those children who frequently watch these children movies dubbed in Arabic language have developed some Arabic language listening and speaking skills. Therefore some of these children can listen to, understand and some even speak Arabic language learnt from using these Tv channels. Some parents did name adult media contents accessed by their children's favorite (e.g. watching Kana Tv, EBS Cinema, browsing through Facebook), and these were not only a very small minority.

Prevalent activities while using media

One of the most commonly claimed criticism concerning children's media use is that it causes them to become inactive, 'couch potatoes'. However, most the children in this study were highly active media users. Some of the activities children engaged in whilst watching television are singing, dancing, talking, pretend role play and others. A frequent source of concern for several people is the assumption that children's use of media is driving them into commitment in extreme unsociable undertakings. However, this study suggests that for most children who participated in this study, this is far from the case. The responses from parents showed that children were actively engaged with screen media content during some of their viewing time, with singing, dancing, acting as characters, shouting out responses to participatory programs and role-playing stories setting up some of the more popular activities. Parents observed these activity patterns while using media were diverse and it depended on the kind of the program content and presentation, with some programs actively encouraging singing and dancing.

This shows perception into the mostly active manner of the children's media use. This may be because of the fact that children were mostly watching dedicated children's channels which broadcast programs that were specifically targeting to this age group. These children channels frequently set in interactive contents including dancing and singing and the children were apparently reacting actively to these features. Majority of children in all age groups were acknowledged by their parents as being likely to sing and dance. Some parents used children's media engagement as a means to get relief and get free time for them. Therefore, despite the children's interest to show prevalent activities while using media, these parents directed the children towards sitting passively.

Purpose of media use

Parents were overwhelmed in seeing mostly the positive about the role of media in their children's development. From the responses, the majority of parents expressed positive attitudes, appreciating on the access and quality of children's programs in comparison to what used to be around when they were children. However many were not quite sure how to outline the purpose of use especially for children under age 2. Many parents of children from this age range responded that the children could identify and were attracted to music especially some advertisements.

There are different studies that show evidences that different media technologies have a variety of educational advantages (Sigman, A. 2012), although, of course, this is a compound field which requires more research to be commenced concerning how learning occurs and in what contexts. Parents, however, appeared to have little understanding in specifying what their children had learned from using media. When asked in the questionnaires to give some examples of things children had learned from media, 50.5% responded a very wide range of skills, knowledge and understandings. A total of 76 parents (49.5% of those who responded to this question) recorded responses (e.g. 'nothing'; 'just for entertainment').

What parents felt their children had learned from use of media

The list of skills, knowledge and understandings parents stated in response to this question is extensive to list all of the responses here, but it can be classified in relation to the areas of learning. Some broad areas of learning for young children can be summarized: Ethical, social development; Communications, language and literacy; Knowledge and understanding of the world; Creative art; and Cognitive development (maintaining attention).

The following are collected from the responses of the parents: Alphabet, Language, Different talents, Communication, Social Interaction, Developing memorizing ability, Good values, Public speaking, Reading (many Ethiopian children programs are producing programs that promote reading), To keep her quite when needed (maintaining attention), Good discipline, Digital literary to use computer programs like paint, foundational knowledge like (Alphabet, colors, counting), Songs, Different technology idea, About animals, Both good and bad things unless we select for their ages, Drawing tips, Moral values, Paper Craft, I choose educational content to put on tablet, Plays, teaching Good values respect, Story, Color, sound, animal, He speaks Arabic language because of MBC3, Communication, Creativities, in general life skill, Geez, New word, colors, characters like Jesus Christ, but also spider man, he also associates with what he study at school, Communication skill, history and other facts, Vocabulary and speaking skills, any good advices, culture, stories, Because he watches mostly Arabic channels, I thinks he learns something from visual only, Ability to listen and imagine, Adopting and general life skills, General knowledge, He learns how to use computer, Creativity, Educational apps on the mobile, and Mind development. Some of the unique responses given were many parents responded that they use media to put children still while feeding or when the parents have other chores to do.

Device and internet use

In the online survey responses, parents reported that their children's favorite use of mobile device was to play games. For those families that had internet access (12.3%), children were able to visit websites. The number of hours children use internet per day is as shown in the figures below.

Most parents responded that children were mostly going online purposefully to view videos in YouTube channels. Due to the COVID 19 lockdown most schools were sending learning materials for students through Telegram groups and channels. Therefore some of the children who are above 4 years old went online to access those learning resources. In rare cases the children went online by accident and browsed through their parents' social media accounts such as YouTube, Telegram, Viber and Facebook.

Parental and caregivers' involvement in children's media use

The data from the questionnaire indicated that using media was often a family occasion. Majority of the parents frequently involved in active discussion with their young children. There were differences in relation to age, with parents of children under three more likely to never watch television with their child than parents of older children. In the questionnaire responses, parents explained watching children's programs with their children, and also mentioned occasions when children watched television targeted for an adult audience, such as Kana Tv (Amharic language dubbed movies) and EBS Cinema (Amharic language local movies), with their children. Younger children who frequently watched television with older siblings or adults were introduced to inappropriate adult content in this way. As previous studies show (Livingstone and Bovill, 1999) family patterns around media use are often interrelated to the type of relations that take place in families. Families who spend more time together on non-media activities tend to also spend more time together on media-related activities. In most responses, the level of parents' and caregivers' involvement demonstrated in their children's media use is very promising and builds a strong foundation for further development in their young children's growth.

Children's other activities

There has been general concern concerning the amount of time children are using screen media. However, the children in this study spent an equivalent period of time playing indoors as well as outdoors on a typical day as they did with screen use. The results suggest that children, on a typical day, enjoyed a well-balanced engagement consisting of varied activities.

This might also account for the two main areas in which there was distinct discrepancy in the results between the US survey and this one. In the US survey, children spent an average of 2 hours and 1 minute playing outside on a typical day; in this study, 83.7% of the children played outdoors for an average of 3 to 5 hours and 96.1% of the children played indoors for an average of 3 to 5 hours on a typical day. Most of children played with other children most of the times. Parents were actively playing with babies who are less than one years old. But only a few parents spent time playing with their older aged children.

A total of 50.1% of all children spent time with books on a typical day. Parents reported that children read, for an average of 1 to 3 hours on a typical day. Most parents rarely read books for their children. Those children who were reading were mostly reading their learning books from kindergarten. Some schools however sent story books for the children weekly to promote children's reading skills and habit. This has also enforced parents to read more with their children.

Even if this study of children and young people's media use 'found very few children who viewed large amounts of television to the exclusion of other activities…The results also found repeated cases with children so addicted to mobile games that they had encountered visual pain and experienced low social interaction. Similarly, the data in this study indicate that the majority of very young children whose parents were surveyed are not aware of best practices in children's media use. It should be noted that this study relied on responses from parents. As Buckingham (2004) suggests, more longitudinal, observational studies of children's media use are needed in order to confirm, or refute claims.

Key findings

There are a number of key findings from this study, which can be summarized thus:

1. Young Ethiopian children in urban areas are immersed in practices relating to media and new technologies use from birth. They are growing up in a digital world and develop a

wide range of skills, knowledge and understanding of this world from the information they are fed through media. Parents and care givers need to engage their children in social and cultural practices which develop their understanding of the role of media and technology in their lives as an individually and largely as members of a society.

2. Parents report that their children generally have well balanced lives, with media and new technologies playing a significant, but not devastating role, in their play activities. Children's engagement with media is mostly active, involving singing, dancing, speaking and listening. For most families, media and new technologies use appears to be a social, not individual activity with parents, caregivers and other family members' involvement in shared parts of living rooms. However, some parents do have concerns about the observed amount of time children spend in using media.

3. Parents are mostly very optimistic concerning the role of media in their young children's social, emotional, linguistic and cognitive development. Most parents believe that children learn a lot from media programs that has a positive influence on many aspects of the children's development.

4. Digital literacy should be included in school curriculums; starting from when children are very young. It is needed in order to prepare children for the demands of this technological age. Early years practitioners would need more professional development on their digital literacy in order to promote learning in the foundation stage. The introduction of technologies into the communications, language and literacy curriculum has a positive effect on the motivation and engagement of children in learning. It is evident that the children's media use at their home has created a positive impact on children's progress in speaking and listening and literacy.

Implications for policy and practice

This study has a number of implications for policy and practice in early childhood development and education. These can be summarized as:

1. There needs to be given additional attention to the needs of early year's educators in relation to pedagogical content knowledge in the use of media and new technologies. Professional development instructional materials and programs addressing digital literacy

need to be prepared and distributed in parallel with the development of curricula which attend to the needs of this digital competency.

2. The procurement and use of technological hardware and software need to be supported.

3. Given the findings with regard to parents' awareness and involvement in their children's use of media and new technologies, family literacy/ parents' training programs need to be organized.

4. Children media program producers need to work more closely with early years educators in designing and producing the content presentation which can be integrated into the early stage kindergarten curriculum. Given the huge impact of media narratives in the children's development, there is scope for further collaboration and development in the curriculum design.

Implications for research

Although this study has provided some information on various aspects of young children's engagement with media and new technologies use, more wide-ranging research is needed in order to develop additional understanding of children's experiences, needs and potential in this area. Specially, the following priorities for future study are suggested:

1. Longitudinal, observational studies of children's use of media and new technologies in homes and early year's settings are needed in order to determine the contexts in which skills, knowledge and understanding develop and how parents and educators can best support children's early development.

2. Studies with an experimental design are needed in order to define the impact of the introduction of media and new technologies into the foundation stage curriculum on children's learning progress and accomplishment.

3. Further action research projects based on these themes should be developed.

Summary

This paper has presented useful data that show what the early childhood in some areas of Addis Ababa, Ethiopia looks like being technologically-mediated, influenced by the fashions and passions of media. However, findings of the research does not show that children are the media soaked passive couch potatoes we read about in the more extreme accounts of modern

childhoods. The children in this study led relatively well-balanced lives, with media and technology use playing limited but not devastating role. These children spend time playing with toys indoors as well as outdoors individually, with other kids as well as with their parents.

The majority of children involved in multimedia activities and seemed to be benefiting in a number of ways from this rich array of experiences. These children have learnt through media technology different skills, knowledge, values and have become digitally competent developing these skills from a very young age. As Roberts, D. F., & Foehr, U. G. (2004) suggest, rather than children's media-informed lives being seen as lacking in some way, we should begin to increase in value the resources they gain and build on these resources in early childhood settings at homes and schools.

Limitations of the study

The empirical results reported in this research paper should be considered in the light of some limitations. There are three major limitations in this study that could be addressed in future research. First, the sample size used to conduct the study was limited to 154 parents residing in the capital city of Ethiopia. To draw more expedient conclusions, the sample size needs to be larger and include a wider range of participants from different backgrounds and different parts of the country. Second it should be noted that this study relied on responses from parents. More longitudinal, observational studies of children's media use are needed in order to confirm or disprove findings.

Further research could improve the online questionnaire distributed for parents by adding observational study, and preparing additional applicable questionnaire for other stakeholders like teachers. This change would have improved the insight and depth of the responses collected by giving different view.

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Author's declaration

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.

Signature: ⟨signature⟩   Date: Friday June 5, 2020

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Appendix 1. Online questionnaire used for study

INTERVIEW QUESTIONS FOR PARENTS
ለወላጆች መጠይቅ

This questionnaire is prepared for Ethiopian parents of children aged 1 to 7. It consists of seven sections. Thank you for your participation :)

ይህ መጠይቅ የተዘጋጀዉ ከ1 እስከ 7 ዓመት እድሜ ልጆች ላሉዋቸዉ የኢትዮጲያ ወላጆች ነዉ፡፡ ሰባት ክፍሎች አሉት ፡፡ ስለተሳትፎዎ እናመሰግናለን፡፡

* Required

1. How old is your child? የልጅዎ እድሜ ስንት ነዉ? *

   Mark only one oval.

   - ( ) 1
   - ( ) 2
   - ( ) 3
   - ( ) 4
   - ( ) 5
   - ( ) 6
   - ( ) 7

2. What is your child's gender? የልጅዎ ጾታ ምንድነዉ? *

   Mark only one oval.

   - ( ) Female ሴት
   - ( ) Male ወንድ

Children's media use የልጆች ሚድያ አጠቃቀም

3. Indicate the amount of time on average per day your child uses the following devices. ልጅዎ የሚከተሉትን መሳሪያዎች በአማካኝ በቀን ለምን ያህል ሰዓት እንደምትጠቀም ወይም እንደሚጠቀም ያሳዩ *

Please select all that apply

Check all that apply.

	0 hr/day ||| 0ሰዓት በቀን	1 to 3 hr/day ||| ከ1 እስከ 3 ሰዓት በቀን	3 to 5 hr/day ||| ከ3 እስከ 5 ሰዓት በቀን	5 to 8 hr/day ||| ከ5 እስከ 8 ሰዓት በቀን	More than 8 hr/day ||| ከ8 ሰዓት በላይ በቀን
Television ቴሌቪዝን	☐	☐	☐	☐	☐
Mobile Phone ሞባይል ስልክ	☐	☐	☐	☐	☐
Tablet ታብሌት	☐	☐	☐	☐	☐
Console Games (PlayStation...) ኮንሶል ጌም	☐	☐	☐	☐	☐
Laptop (Computer) ላፕቶፕ ወይም ኮምፒዩተር	☐	☐	☐	☐	☐

4. What is your child's favorite media content (TV show, movie, game....)? ልጅዎ በጣም የሚወደዉ ዓይነት የሚድያ ይዘት ምንድን ነዉ?

_____

Prevalent activities while using media ሚድያ በሚጠቀሙበት ጊዜ ልጆች የሚያሳዩት እንቅስቃሴ

5. What kinds of activities does your child do when using media? (e.g., sings/dances/plays etc.) ልጅዎ ሚድያ በሚጠቀምበት ወይም በምትጠቀምበት ጊዜ ምን ዓይነት እንቅስቃሴዎችን ያሳያል ወይም ታሳየለች? *

Check all that apply.

- [ ] Sits still ተረጋግቶ ቁጭ ማለት
- [ ] Sings መዘመር
- [ ] Dances መደነስ
- [ ] Plays መጫወት
- [ ] Talks ማዉራት
- [ ] Other ሌላ ካለ

Other: [ ] _____

What does your child use media for? ልጆች ሚድያን ለምን ዓላማ ይጠቀማሉ?

> You can choose one or both (Entertainment | Learning)

6. What does your child use media for? ልጆች ሚድያን ለምን ዓላማ ይጠቀማሉ? *

Check all that apply.

	0%	50% /50%	100%
Entertainment ለመዝናናት	[ ]	[ ]	[ ]
For learning ለመማር	[ ]	[ ]	[ ]

7. What kinds of things do you think he/she learns from media, if anything? ከሚድያ ልጆች ምን የሚማሩ ይመስሎታል?

_____
_____
_____
_____
_____

Device and Internet Use የመሳሪያዎች እና ኢንተርኔት አጠቃቀም

8. Does your child visit websites? ልጅዎ ድሕረ ገጾችን ይጎበኛል ወይም ትጎበኛለች? *

   Check all that apply.

   ☐ Yes አዎ
   ☐ No አይ
   Other: ☐ _____

9. If yes, for how long? አዎ ካሉ ለምን ያህል ሰዓት?

   Check all that apply.

   ☐ 0 hr/day ||| 0ሰዓት በቀን
   ☐ 0 to 1 hr/day ||| ከ0 እስከ 1 ሰዓት በቀን
   ☐ 1 to 3 hr/day ||| ከ1 እስከ 3 ሰዓት በቀን
   ☐ 3 to 5 hr/day ||| ከ3 እስከ 5 ሰዓት በቀን
   ☐ 5 to 8 hr/day ||| ከ5 እስከ 8 ሰዓት በቀን
   ☐ More than 8 hr/day||| ከ8 ሰዓት በላይ

10. If yes, please indicate which ones መልስዎ አዎ ከሆነ የድሕረ ገጾችን ስም ይጥቀሱ

    _____

    Parent's or Care giver's involvement የወላጆች ተሳትፎ

11. Do you discuss about media programs with your child? If so, does it happen
    during, after or both during and after the media program. ልጅዎ ሚድያ በሚጠቀምበት ጊዜ
    ከእርስዎ ጋር ይወያያል? አዎ ካሉ መቼ? *

    Mark only one oval.

    ◯ Yes, during አዎ በጊዜው.
    ◯ Yes, after አዎ በኋላ
    ◯ Yes both during and after አዎ በጊዜዉና በኋላ
    ◯ No አይ

Children's other activities የልጆች ሌሎች እንቅስቃሴዎች

12. What other activities does your child do? ልጅዎ ሌላ ምን ዓይነት እንቅስቃሴዎችን ያደርጋል ወይም ታደርጋለች? *

Check all that apply.

	0 hours per day	1 to 3 hours per day	3 to 5 hours per day	5 to 8 hours per day	More than 8 hours
Reading a book መጽሐፍ ማንበብ	☐	☐	☐	☐	☐
Coloring ከለር መቀባት	☐	☐	☐	☐	☐
Playing outside ውጪ መጫወት	☐	☐	☐	☐	☐
Playing indoors ውስጥ መጫወት	☐	☐	☐	☐	☐
Other ሌላ	☐	☐	☐	☐	☐

13. Other, please specify ሌላ ካሉ ይጥቀሱ

_____

14. How does your child play indoors or outdoors (children plays like ball, Lego, hide&seek….) ? ልጅዎ ቤት ውስጥ ወይም ውጪ እንዴት ይጫወታል? *

Mark only one oval per row.

	Never በፍጹም	Often እንዳንዴ	Most of the time አብዛኛውን ጊዜ
Individually ለብቻ	◯	◯	◯
With other kids ከልጆች ጋር	◯	◯	◯
With parents ከወላጅ ጋር	◯	◯	◯

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