

MEDIA AND CHILD LANGUAGE DEVELOPMENT

by

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### Abstract

This theoretical thesis aimed to investigate and review the type of effect media has on a child's language development. While this topic has great relevance given the remarkable increase in screen time experienced by children in the last decades (Karani et al., 2022), the literature remains unclear about whether media viewing is deleterious or beneficial for children's language development. On the one hand, some prior research has found media to be associated with negative child outcomes, including lessened language development (e.g., Mustonen et al., 2022). Conversely, other studies argue that impacts of media viewing may depend on the content of programming; in particular, some researchers have found that media programs (especially quality educational programming) may have a positive effect on language development (e.g., Ferguson & Donnellan, 2014). Recent research indicates that there may be several factors moderating the relationship between child media viewing and child language development which could explain, at least in part, these discrepant findings. This current study will conduct a thorough critical literature review to investigate the relationship between children and educational media, language outcomes, and factors that moderate this relationship, such as co-viewing, child age, and immigration status.

**Keywords:** Media, language development, parent-child interactions, vocabulary, family factors

### **Media and Child Language Development**

Media consumption has increased significantly in recent years, particularly among children. The American Academy of Pediatrics found that screen time usage has increased, and today's children spend an average of seven hours per day on educational media (American Academy of Pediatrics, 2021). The media's influence has grown, especially among children aged three months to six years. There is a large number of media aimed at children that is intended to teach them new skills, referred to as "educational media"; on the other hand, there are other types of media that are child-directed but have no educational value, referred to as "non-educational media," and "background media." These forms of media are now widely used in schools and at home, and they can be accessed via any device. With the increased availability of children's media, many researchers have investigated the impact of media on children's development, with a particular focus on children's language development. These media, which are used to help children learn and develop new vocabulary skills, must be studied to determine whether they help or hinder children's language development.

There is disagreement about whether media is beneficial and when children should view media. The effects of media on child language development must be considered alongside developmental factors such as child age, as well as other variables that may change the context of media viewing. The AAP for many years strongly advised against watching television before the age of two years (American Academy of Pediatrics, 2021) and suggested limiting exposure after that age due to its unknown benefit. In their most recent statement, they softened some of their guidelines in response to research suggesting that other factors (e.g., parental co-viewing) may mitigate the harmful effects of media. The revision in some of these guidelines was based on recent research suggesting that co-viewing can help children understand if adults interact with

them while watching a program (Samudra, Wong, & Neuman 2020). Others have argued in fact that interactions between parents and children while watching educational programs together are essential for the child's language learning from educational programs (Ennemoser & Schneider, 2007). Co-viewing has thus emerged as one factor that has been offered as a potential moderator of the relationship between media viewing in early childhood and child language development. Other factors that may mitigate the effects of media on child language ability are the child's age (e.g., Ribner et al., 2021; Tomopoulos et al., 2014; Zimmerman et al., 2009) and immigration status (e.g., Cycyk & De Anda, 2021; Zhao et al., 2013). This thesis reviews literature investigating the relationship between children and educational media, language outcomes, and factors that moderate this relationship, such as co-viewing, child age, and immigration status.

### **Impacts of media exposure on child language outcomes**

#### **Negative Impacts**

Some research has found there to be negative impacts of media on child language development. For instance, Asikainen et al. (2021) sought to assess media exposure and its associations with language development between the ages of 18- and 24- months between 2011 and 2017. They investigated these associations using the CHILD-SLEEP birth cohort of 1,667 Finnish-speaking families who were randomly recruited while expectant mothers were 32 weeks pregnant, and who were followed for 5 years. Families in this cohort were asked to complete a series of questionnaires related to child media consumption when their children were 3-, 8-, 18, and 24- months old. The questions focused on the amount of time spent on screens each day, socioeconomic factors, and the child's sleep quality. The questions addressed expressive language subscales of infant and toddler development, which were used to assess children's speech and language skills. The screen usage questions inquired about the amount of time spent

on the screen, as well as the type of television viewing and other electronic devices employed. Results showed that children's vocabulary size was smaller at 18- and 24-months, and media exposure was negatively related to expressive vocabulary size at both ages. According to the findings, the more time children spend interacting with electronic media, the worse their expressive vocabulary skills become. The findings support the argument that children should not be exposed to media due to the negative effects on their language development.

Another example of research demonstrating media to have a negative impact on children's language development is a study conducted by Byeon and Hong (2015) who investigated the link between 2-year-old children's television exposure and language delay. A total of 1,778 toddlers aged 24 to 30 months participated in the study, which was based on a Korean panel study. Researchers used a computer-assisted personal interview and a self-report screening test to interview parents. During this screening test, the children's viewing time was asked, and researchers categorized participants based on their responses into four groups: less than one hour, more than one hour but less than two hours, more than two hours but less than three hours, and more than three hours. To test language ability, they used the Korean-Ages and Stages Questionnaire (ASQ), which is a standardized developmental screen test for young children that includes communication, gross motor, fine motor, and other skills. Results showed that 2-year-old Korean toddlers who watched TV for more than 2 hours per day were more likely to develop a language delay. Findings therefore also support the argument that children should not be exposed to media because it is associated with negative effects on their language development.

Ruangdraganon et al. (2009) also present evidence that media has a negative effect on children's language development. They carried out a study to investigate the effects of television

on language development in Asian infants and toddlers aged 2-years-old and under. A total of 260 children and their parents were recruited as part of the Prospective Cohort study of Thai children from birth to 24-months. During a face-to-face interview with the parents and children at 6-months, 1-year, and 2-years-old, data on the amount of time spent watching television was collected. During the 6-month face-to-face interview, parents were asked, "How often was your child placed in front of the television?" And were asked to clarify the child's exposure: never; less than four days per week; or frequently-four days or more per week. The parents were then asked at child aged 1- and 2- years how many minutes/hours their child spent watching television per day. The names or types of programs were not documented or recorded. Language development was evaluated by developmental and behavioral pediatricians using a modified clinical linguistic auditory milestone scale. They also asked parents' views on television viewing, asking them whether they thought that watching television would likely enhance, delay, or not affect their child's cognitive/language/social development skills. Results found that there was no significant association between television viewing in 2-years-old and language development overall, but found boys to have an association of a delayed language development. Findings support the argument that children under the age of 2-years should limit their media viewing, but add nuance that the effects may be more specific to certain groups of children.

Tomopoulos, Dreyer, Berkule, and colleagues (2010) investigated whether the duration and content of media exposure in 6-month-old infants was related to child language development at age 14-months. The study included a longitudinal analysis of 259 mothers and infants. They used a 24-hour recall diary based on an interview with the mothers to see what the child is exposed to and how they interact with it to assess media exposure in the home. The mothers were asked to provide information about the infant's most recent typical day's media exposure (e.g.,

television, videos/DVD, and movies), including the name and duration in minutes spent watching it. They used the Preschool Language Scale-4 (PLS-4) to assess language development, which consists of a total score and two subscales: auditory comprehension and expressive communication. The results revealed that increased time that 6-month-olds were exposed to media was associated with lower language development. The findings therefore also support the argument that children should not be exposed to media before the age of two years.

### **Media Exposure Has Benefits for Child language Development**

While many researchers discovered negative associations, others discovered positive effects of media on child language development for instance (Ferguson & Donnellan, 2014) investigated the link between watching baby videos and language development in children. Caregivers of 392 children aged 6-to-16-months and 358 children aged 17-to-27-months were asked to report on media exposure and language development. To assess media exposure, participants were asked to report the number of hours and minutes that children were exposed to on a typical weekday and weekend day, along with the types of media programs the children watched (e.g., Adult TV, DVDs, videos, or movies). The communicative development inventory was used to assess children's receptive and expressive language skills to test language development. Exposure to baby videos was found to have a positive association with language development in children, specifically in their expressive language skills. Infants who had no media exposure had lower levels of language development than infants who had some exposure. Findings therefore support the argument that children can watch media and benefit from it in terms of language development.

Another example of media having a positive influence on child language development is provided by Robb et al. (2009) who studied the link between infant DVD exposure and

expressive and receptive language outcomes. 45 children and their parents aged 12- to 15-months were randomly assigned to watch Baby Wordsworth, which is a DVD highlighting words around the house marketed for children beginning at 12-months of age. Parents completed a survey asking how long their child is exposed to television or DVDs on a typical day, as well as how many minutes the child spent watching television and DVDs. The viewing group consisted of 20 infants who were told to watch the DVD five times every two weeks for the next six weeks and to keep a time diary. The non-viewing group included 25 infants, and every two weeks for six weeks, all parents and children returned to the laboratory for follow-up testing. The vocabulary questionnaire was given to parents at each of the remaining three testing sessions. Viewings took place in home settings over the course of 6 weeks, after every 2 weeks and five exposures to the DVD children were assessed on their language development, specifically their expressive and receptive communication measures. A vocabulary questionnaire was administered during the language assessment, and all parents were given a list of 30 words from the baby DVD. For each word, such as 'ball,' 'puzzle,' and 'couch,' parents were asked to indicate whether they believed their child understood the word and if they could say it. Parents were instructed to mark that the child could say the word and that it was phonetically similar to the word if they could. The findings showed no decrease in children's language exposure but a small significant positive relationship when children were exposed to media and minutes to television exposure. In addition, when children watch media, their average vocabulary score increases slightly. The findings support the argument that children can watch media and that it can aid in language development, but they also suggest that it should be limited.

### **Why the discrepancy in outcomes?**

To summarize, there are research articles that argue for the negative effects of media

viewing in childhood on language development, but there are also several that argue for the benefits. Why? What are some factors that may impact the media viewing experience and effects on language? As will be reviewed below, several factors have been highlighted to affect the way in which early media exposure is related to early language development. Some of these factors include age, co-viewing, and family factors such as immigrant status. This paper will continue to discuss relevant literature on the way each of these factors affect the relationship between media exposure and child language development in turn.

### **Content of Media Matters**

**Educational.** There has been research into the various types of media and their impact on child language development. As mentioned above, there is a large amount of media aimed at children that is intended to teach them new skills, referred to as "educational media"; which is media that is directed towards children and have many beneficial elements on their developments particularly focused on this paper language development, on the other hand, there are other types of media that are child-directed but have no educational value, referred to as "non-educational media," which is considered cartoons, and "background media which is considered media that was put on to have the children entertained. This paper will continue to discuss relevant literature on the way each of these types of media have effects on child language development.

Some researchers argue that educational media has the most beneficial value in aiding children to further develop their language skills. For instance, in one study, Rice et al. (1990) investigated how different types of media content can help preschool children learn vocabulary words. A 2-year longitudinal study with 326 children aged 3- to 5- years old and their families was conducted. During an interview, parents were asked about demographics, child television viewing, and their child's language and vocabulary skills. For each child, television viewing

diaries were collected every six months for five waves. It was a diary record of all family members viewing for 1 week in spring and fall for 2 years, a total of 5. The diaries included a report of members watching media with the children at 15-minute intervals between 6 a.m. and 2am. The media programs were coded by researchers and put into categories based on whether they were intended for children or adults. There were four categories: child informative (e.g., educational media), child noninformative (e.g., non-educational), adult informative (e.g., background media), and adult noninformative (e.g., background media). To assess language development, they administered the Peabody Picture Vocabulary Test-Revised at the beginning and end of the two-year period to see if the type of content had an influence. The findings revealed that watching educational media, such as Sesame Street, had a positive effect on children aged 3- to 5- years old. While non-educational and background media had no positive effect on children's language skills. Children's vocabulary scores were higher when they watched Sesame Street than when they watched any other media platform. These findings support the argument that when it comes to children viewing media, content matters, and that children should watch educational media to benefit their language development.

Similarly, Ennemoser and Schneider (2007) investigated the effects of different television platforms (educational vs. non-educational) on child language development. A longitudinal study was conducted with two cohorts of 332 German children and their parents. The first cohort included 165 children aged 4- to 6- years, and the second included 167 children aged 6- to 8- years. In both cohorts, parents were asked to keep written time-use diaries of their children's television viewing and activities for seven days. In each diary, parents recorded child-related events as well as the types and amounts of media viewed at 15-minute intervals from morning to bedtime. There were 68 TV series in total, divided into two categories: general audience

entertainment programs (i.e., non-educational) and informational educational programs (i.e., educational). For each series, children were asked whether they watched the programs always (3 points), frequently (2 points), occasionally (1 point), or never (0 points). To assess language development, three phonological awareness and vocabulary tests were administered. One of the tests was oddity tasks developed by Bradley and Bryant (Bradley & Bryant, 1985), in which the children selected a word from a series of four items. The second was a sound condition in which the children had to detect the word with a different sound in a rhyme-oddity, and the third was an initial sound in which they had to identify the initial sound and then pronounce the remaining word for each word. The Hanover Wechsler intelligence test for preschool children, which had the children explain the meaning of 20 words from the programs to see which ones they understood better. According to the findings, watching educational programs was positively associated with better language learning and higher vocabulary skills. Non-educational media, on the other hand, was associated with lower scores in language learning and vocabulary skills. The findings support the argument that when it comes to children, viewing median content is important. When children are exposed to media, they should watch educational media because it promotes language learning.

**Background Media.** Background media is another type of media that is played in the background and is and is not intended for children to watch or be put on for them, it is considered adult-directed media (e.g., news, sitcoms) and others that are child-directed but have no beneficial value (e.g., cartoons). For instance, in this study Kirkorian et al. (2009) conducted a study to see how background television affects interactions between parents and young children. A total of 51 12-, 24-, and 36-month-old children, each accompanied by one parent, were observed, and videotaped during one hour of free play in two laboratory spaces that resembled a

family playroom. An adult-directed television program was playing in the background for about half an hour, while the television was turned off for the other half. Parents could choose from a library of thirty-minute adult-directed programs. These programs were recorded from a variety of television networks and included commercials. The shows included *Friends*, *Mad About You*, *Spin City*, *Frasier*, *The Cosby Show*, and others. When the parent and child entered the room, they were encouraged to act normally as they would at home during free time, free to play, read magazines and newspapers, or watch television. When the session began for the TV, the first part, a program that was chosen by the parents, played immediately. For the TV-second, the experimenter set a stopwatch and kept videotaping for thirty minutes with the television off. After 30 minutes the experimenter turned on the television and started the program. At the end of the hour, parents were asked to answer a few questions about demographics and their television viewing habits at home. Results showed that when there was television playing in the background, both the amount and quality of parent-child interaction decreased. These findings suggest that early television exposure may harm children's development.

Pempek, Kirkorian, and Anderson (2014) also conducted a study to identify the effects background television on child language development. 49 children aged 12-months to 36-months and their parents completed sessions in a laboratory, so variables were controlled. Sessions lasted 60 minutes, and a video from 11 pre-recorded adult-directed shows (e.g., sitcoms, reality shows, and cooking shows) was played in the background while children played with toys and interacted with parents. The first video was watched for 30 minutes by the children. The TV was turned off for the remainder of the session. The order of TV presentation was equalized by assigning equal numbers of children to each of the 11 pre-recorded shows. Parents were asked to act as they would at home; they could watch TV, interact with their child, or do whatever they normally do.

Researchers tested children and parents to assess language development. They determined the number of words spoken per minute by children and rated language quality by determining how well and consistently the words were used. The parents' language was tested by observing how they interacted with their children while the TV was on in the background and how frequently they spoke to the child. Results showed reduced words per minute and number of new words in the parents and children which affected the children's ability to understand the media and affect their language development. Findings support the argument children should not watch background media, adult-directed media without adults aiding them to understand, it suggests background media exposure may harm children's language development.

Hudon et al. (2013) investigated the quality of television on child language development. In this study, parents and 85 monolingual and bilingual toddlers aged 16- to 28- months were recruited. Parents received a package containing participant sheets, instructions, and three to four surveys based on the language status of their family and children. The surveys included the Home Literacy Questionnaire, which is a five-item scale used to assess children's literacy and reading exposure. They also were administered the Television Habits Questionnaire, which assesses television habits, type of media exposure (e.g., background, non-educational and educational), and frequency of media exposure. Finally, the MacArthur-Bates communicative inventory was used to assess children's language skills. Parents completed the surveys in either English or French, depending on the language spoken by their children. Results showed lower vocabulary scores especially the English vocabulary scores of bilingual toddlers when exposed to background television. Findings support the argument that children should not watch media that is not directed towards them.

**Non-Educational.** Others, for example, specifically investigated the effects of non-educational media on children's language development. In one study, Linebarger et al. (2005) investigated different types of media content such as non-educational and educational media programs to see the effect on child language development. 51 midwestern infants and their families participated. Parents were asked to report the type and hours of media that the children watched per week. Programs were put into two categories: intended audience (i.e., child and adult) and program type information, entertainment (i.e., educational, and non-educational). In this study, Dora the explorer, Blues clues etc. were considered educational while Teletubbies was considered non-educational. The home observation measurement of the environment was used to determine children's media exposure. It was used for 45 to 90 minutes to assess the quality and quantity of children's media viewing. To assess language development the MCDI was used. Results showed that Dora and blue's clues resulted in higher vocabulary and expressive language scores, whereas Teletubbies resulted in lower vocabulary and expressive language scores. These findings support the claim that media content matters, that watching educational media helps children develop their language skills while non-educational media does not, and that children should not watch non-educational media.

A study by Duch et al. (2013) also examined the association between media content and language development. 119 infants and toddlers with their caregivers took part in this longitudinal study. Duration and content of media was measured through a 24-hour recall questionnaire; in this questionnaire, families were presented with a list of names and pictures depicting the main character in common children shows and other forms of media (e.g., DVDs, television, adult-directed shows) and asked to report whether the child had just watched it the previous day. They were also asked to provide the type, name, and amount of time the children

spent watching different types of media, if it was under two hours or over two hours on a typical weekday, and if the children had watched it alone or with an adult in the room. To measure language development the ASG questionnaire was used, it was used after the study and a year to follow up. The findings revealed that watching more than two hours of television per day was associated with lower language scores, and that child-directed media was associated with low language scores, whereas adult-directed media had no negative or low language scores. Findings support the argument that contents of media can matter and have different influences on child language development, and how it is viewed with an adult can have a different influence on child language development.

### **Features of media matter**

Some studies showed different types of influences that have different features of media that help moderate the relationship of media and child language development. These articles discuss subtitles helping children be able to learn new vocabulary from the media. For example, Nasab and Motlagh (2009) conducted a study to see how English subtitled cartoons promoted vocabulary learning. 40 upper-intermediate English as foreign language learners (EFL) students aged 14-years-to 19-years-old were divided into two groups: experimental and control. For six sessions, the first group, the experimental group, watched cartoons with subtitles. The control group received no subtitles and watched non-educational media (cartoons) for six sessions without subtitles. A pre- and post-test with 20 target vocabulary words was given. The experiment used 60 minutes per session to watch the cartoon while practicing new vocabulary words, pausing as needed. To teach new vocabulary words, they used specific techniques such as using synonyms and antonyms of the word and asking the student to look up the word in a dictionary and demonstrate it in a sentence. Following that, the post-test was given, and a

discussion was held to talk and question the students about the cartoon's theme, with the students instructed to answer the questions using the new words they had learned. The results showed that participants in the experimental group who watched subtitled cartoons performed significantly better and learned significantly more new vocabulary than the control group. These findings suggest that subtitling is a type of media feature that is beneficial to students learning the English language, particularly when learning new vocabulary.

Another study highlighting the importance of certain features of media for vocabulary learning was conducted by Karakas and Sariçoban (2012). The study included 42 first-grade English language students. They were randomly divided into two groups, one of which was shown with subtitles and the other which was not. The experiment was carried out in a computer lab, and the subtitles were displayed alongside the cartoons using an LCD projector and the free software Gom player. The students were assigned to watch Family Guy; they chose episodes 3 and 6 from Season 3 because they did not contain much slang and were easy for the students to understand. Based on the students' proficiency and background, Children were pre- and post-tested on specific vocabulary knowledge that was targeted by these episodes. Eighteen vocabulary words were chosen from the episodes and measured using a 5-point vocabulary knowledge scale. The 5-point self-report scale was adapted to measure the students' vocabulary development, and it demonstrates the students' partial knowledge of the words. The five levels asked if they had seen the word, if they had seen it but didn't know what it meant, what they thought it meant, if they knew it and could write down the meaning, and if they could use it in a sentence. Results showed that counter to hypotheses, there were no significant differences in gains in this specific vocabulary over time between the sub-title and no-subtitle group. Rather, both groups improved significantly with the test. Findings therefore did not support the argument

that adding subtitles to children's media programming would aid children in learning new vocabulary.

Neuman et al. (2019) investigated how low-income preschoolers learned vocabulary using features of media when viewing educational media. Two studies were completed, the first study aimed to identify pedagogical cues, which are techniques or features that direct children's attention to specific vocabulary words when viewing media. Two types of pedagogical support were identified: ostensive and attention-directing. The second study sought to know which cues drew children's attention and led to them learning and identifying words from watching educational programs like Sesame Street. 110 3- to-4-year-olds participated in this study. Language abilities were assessed using the PPVT. Twelve Sesame Street scenes were chosen at random, and children were assigned to one of four brief scenes, each with a different cue. During the experiment, an eye tracking system was used to monitor the child's attention and determine which cue was most effective and which targets words they viewed more. They were given word identification tasks after watching the scenes to see if they knew and could use the target words. The findings revealed that ostensive cues predicted children's overall attention, but attention-directing cues were the most effective in directing children to identify, remember, and use the target vocabulary words. The findings support the argument that children should watch educational media when they are exposed to it. It can be beneficial for them when learning and developing their vocabulary skills.

**Individual, Family, and Contextual Factors influencing the relationship between media and language development**

Below are a few factors that were found to have an influence on the media's impact on children's language development. Those factors are age, co-viewing, and family factors such as immigrant status. Here will be discussed those factors.

### **Age of Child**

Regarding media and its usefulness, age has played a significant role in determining its beneficial (or detrimental) effect on children's language development. What age can and should children watch media? Ribner et al. (2021) completed a study to determine the impact of background media on language and literacy skills in children aged three to seven years. 922 children between the ages of three and seven, as well as their parents, were recruited to take part in a 50-minute phone survey based on the children's language and self-regulation skills, as well as the types of media they consume throughout the day. Parents completed a 24-hour diary to document their child's day from the time they awoke to the time they went to bed. It was a similar procedure to the panel study of income dynamics' child development supplement. It asked questions about the background media and the type of media content that was on and around the children throughout their day. They used two primary scales and one content scale: hyperactivity and attention problems on the primary scales, and executive function on the content scale. They used subscales of the assessment of language and literacy to assess language and literacy skills. Parents were required to report on several items, including their child's vocabulary knowledge, language complexity, and phonetic and phonemic skills. Results suggested that background and entertainment television programs were negatively associated with language and literacy skills in children ages 3-to 7-year-old.

Another example showing the influence of media on children under the age of two-years was conducted by Tomopoulos, Brockmeyer, Dreyer, and colleagues (2014); they conducted a

study to see if young children were more likely to watch foreground or background media. They carried out a longitudinal study of mother-infant dyads aged birth to three years old who were enrolled in the Bellevue Project for Early Language, Literacy, and Education Success. The study included 527 young children, and mothers were asked to provide information about the electronic media that the children had been exposed to on a recent typical day, from the time they woke up to the time they fell asleep, using a 24-hour recall diary. To categorize them, this included the type of media, television, videos, DVDs, and movies, as well as their names. They also wanted to know whether the program was intended for the child. They used rating systems and media websites such as TV parental guidelines to categorize the programs. The categories were Educational Young Child-Directed Programs, Noneducational Young Child-Directed Programs, Older Child-Directed/Teen-Directed Programs, Adult-Directed Programs, and Unknown Programs, as well as whether the program was intended for the child and whether the child watched the program. Results suggested that children under the age of two frequently watch background media that has age-inappropriate content and had not been turned on for them to watch. Findings support the argument that children under the age of 2 years should not be watching or exposed to media.

Zimmerman, Christakis & Meltzoff (2007) carried out a study to determine how media exposure affects language development in children under the age of two. A total of 1008 parents with children aged two to twenty-four months were contacted and surveyed by phone. The questions involved child and parent demographics, their interactions, and the types of television and DVDs/videos that the children were watching. The parents filled out a pre-survey form and used the MCDI to evaluate children's language development. To control parent-child demographics and interactions, the relationship between CDI scores and media exposure was

used. Results showed that watching baby videos for an hour per day was associated with a significant decrease in CDI scores in children aged eight to sixteen months. There was no significant relationship between any type of media exposure and CDI scores in toddlers aged seventeen to twenty-four months. Findings support the argument that children under the age of 2-years-old should limit their media viewing to the unknown value to language development.

### **Co-Viewing**

Co-viewing- which is defined as when a parent, guardian, caregiver, or another adult interacts with children while they are watching media- has also emerged as an important contextual factor in how media exposure impacts child language development. As aforementioned, the American Academy of Pediatrics had strongly advised against watching television before the age of two, suggesting that exposure after that age be limited due to the unknown benefit. Yet, in their most recent statement, they changed a few of their recommendations in response to research indicating that other factors (such as parental co-viewing) could reduce the negative effects of media. Recent research suggests that co-viewing can help children understand if adults interact with them while watching a program. The following articles demonstrate how co-viewing has aided children's language development.

Samudra, Wong and Neuman (2020) completed a study on how co-viewing could be the missing link in educational media that benefits language development. Eighty-three children aged 3- and 4-years old from low-income families watched two videos, one interactive and the other non-interactive. Individually, the children took part in the study in one-on-one sessions held an hour apart on the same day. The Peabody picture vocabulary test (PPVT-IV) was used to determine vocabulary skills of the children. Children were asked to point to one of four image options depicting a named word. They showed six screenshots from both videos that represented

essential parts of the story to ask the children what happened, and to assess their comprehension level. Researchers used the TobiiT120 system to eye-track the children to observe how co-viewing affected their attention to the screen. The children were assigned at random to a counterbalancing condition. They watched two 9.5-minute narrative video clips from the show *Peep and the Big Wide World* with a trained graduate student, each condition having a different script. The trained graduate student was to make real-life connections and reiterate points in the video, provide encouraging comments, and engage with the children in the co-viewing interactive condition. In the non-interactive condition, the children and trained student did not interact when watching the video. The trained student explained that the children would watch a video and then answer questions. They kept quiet in the room and ten feet away. Co-viewing in the interactive condition was found to improve visual attention. The interaction revealed that comprehension, vocabulary, and attention were higher in the co-viewing interactive condition than in the noninteractive condition. The findings support the argument that co-viewing and interactions between adults and children aid in the comprehension and development of language skills.

Similarly, Samudra, Flynn and Wong (2019) conducted a study to investigate two issues: (1) how co-viewing educational media can help influence a child's learning of vocabulary associations, and (2) whether co-viewing benefits children with lower baseline vocabularies. One hundred twenty-eight 3-to 4-year-old low-income preschoolers were chosen at random to view five educational media clips in one of two conditions: the first was a co-viewing/interactive condition in which a researcher discussed the program with the child. The non-interactive condition occurs when the researcher does not interact or speak with the child during the program. They used the PPVT as a pre-test to determine the baseline of vocabulary. The five

video clips were from the television show Sesame Street, and to reduce fatigue, the five clips were in two-minute increments in each condition. After a brief break, the children watched the remaining videos and took a post-test. Children viewed with a graduate student engaged in conversation on attention directing statements in the interactive condition, and the script was not completely planned to have a more meaningful conversation. The group that did not interact with the adults were informed by the graduate student assessor that they would be watching videos and answering questions, but they did not interact but remained close. Although overall vocabulary learning did not improve, it did assist children in developing auditory vocabulary associations. Findings support the argument that co-viewing can help children watch media and develop certain language skills.

O'Connor (2013) investigated how parent-child interaction during co-viewing affected language learning. A total of 45 toddlers took part in the study by watching educational videos with their parents together. Parents were asked to fill out two different surveys to get information of the child's language and home screen media usage. To test the language, they used the PPVT, it had a total of 228 words that were tested in sets of 12. The children were tested on how well they had learned and remembered the novel word taught in the video after a week. A 2.5-minute lab-created video teaching six novel words for six different novel objects was shown. The experimenter demonstrated the objects while the words were displayed on the video; this was repeated twice, so that each word and object were seen and labeled twice. In the second visit the children were tested on various behavioral tasks. They measured parents' and children's attention and responsiveness, as well as phrases, gestures, open-ended remarks, and repetition, to see which helped them remember the words. Results showed when compared the parent-child behaviors, a significant difference in word learning. The children who did not speak much

benefited from having direct parents and performed better on the second visit. Findings support the argument that co-viewing can help children watch media and develop certain language skills.

The importance of adult-child interactions and more specifically conversations in promoting child language development was demonstrated in a study conducted by Zimmerman et al. (2009). They wanted to investigate the role of adult-child conversations in language development. A total of 275 families with children ranging in age from 2- to 48- months took part in a cross-sectional study of the home language environment and their children's language development; LENA was used to collect data over an 18-month period. The LENA device recorded the child's conversations with adults, as well as speech and television viewing. A speech language pathologist and a pre-test called the PLS were used to assess children's language skills. The day was chosen at random, and parents were told to start recording as soon as their child awoke, recording the children's entire day to hear the adult-child's speech together and separately, as well as the television to see what types of media they were watching. Results showed that when adult-child conversations took place, television exposure was not linked to child language development. Adult-child conversations, on the other hand, have been linked to children's healthy language development. Findings support the argument that when children watch media and are engaging with adults, child language development improves, and they understand more with interactions.

Mendelsohn et al. (2010) conducted a study to determine whether verbal interactions with infants during electronic media impact their language development. A sample 253 low-income mothers and their infants took part in this longitudinal study. When the infants were 6-months old, the mothers used a 24-hour recall diary to test their exposure to electronic media at home. They were asked to provide information about all electronic media for infants, including the

types of shows, videos, DVDs, and movies they watched on the most recent day from morning to night. They calculated the presence of media verbal interactions and the duration of media exposure based on the diary recordings. For the media verbal interactions, mothers were asked the following questions: "did you talk to the child about the program during it or was it mostly for watching?" They had to select a response from 'mostly for watching, 'some talking,' 'a lot of talking,' or 'not together with the child during the program'. They used the PLS-4 to assess language. They discovered that infants from low-income and immigrant families' language development was influenced by media verbal interactions. When there were no interactions between mother and child, it had a moderately negative impact on media exposure in 14-month language development. These findings suggest that media verbal interactions may protect against harmful effects of media on language development.

Mustonen et al. (2022) sought to understand why children with increased screen time have poor language development. They were interested in whether children's time spent on screen time, both alone and with mothers, was associated with children's language development and ability. 164 monolingual Finnish-speaking children aged two to four years old participated in this study. The mothers completed a screen time questionnaire for themselves and their children, detailing how much time their children spent on devices during the week and on weekends. Also, how much time is spent co-viewing with a parent? And how much time the mother spends in front of a computer screen. The Finnish phonology and morphology tests were used to evaluate language structures. To assess the child's phoneme inventory as well as expressive and receptive general language skills, the Reynell developmental language scales were used. Results revealed that when children and mothers spent their screen time alone rather than together, children's general language development was negatively impacted. The language skills of children

weakened as they spent more time watching media alone. Findings support the argument that co-viewing, interacting with children while watching media, is more beneficial and helps to develop their language skills.

### **Family Immigration Status**

In the literature on the relationship between media exposure and child language development, family immigration status emerged as a potentially important factor for consideration. An important reason for this is that parents who immigrate to the United States who could have limited English proficiency/increased difficulties with literacy materials in the English language, may choose to intentionally expose their children to more television program with the intent for their children to learn this second language. Likewise, as children from non-majority language households may start to use the majority language more frequently, parents may expose their children to media programming in their native language to aid the maintenance of first language skill/proficiency.

Cycyk and De Anda (2021) investigated whether there is a link between media exposure and language development in children from Mexican immigrant homes. The study included 30 children aged 15- to 17- months, as well as their parents who were Mexican-born. LENA, a home recording device, was used continuously for 16 hours to record and evaluate the auditory environment as well as children's interactions while watching media. Mothers were instructed to record a minimum of 4 hours on two weekdays and 8 hours on one weekend day on typical weekends and weekdays. They also provided a written log that documented the days, times, and media that the children watched while being recorded, as well as the type of media, which could be in either English or Spanish. The center for early childhood education dual language learners distributed a questionnaire to assess language development, it was given in both English and

Spanish. This questionnaire asked about the children's language experiences as well as their family experiences. Children were exposed to more Spanish-language media than English-language media, as well as adult-directed media, according to the findings. Children's media exposure was found to be more negatively associated with their language development in English than in Spanish. The findings support the argument that children of immigrant families under the age of two should not be exposed to media that is not aimed at them for them to benefit from learning a new language and developing their language skills in their first language.

Another study investigated how immigrant families and the impact of media viewing on children's language development. Zhao and Phillips (2013) completed a study on parental influence in immigrant families while watching educational television. 171 immigrant children aged three to six years. A four-part parent survey was used to assess children's educational television usage, as well as parental mediation and acculturation. The parents' background, gender, ethnicity, generation, education, occupation, and income were all asked about in the survey. The second section asked five questions about their children's backgrounds, such as siblings, ages, language use at home and school, and television viewing habits. PBS programs were used, and parents were asked to record all educational media that their children viewed. The fourth goal was to assess parental acculturation in three areas: language, food, and media. For example, how often do you eat your own ethnic food or speak English? Parents were given the questionnaire in both English and their native language. The survey was distributed by email or mail by the childcare center. They discovered that Hispanic children watched significantly more television in general, and especially educational media, than Asian children. Hispanic parents used co-viewing mediation significantly more frequently than Asian parents which helped children better understand what they were viewing and have positive development in their

language skills. Results support the argument that when children of immigrant families are watching child directed media, parents should also be with them to have a more beneficial value towards their language skills.

### **Discussion**

The purpose of this paper was to determine the influence and type of effect that media has on child language development, as well as how certain factors can moderate the relationship. Also, it aimed to explore why there is a disparity in the literature regarding the effects that media exposure has on children's language. Overall, research demonstrated that a number of factors both related to the content of media itself and to the context in which the exposure is occurring could shape the nature of the relationships between media exposure and child language.

Regarding content of media, the type of media (whether educational, non-educational, or background) was seen to have a big influence on language outcomes. Overall, research supports that educational media can be related to positive gains in child language ability. Many articles (e.g., Rice et al., 1990; Neuman et al., 2019; Ennemoser & Schneider 2007) found that educational media had more of a beneficial value than non-educational and background media when helping children be able to learn new words when viewing media. Furthermore, increased exposure to media that was intended for adults but was only played as background, or child-directed media with no educational value in keeping the child entertained while the parents worked or did housework, was negatively associated with child language. It may be important that messages be communicated to parents about the potential effects of keeping the programming on as “background noise” for young children.

One of the other key factors that was seen to also have a positive influence on child language development was co-viewing media. Co-viewing with a parent, caregiver or other adult

was associated with positive effects (or at least less negative effects) on child language. (e.g., Mendelsohn et al., 2010). While existing research on co-viewing is important for contributing to our knowledge about how co-viewing may potentially be used to actually foster some aspects of language (like vocabulary), further research may need to further disentangle associations between language development and specific types of co-viewing (e.g. passively co-consuming medial programming vs. having verbal explanatory interactions with child in the context of media programming). Only one type of co-viewing was discussed in this paper. More research on different types of co-viewing, such as children and adults conversing while the type of media is playing, could potentially have a more positive influence on children's language development. Only one study (Zimmerman, Gilkerson, Richards, et al., 2009) in this paper investigated adult-child conversation while watching television, and it was discovered to have a positive relationship with child language development and improved comprehension with more interactions. Additional work is needed to fully explore these associations.

Some limitations were discovered throughout the paper, such as different types of co-viewing as just mentioned.

Another limitation highlighted in the paper is one of the factors, age groups; many articles were discovered to have focused on a specific age group, ranging from 6-months to 6-years-old, but primarily from 6-months to 4-years-old. Many studies centered on those ages, with no follow-ups as the children grew older. Different age groups may interpret or comprehend media differently, and the impact and influence of media may be more beneficial to language learning and vocabulary development. Extending research to older children, and even conducting follow-up studies comparing the children's language development to see how media exposure has influenced their language development.

Many articles in the paper were not culturally diverse; many were set in the United States, and a few featured children of immigrants, Hispanics, or Asians. More research on the impact of immigrant status should be conducted, particularly regarding the media. Many immigrant families use these media platforms, programs, DVDs, and videos to help their children learn a new language, improve their vocabulary skills, and even hone the one in which their families are fluent. It may serve as a steppingstone for them because they are unable to assist their children in learning the new language due to language barriers. However, depending on the factors that moderate the relationship, as discussed in this paper, the influence could be either positive or negative. More research should be conducted on the media's influence as well as potential other factors that may moderate language learning for them.

Another potential limitation of the current conclusions based on the literature is that the reported studies have varied widely in how “language development” is operationalized and assessed. While some studies have used commonly used validated measures such as the MCDI and the PLS-4, a few other studies focus more restrictively on a set of target vocabulary words that can be learned from exposure to very specific programming. Firstly, the various ways in which language has been assessed can compromise comparability of the findings of these studies. Furthermore, there may be pros and cons to each of these measures that have implications for interpretation. While use of the validated and standardized tests could provide a broader view of language ability, it may be quite difficult to show *how* specific media experiences can advance these skills. On the other hand, it is unclear if learning some target words from programming can increase language in ways that the impact can transcend short-term viewing effects. Furthermore, as factors such as immigration status emerge as potential predictors of frequency media exposure in young children, and we aim to measure impacts on

language skills of dual language learners, accurately representing the language skills of children from this population is critical. Additional consideration may need to be given to these (and likely other) measurement issues in ongoing research exploring the relationship between medial exposure and child language.

In sum, the question about the relationship between the effect of media exposure on child language is paramount as media exposure in young children is on the rise. Despite discrepancies in the literature about the nature of this relationship, several factors have been emerging that can help to explain why not all media exposure have a similar outcome. Nevertheless, it is evident that additional research is needed to fully delineate the factors related to how media may potentially be met with harmful or positive effects on child language development.

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