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Media Exposure in Early Childhood

by

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Chapter 1: Introduction

In August, 1999, the American Academy of Pediatricians (AAP) issued guidelines recommending that infants and children under the age of 2 be exposed to no television or any screen entertainment. The group further recommended that children older than 2 years through adolescence view no more than 1-2 hours per day of educational, non-violence programming, which should be supervised by parents or other responsible adults (American Academy of Pediatrics Committee on Public Education, 1999). The availability of media has changed rapidly in our society; this change has been so swift that society is experiencing a disruption almost as significant as when there was a shift from oral language to print literacy, and again when the printing press expanded access to books and the printed word (Courage & Howe, 2010). The days when each household may have owned a black and white television set with limited channels and limited access are gone. Parents walk with small computers in their pockets and are able to access any form of media in an instant. Children are computer experts and can download a game, video, or movie using a finger swipe. Grandparents can face chat or Skype to visit with far away grandchildren as if they were in the same room. Our vehicles are programmed with DVDs, iPods, and iPhone outlets as we maneuver our way through our communities. There are households with high definition televisions in almost every room of the house.

Changes in media exposure have influenced how children and families interact and learn. Infants and toddlers watch more television and video than they did a generation ago (Courage & Howe, 2010) and this was before the common use of readily available media in 2017. The

future of instant technology is here and even though the experts have cautioned us about media exposure for young and old, the majority has chosen not to heed the warnings. The recommendations appear to have fallen on deaf ears because numerous parents, childcare providers, grandparents, and early childhood professionals are not following the above recommendations, based on the research examined in this paper.

The American Academy of Pediatrics (2017) reported that today's children are spending an average of 7 hours a day on entertainment media, including television. The prevalence of electronic media in the lives of young children means they are spending an increasing number of hours per week in front of and engaged with screens of all kinds, including televisions, computers, smartphones, tablets, handheld game devices, and game consoles. The distinction among the devices, the content, and the user experience has been blurred by multi-touch screens and movement-activated technologies that detect and respond to the child's movements. The evidence of possible harm related to children's television-viewing habits has been found to be associated with a variety of significant developmental consequences including impaired school performance and possible communication delays, obesity, sleep issues, and social-emotional outcomes.

This paper reviews early research related to concerns about media use in early childhood, 2010 and earlier, and compares those results to current research, 2011 to present. This paper also reviews consequential recommendations in early childhood and media exposure for parents and others to follow. There are three questions that are examined through this extensive literature review:

1. What were the developmental concerns from early research through 2010 about media exposure in early childhood and the AAP recommendations?
2. Does the current research support the earlier concerns related to media exposure in early childhood after 2010?
3. What are the resultant recommendations regarding media exposure in early childhood?

Literature Search Description

In collecting information for this study, I utilized the St. Cloud State University electronic library system, searching articles in journal sources in Academic Search Premier, EBSCO, and Eric. Searching for related material, I used search terms either individually or in combination. In reference to: a) television viewing in early childhood, b) recommendations for media use in early childhood, and c) developmental delays related to media exposure. Search filters used to contain searches within peer-reviewed sources.

Since one of the goals of this research was to make the findings accessible to individuals outside the academic community, the decision was made to use definitions that are readily available.

Terminology

Media: communication channels through which news, entertainment, education, data, or promotional messages are disseminated. Media includes every broadcasting and narrow casting medium such as newspapers, magazines, TV, radio, billboards, direct mail, telephone, fax, and internet (WebFinance, 2017).

Electronic media: media that uses electronics or electromechanical energy for the end user receiver to access the content. This contrasts with static media, mainly print media, which today are most often created electronically but do not require electronics to be accessed by the receiver (WebFinance, 2017).

Television: an electronic system of transmitting transient images of fixed or moving objects together with sound over a wire or through space by apparatus that converts light and sound (Merriam-Webster's Collegiate Dictionary, 2004).

Language development is the process by which children come to understand and communicate language during early childhood (Encyclopedia of Children's Health, 2017).

Overweight: Body mass index (BMI) is a measure used to determine childhood overweight and obesity. Overweight is defined as a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex (Center for Disease Control and Prevention, 2017).

Chapter 2: Review of Literature

Early Research in Media Use in Early Childhood and Developmental Concerns

In 1999, the American Academy of Pediatrics published their recommendations related to media use and children. The AAP strongly “. . . discourages television viewing for children 2 years or younger, and encourages interactive play. For older children, the academy advises no more than 1 or 2 hours per day of educational, nonviolent programs which should be supervised by adults or other responsible adults in the home” (Funk, Curtiss, & McBroom, 2009, p. 983).

These recommendations were made because of the serious concerns regarding media exposure's impact on child development. But this recommendation, even in the early 2000s, seemed to be ignored. In the fall of 2003, the Henry J. Kaiser Family Foundation published a report that reviewed the data concerning the role of media use in the lives of children ages 6 months to 6 years old. Rideout, Vandewater, and Wartelle (2003) examined the rapid changes in our media environment and how these changes might impact children's cognitive, physical, and social-emotional development. This report utilized a nationally representative random-digit dial telephone survey of 1,065 parents of children ages 6 months through 6 years, conducted from April to June, 2003. The findings from this survey was that “Nearly all children (99%) live in a home with a TV set, half (50%) have three or more TVs, and one-third (36%) have a TV in their bedroom. Nearly three out of four (73%) have a computer at home, and about half (49%) have a video game player” (p. 4). These findings indicated parents and caregivers were not aware of or were not following the recommendations related to media exposure and children

Sharif and Sargent (2006) supported the above findings, that U.S. children have been participants in what is called, a “mass media explosion.” Citing statistics from 2000, Sharif and

Sargent found that 97% of American homes with children had television sets, 97% had a video cassette recorder, and 89% had a personal computer or other video game-capable equipment. More than 70% of U.S. homes had more than one television set, 69% had cable television, and 15% had satellite television service. Thus, children spent 40 hours per week consuming all forms of media; more than half the time is spent watching television, movies, or videos.

Barr, Lauricella, Zack, and Calvert (2010) investigated the relation between the amount of child-directed, child choice, television versus adult-directed, adult choice, television exposure at ages 1 and 4. The purpose of the study was to describe the associations among the television content to which infants and preschool-aged children were exposed and their cognitive skills at age 4. The study had 60 parents complete 24-hour television diaries when their children were 1 and 4 years old. All parents were given a television diary on the first day of the visit and were asked to record the amount of time the television was on in the household, the name of the program being watched, and who was in the room when the television was on. At the age of 4, their children's cognitive skills and executive functioning skills were also assessed.

Infants averaged 2 hours and preschoolers averaged 1 hour of television exposure per day. The study pointed out that the absolute amount of exposure did not differ as a function of age, but there were age differences between exposure to adult-directed and child-directed television. In particular, adult-directed television exposure was significantly higher for infants than for preschoolers. The findings from this study concluded that there was a relation between adult-directed media exposure and the cognitive and executive functioning skills of young children's developmental outcomes.

Even children exposed to low levels of adult-directed television, averaged less than 1 hour of exposure per day and demonstrated poor executive functioning skills and vocabulary scores at age 4. The authors of this study theorized that parents may be less involved with their children when watching adult-directed programming. Given that higher parental involvement with a child is generally associated with better cognitive and executive functioning outcomes for children. This relationship between even low levels of indirect media exposure and cognitive outcomes for young children should alert caregivers of young children about the possible consequences of media exposure and their related developmental outcomes (Barr et al., 2010).

Zimmerman and Dimitri (2005) also found a connection between early media exposure in early childhood and cognitive developmental outcomes for young children. This study found that children before the age of 3 years watched an average of 2.2 hours of television per day and after the age of 3 years the daily average was 3.3 hours. Their findings concluded that there was a correlation between television viewing before 3 and cognitive developmental outcomes at 6 and 7. The authors pointed out these delays may be associated with possible missed opportunities of the child for engaged interactions with caregivers and imaginative play opportunities.

Zimmerman and Dimitri (2005) recommended that there needs to be more publicity to educate parents and other caregivers about the AAP's guidelines for media exposure. They went on to stress: "This analysis complements this earlier work by suggesting that viewing a heavy television diet entails modest, but statistically significant consequences for subsequent development in several key cognitive domains" (p. 624). This longitudinal analysis

demonstrates that there is a possible link between early media exposure and the cognitive outcomes for young children.

Sigman (2007) reviewed several consequences related to media exposure and stressed that television viewing among children under 3 years of age is found to have damaging effects on mathematical ability, reading skills, and comprehension in later childhood. There are also concerns that not only is a child's cognitive development impaired by possible media exposure, but there are developmental concerns related to early media exposure and a child's language development.

Zimmerman, Christakis, and Meltzoff (2007) discussed the impact of early television exposure on infants and toddlers age 8 to 24 months old and language development. The objective of this study was to determine if there was an association between media exposure and language development in children under 2 years old. Zimmerman et al. surveyed 1008 parents of children between 2 to 24 months by telephone in 2006. They concluded there was a negative association between early media device exposure and vocabulary acquisition in children 8 to 16 months old. They determined that each hour of screen time cost a typical child six to eight words. They recognized that vocabulary growth is a positive measure of cognitive development, and every word that a child knows and can share with others is a good measure of what a child knows and understands. The ability to use and understand language is one of the most important developmental milestones for a young child to master in the first 3 years of development.

Courage, Murphy, Groulding, and Setliff (2010) reviewed the developmental framework of media exposure in early childhood. When the television is on, it often gets the attention of infants and toddlers and the child may appear engaged by the programming, but an infant or

young toddler cannot stay focused or gain information from such programming, even though a parent may believe so. It is not until 18 months of age that television will hold the attention of a young child because the content has become meaningful and comprehensible to them. Research has found that certain high-quality programs have educational benefits for children older than 2 years.

However, the educational value of media for children younger than 2 years remains unproven even though three-quarters of the top-selling infant videos make clear or implicit educational claims (Council on Communication and Media, 2012). It is possible that the above findings may have influenced the AAP and their previous recommendations related to media exposure in early childhood and this change may have been made to gain parental or caregiver acceptance.

Linebarger and Vaala (2010) argued that young children are capable of learning language through screened media if supported by adults. They examined the correlation between a child's individual development and the social networks to which the child belonged. The authors explained that social interactions with others provide a framework from which children learn the nuances of language and that children do not learn language in isolation. They concluded screened media has an influence in a child's language development in three ways. First, the portrayal should resemble the child's real-life experiences. Second, repeated exposure helps infants and toddlers learn both the format and content of media to the point of ameliorating the negative effects of viewing particular content. Third, the presence of a co-viewer enhances learning.

Mendelsohn, Brockmeyer, Dreyer, Fierman, Berkule-Silberman, and Tompoloulos' (2010) longitudinal study considered whether verbal interactions between mothers and their 6-month-old infants during media exposure might result in direct positive impacts or mitigate any potentially adverse influences of media exposure on language development at 14 months. The researchers reviewed the 24-hour recall diaries of 253 low-income mother-infant dyads. The researchers analyzed parent-child verbal interactions related to media exposure and associated child language outcomes. They found evidence of possible positive impacts of media exposure and language development when a caregiver provides cognitive stimulation and engagement while viewing or using media. Media viewing by mother-infant dyads can result in positive impacts on language acquisition.

The research reviewed thus far has focused on cognitive and language development in early childhood and the possible developmental influences of media exposure. The next area of literature reviewed explores the possible correlation between obesity, decreased physical activity, and media screen use in early childhood. The childhood obesity epidemic is affecting even preschool children. Although the causes of this epidemic are multifactorial, environmental factors have been the focus of increasing attention to primary prevention efforts. A longitudinal study completed in 2005 investigated if an association could be established between parental perceptions about neighborhood safety, television viewing, and obesity in preschool children.

Burdette and Whitaker (2005), using data collected in 20 U.S. cities, tested the hypotheses that preschool children with a higher occurrence of obesity spend less time playing outdoors and spend more time viewing TV when they lived in neighborhoods that their mothers perceived as unsafe. Surprisingly, the research demonstrates no significant relationship between

parental perceptions of neighborhood safety but did find a possible connection between television viewing and obesity (Burdette & Whitaker, 2005). Burdette and Whitaker maintained that increasing children's outdoor play time and making neighborhoods safer for children are two objectives that still could result in improved fitness for children. The authors urged parents to both turn off the television and encourage their children to play outdoors.

Lumeng, Rahnema, Appuglies, Kacicoroti, and Bradley (2006) stressed that "excessive TV exposure was not simply a marker for these factors but was a significant independent risk factor for childhood overweight during the preschool age range" (p. 426). This study's cross-sectional and longitudinal analysis of 1016 children confirms that there is a connection between excessive media exposure in young children and a negative outcome for children's health and well-being.

Sigman (2007) cited a study of 10,000 people that found that for each hour of television viewing, there was a significant increase in the prevalence of obesity. A study from New Zealand that followed children from birth to age 15 found the amount of television viewing to be a more significant factor in obesity than the effect sizes often reported for nutritional intake and physical activity. These findings support the AAP's developmental concerns for children and screened media exposure.

The next articles review the possible connection between television and media exposure in childhood and sleep issues. Paavonen, Pennonen, Roine, Valkonen, Riitta-Lahikainen (2006) used a randomized population-based survey questionnaire to explore the effects of TV exposure on the quality of children's sleep. The researchers surveyed 321 parents of children aged 5-6 years old. The questionnaire included 34 items concerning the overall time that the TV was

switched on in the household and the time that children were awake. The parents also completed a 26-item rated on a 5-point scale. The researchers found that there was a relationship between TV viewing and sleep issues for children. Television viewing was indeed related to sleep difficulties and the decrease in sleep length. Even passive TV exposure significantly related to sleep difficulties and increased sleep onset problems as well as sleep-awake transition disorder (Paavonen et al., 2006).

Owens, Maxim, McGuinn, Nobile, Masall and Alario (1999) researched the relationship between specific television-viewing habits and both sleep habits and sleep disturbances in school children. Four hundred and ninety-five parents of children in grades kindergarten through fourth grade in three public elementary schools completed two retrospective survey questionnaires, one assessing their children's sleep behaviors, and the other examining television-viewing habits of both the child and family. Sleep disturbances were directly related to the existence of a television in the child's bedroom. Additionally, the study found that the amount of TV exposure was associated with difficulty getting to and staying asleep.

Li, Jin, Wu, Jiang, Yan, and Shen (2007) examined the relationship between media exposure and sleep in China. A parent-administered questionnaire and the Chinese version of the Children's Sleep Habits Questionnaire was completed to quantify media use and to characterize sleep patterns and sleep disturbances (Li et al., 2007). Their research supported the previous findings; children who have a television in their bedroom and children who viewed more TV than recommended have sleep difficulties.

The final topic to be reviewed is the research related to social-emotional development and media exposure. The next articles were all published before 2010 and examines concerns

related to media exposure and the social-emotional well-being of young children. The prevalence of violence in prime-time programming is often the focus of adult entertainment, but children's programming has been found to contain even more violence than adult programming. Children in the U.S. witness over 200,000 acts of violence on television alone by the time they turn 18 years old. Does this exposure to violence affect the behaviors in children and is there a relationship between aggressive behaviors and media exposure? In summary, Robinson, Wilde, Navrcruz, Haydel, and Varady (2001) reported:

The relationship between media violence and aggressive behavior has been the focus of more than 1000 studies. Exposure to violent media appears to produce three effects on children: (1) direct effects, in which children become more aggressive and/or develop more favorable attitudes about using aggression to resolve conflicts; (2) desensitization to violence and victimization of others; and (3) beliefs that the world around them is mean and scary.

Peters and Blumberg (2002) examined the literature concerning how cartoon violence influences young children's behaviors. They found that preschoolers watch up to 30 hours of television per week. Four-year-olds, on average, watch 50-70 minutes of television a day, most of which is animated cartoons. They went on to share that 92% of children's Saturday morning programs contained some form of violence, as compared with 71% of prime-time programs.

Peters and Blumberg (2002) concluded that when children watch programs with violent content, they demonstrate increases in aggressive attitudes, values, or behaviors. Numerous studies have shown that preschoolers demonstrate increased aggressiveness after watching cartoon characters engaged in violent behaviors. The authors went on to share that preschoolers

can recognize real-life dilemmas, as well as identify, differentiate, and make inferences about the features of moral and social-conventional interactions presented in story form, but have concerns regarding the ability of children viewing cartoon violence to distinguish between reality and fantasy.

Robinson et al. (2001) found the simple action of reducing time spent viewing media reduced aggressive attitudes and behaviors in children. The researchers used a randomized, controlled, school-based trial that introduced an intervention to reduce television, videogame, and other media use in third- and fourth-grade students. The bulk of research in the areas of media exposure and young children supports the view that parents and caregivers should heed the AAP's recommendations related to media exposure and young children.

Current Research in Media Use in Early Childhood and Developmental Concerns

Our attention now turns to the contemporary work examining these same issues for research published after 2010. Pagni, Fitzpatrick, and Barnett (2013), in a large population-based sample, supported earlier research related to early media exposure and cognitive and language development in young children to explore whether television viewing at 29 months is associated with school readiness at 65 months. They concluded that the increase in total time watching television at 29 months predicted decreases in number knowledge scores, classroom engagement, and attention skills.

In a 2012 study, Notten, Kraaykamp, and Konig examined the intergenerational influence of book reading and media taste; the kind of programming individuals choose to use in their day. The authors had two specific research questions: "To what extent do parental media socialization

activities during childhood affect a person's current media taste," and "Via what pathways do parental media socialization activities during childhood affect a person's current media taste?" (p. 684). The study analyzed 2,539 respondents from two waves of the Family Survey of the Dutch Population to determine the intergenerational transmission of parental reading and television taste. The authors theorized that parental media taste can influence a child's cognitive development and educational success and that the child's parents play a more profound role than schooling in a media taste for children. The study found that children imitate their parents' television preferences and these influences last into adulthood and parental media tastes do impact parental guidance concerning children's media in-take. Surprisingly, the study found that parental co-viewing and television rules in one's youth appeared to have no significant lasting effect, contrary to the AAP's recommendation for media viewing with young children. Early co-viewing does assist children in understanding what they are viewing, but as a child grows older they do not benefit from co-viewing.

In 2012, the Council on Communications and Media found that 90% of parents report that their children younger than 2 years of age watch some form of electronic media. By 3 years of age, almost one-third of children have a television in their bedroom. They went on to share that on average children younger than 2 years watch televised programs 1 to 2 hours/day and that 14% of children aged 6 to 23 months watch 2 or more hours a day of some form of media. The Council shared children younger than 2 years cannot benefit even from educational programming because their cognitive development does not support sustained attention.

The Council on Communications and Media (2012) also reported that two studies found that children who watch some form of educational media have no evidence of benefit and

existing literature suggests that media does not promote language skills in this age group. Young children, 12 to 18 months, are more likely to learn from caregiver interactions rather than media interactions. The Council study also examined the effect of parental second-hand media viewing on cognitive development. The study found that in many households the television is on at least 6 hours a day and that in 39% of the households the television is never turned off. This media exposure may add to parental distraction when interacting with a child and a child may become distracted during their own play due to this media exposure. The literature review supports the view that media may interfere with a child's cognitive processing, memory, and reading comprehension.

The Council on Communications and Media (2012) also pointed out that in the short-term, children younger than 2 years old who watch more television or videos have expressive language delays. Further, children younger than 1 year, with heavy television viewing, who are watching alone, have a significantly higher chance of having a language delay.

The next articles explore research related to obesity and sleep issues and media exposure in early childhood published after 2010. Sedentary behaviors, such as watching television or using the computer, are associated with overweight and obesity among children and adults. Studies have shown the more hours of television viewed and other media used in a day can be a predictor of family members being overweight or obese. Steffen et al. (2013) used a mixed model linear regression analysis; a longitudinal study that began at the age of 6-9 years and continued until they were 39 years old, and their offspring were 6 years and younger. The researchers proposed that obesity and hours of TV watched by offspring was significantly influenced by their parent's obesity and TV watching habits. The authors went on to speculate

that environmental factors played a larger role than genetics in determining body weight for both parents and their children.

The relationship between inactivity and obesity has been well-researched. One such study (Lissner et al., 2012) addressed the patterns of television viewing and diet preference in early childhood. Data for this study were gathered in a variety of European countries surveying over 15,000 children ages 2 through 9 and a subsample of over 1,600 school aged children. Further testing of the findings from this in-depth study was the relationship between children consuming high-fat and high-sugar and television habits.

Our attention now turns to contemporary research regarding the relationship between media viewing and sleep disorders. Cespedes, Gillman, Kleinman, Rifas-Shiman, Redline, and Taveras (2014) studied participants in Project Viva, a longitudinal study of 2128 children born in 1999-2003. They analyzed longitudinal and cross-sectional associations of TV exposure with sleep duration and children from 6 months to 7 years. Based on the data collected, they concluded that there is a connection between media exposure and sleep duration in early childhood. The authors theorized, after review of their data, that there was a negative influence of television viewing and having a television in the child's bedroom related to children's sleep duration from infancy to mid-childhood.

Magee, Lee, and Vella (2014) found the average screen time among U.S. children 8 to 18 years of age increased from 6.21 to 7.38 hours per day from 1999 to 2009 and in contrast sleep length appears to be decreasing. Children, in 2011, estimated to sleep 1 hour less per night, on average, compared to children in the early 20th century (Magee et al., 2014).

Magee et al. (2014) discussed the interrelationship between screen time, computer use, television viewing, and sleep. Utilizing a large longitudinal sample of over 3400 children, ages 4-5 years, a cross-lagged panel model, and time use diaries, to collected information on children's sleep duration and the amount of time their children watched television, videos, and movies and used computer or played computer games to complete their analysis. The authors found that increases in screen time, not just in television viewing, decreased sleep duration.

Despite the prevailing evidence, television is part of bedtime routines in many households. In one study, 19% of parents of children younger than 1 year reported that their children have a television in their bedroom; 29% of children 2 to 3 years of age have a television in their bedroom. About one-third of parents reported that watching a television program enabled their child to fall asleep and that viewing television can be a calming aid for their child (Council on Communications and Media, 2012). Yet, television exposure can influence bedtime resistance, the delay of the onset of sleep, cause anxiety about falling asleep, and shorten sleep duration. The Council stressed that television viewing in children younger than 3 years was associated with irregular sleep schedules, and that "poor sleep habits have adverse effects on mood, behavior, and learning" (p. 3).

Materials reviewed after 2010 continue to support the AAP's recommendations concerning media use and children. Given the abundance of information regarding the serious consequences of media exposure and children's well-being, the question remains as to why parents and caregivers refuse to follow the recommendations of the AAP. Rideout et al. (2003), in their *Henry J. Kaiser Family Foundation Report*, argued that many parents see media use as an important educational tool beneficial to their children's intellectual development, and parents'

attitudes concerning media exposure report more positive than negative behaviors in their children. Funk et al. (2009) found that less than half the responders to the study, parents of 94 children, responded correctly in identifying the AAP's recommendations for screen media time for children 2 years of age or younger and for preschoolers. Yet, most parents also reported "some screen media content, in particular violence, is not appropriate for preschoolers" (p. 984). Parents also had insufficient knowledge regarding the media ratings systems to make informed judgments regarding content, consequently exposing young children to more violence than parents found acceptable (Funk et al., 2009).

Screen media use is not ideal for promoting important developmental activities. Parents may not be receiving this information from their family physicians or pediatricians. Gentile, Oberg, Sherwood, Story, and Hogan (2004) conducted a study of over 350 pediatricians from Minnesota using a cross-sectional survey with 58-item survey to determine if pediatricians were aware of the AAP recommendations. The results from this study showed that most pediatricians agreed with the AAP's recommendations. They agreed that there are a variety of negative developmental outcomes for children due to media exposure. Questions remain as to how pediatricians shared this information with parents and families. In fact, "... only one-half (51%) regularly recommended that children's total screen time be limited to no more than 1 to 2 hours per day, and only one-third (33%) regularly discourage TV viewing for children [under] 2 years of age" (p. 1240). When compared to male pediatricians, female pediatricians were knowledgeable about the AAP guidelines and were more likely to make recommendations based on guidelines. The failure to make recommendations is also somewhat astonishing since there are few barriers when directly communicating with parents.

However, the lack of parental enthusiasm or support for the recommendations is the barrier most often faced. This barrier may be related to the view that parents have that media use has educational value for children. Parents also reported using media for entertainment. Additionally, Gentile et al. (2004) found that “pediatricians who watched the greatest amount of TV were significantly more likely than those who watched less to think that the AAP recommendations to limit children’s total media time to no more than 1 to 2 hours per day is unrealistic, whereas those who watched less were more likely to agree with the recommendation” (p. 1240). This possible lack of “buy in” from medical professionals themselves may be one of the reasons as to why some parents are not heading the AAP’s recommendations related to media exposure.

In 2017, the American Academy of Pediatrics (AAP) released new recommendations related to media use to possibly update parents and others about what infants and toddlers need for optimal growth. The AAP’s new recommendation and guidelines now allow for some media use for children over 15 months: The chief factor that facilitates toddlers’ learning from commercial media (starting around 15 months of age) is parents watching with them and re-teaching.

In summary, for children younger than 2 years, evidence for benefits of media is still limited, adult interaction with the child during media use is crucial, and there continues to be evidence of harm from excessive digital media use, as described later in this statement (American Academy of Pediatrics, 2017).

The final portion of this literature review discusses several recommendations.

Parents and caregivers need to become knowledgeable about what activities promote healthy development in young children and excessive media exposure is not one of those activities. AAP recommends limited media use for children. Brown, Shifrin, and Hill (2015) made several recommendations for best practices of media use to families. The most salient were chosen here:

- Role modeling is critical by limiting your own media use and modeling online etiquette.
- Children learn from interacting with parents rather than merely sitting in front of screens.
- Search for quality content regardless of the channel of communication.
- Set reasonable limits for media exposure, just as limits are set in other areas of a child's life.

The AAP and several other advocates have created online educational programs to assist parents with navigating the changing world of media and their families.

Chapter 3: Summary

This extensive literature review demonstrates that there continues to be concerns about media exposure in early childhood. The American Academy of Pediatrics (2017) continues to stress that children under the age of 2 should not be exposed to electronic media. A number of researchers recommend that additional research is needed concerning the effects of media exposure on infant brain development. While continuing to recognize that the benefits of media is limited, and stressing that adult interaction with the child during media use is crucial, the AAP has now weakened its recommendations for children over 2 allowing for some media exposure.

When compared and reviewed, the current research supports the earlier findings; the consequences of a heavy media diet in early childhood impacts the cognitive development of a child. The research demonstrated that children exposed to extensive media experience possible cognitive delays that can impact their educational outcomes over time (Pagni et al., 2013). This concern about media exposure and cognitive development should give caregivers pause realizing the possible environmental harm on cognitive development of our youngest learners.

Some changes in AAP's (2017) recommendations concerning media use in early childhood and language development have occurred. In the latest policy statement from the AAP, media use in early childhood demonstrated children could gain language skills from screen use especially when shared with an adult. The importance of co-media use continues to be a recommendation from the AAP. In 2017, the AAP published their newest recommendation concerning media use in early childhood. The new recommendation appeared to soften from "no media" exposure until 2 years old, to stating children 18 months and older can use some media. This shift in recommendation was made because research demonstrated that children starting around 15 months of age can learn from media. The new AAP recommendation went on to

stress the importance of parents watching media with their toddlers and re-teaching what had been viewed together.

Research did show that older children could gain language skills from screen using especially when shared with an adult. The importance of co-media use continues to be a recommendation from the AAP (American Academy of Pediatrics, 2017). In 2017, the AAP published their newest recommendation concerning media use in early childhood and their new recommendation appeared to soften, from “no media” exposure until 2 years old to stating, “the chief factor that facilitates toddlers’ learning from commercial media (starting around 15 months of age),” they went on to stress the importance of parents watching with their toddler and re-teaching what had been viewed together (American Academy of Pediatrics, 2017).

The findings from later research supported the importance of re-teaching language skills to help a child develop meaningful skills. The combined research related to obesity and inactivity has continued and the research findings support the AAP’s concern about media exposure in early childhood and the role that inactivity plays in a child’s and family’s on going health. There is a strong correlation between extensive media exposure and obesity in our current society. Parental habits and behaviors influence how children play, exercise, and consume food over time. Again, the research reviewed supports the importance to continue to investigate the relationship between media use and obesity and inactivity in early childhood development. One of the biggest influences of media exposure in childhood and adulthood has been effects of media use and sleep habits.

The reviewed research from before 2010 and after supports the AAP’s concern about the influences of media exposure and the sleep habits of young children. Not only has the early

research cautioned parents and caregivers about the negative outcomes related to media exposure but the “newer” research supports and continues to express the negative influences of media exposure and sleep for children. The conclusion from this body of work is that children, even very young children, are experiencing sleep deprivations and those effects are often demonstrated by behaviors.

The recommendations for children to spend less time on media devices and to remove televisions from their bedrooms and to stop using media devices before bed appears to be ignored by many parents. The advice from AAP in 1999 and 2017 is that children view educational, non-violent media with an adult. The research continues to support the AAP’s concerns about violence in media and aggression and antisocial behaviors in children. There have been over 1000 studies that have reviewed the association between media violence and aggressive behavior, and these studies confirm the importance of limiting violent television and other media for our children.

This literature review has explored the research published from 1999 through 2017 related to the American Academy of Pediatrics’ statement and recommendations concerning media exposure in early childhood. The conclusion of this body of work is that the AAP’s current advice continues to support their earlier cautionary statement related to media exposure in early childhood.

Chapter 4: Discussion

As an early childhood special education teacher, a retired childcare provider of over 25 years, a mother, and a grandparent, this topic related to the American Academy of Pediatrics and their recommendations related to media exposure has become one of my crusades in reaching out and educating others about these recommendations. Even as an advocate for children and families, I did not hear of the AAP's recommendation until after 2004; not that my household or family centered our lives surrounded by media, but children younger than 2 were exposed to media. The explosion of media options in the last 10 years has proliferated the easy use of media devices in our homes and work. There are more opportunities for media exposure for young children. How often do we observe families out in public and each is absorbed by a handheld device, instead of engaging with each other?

Through my work, parents and caregivers often seem to not want to hear about the AAP's recommendations, nor do they seem to believe the possible negative outcomes related to media exposure in child development. I believe many parents feel overwhelmed and overworked and they often use media to soothe or quiet their children. One of the recommendations for parents is to let children be engaged by toys or books or pots and pans. Outside of the home, children can be given tasks such as looking for the bananas in the grocery store or finding the gas station for me. Handing a child a media device to quiet them or entertain them is doing more harm than good.

The message to parents concerning media exposure appears to be limited to annual well-child check-ups during an office visit with a pediatrician or other medical provider. This

limited opportunity continues to limit the educational opportunity for parents and caregivers about the research findings related to media exposure and child development. The need for more invested shareholders in this message is one way to educate parents and other caregivers. A recommendation would be to create an invested public education campaign and public service announcements to help change parental behaviors related to this topic.

A public awareness campaign, much like the public education awareness related to cigarette smoke exposure and the health-related consequences. This campaign changed human behavior due to the negative consequences of second-hand smoke and now our children attend schools, childcare centers, and local parks without being exposed to harmful environmental carcinogens. Although, having the media share the developmental consequences of “media exposure” may hinder this outcome.

There are several supportive resources for parents to use to educate themselves and to help curb media use in their families such as Early Childhood Education, Parent Education, and Early Childhood Special Education programs. There are online resources available to assist families in creating a family media use plan, but these resources usually appeal to families who are willing to practice the AAP’s recommendations or already have the tools to navigate such sites.

The findings from this discussion warrants all of us to reach out and gently probe families in reviewing how they are using media in their lives and to educate them about the possible consequences of the development of their children. Bringing this topic to our local communities and homes are where the message of the AAP concerns needs to be a priority. The need for current and relevant research is pertinent to this topic, and given the fast pace of the development

of media devices and opportunities to participate in media use is prevalent to the point where adults need to understand the consequences of media use in their own lives as well as in the lives of children. The hope of this research was to become a springboard for conversation and to demonstrate that the American Academy of Pediatric's (2017) recommendations on media exposure in early childhood have been well founded through rigorous research and the recommendation continue to hold true.

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**30 Million Words
Early Childhood Interventions**

by

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Chapter 1: Introduction

All children benefit from a rich and nurturing environment to learn and grow and to become engaged and connected learners. Piaget portrayed children as active learners who, through interactions with others and their environments, create a complex understanding of the physical world around them (Houde, 2015). As an early childhood, special education teacher, I am deeply committed to exploring strategies that would help children within my program make gains to attain their full educational potential. I am interested in strategies that would allow early learners and their families to build on their strengths and assets.

Importance of this Study

Researchers have discovered that infancy and toddlerhood is the time of fastest brain development in childhood. Fogel (2007) argued that brain development within the first 4 years in a child's life can decide life-long cognitive and social-emotional outcomes for children. Infants younger than 5 months are learning and constructing an understanding of their environment and "infants are learners from their very first breaths" (p. 229). Houde (2015) remarked, "...an infant is a scientist in the crib" (p. 43). The first months and the first years, then, become essential for brain development.

In fact, in her internationally known work, Suskind (2015) argued in *Thirty Million Words: Building a Child's Brain*, that "by the end of age 3 the human brain, including its 100 billion neurons, has completed about 85% of its physical growth, a significant part of the foundation for all learning" (p. 30). This foundation for learning takes place in a narrow window of time. There are children who are exposed to rich, engaged environments and there are those who are not. The opportunity for maximum brain development can be altered by a child's

circumstance in life. Hickman (2008) noted each of us are born into circumstances in which we have no control. Certainly, a child born into intergenerational-poverty would have different life experiences than a child born into an affluent family. Research shows the effects of poverty influence brain development.

Blair and Raver (2014) believed the effects of poverty on brain development start early and are seen in infancy. The authors' longitudinal analysis of 77 children concluded that children living in low-income or poor families were found to have total gray matter volumes that were nearly half a standard deviation smaller than their better-off counterparts. Ladson-Billings (2006) noted, across the U.S., a gap in academic achievement persists between minority and disadvantaged students and their white counterparts. Nearly a decade later, Duncan, Magnuson, and Votruba-Drzal (2014) noted that living in poverty may impact a child's brain development, because in early childhood the brain develops critically important neural functions and structures that will shape future cognitive, social, emotional, and health outcomes. In this seminal work, *30 Million Word Gap by Age 3*, Hart and Risley (2003) believed "neurologically, infancy is critical period because cortical development is influenced by the amount of central nervous system activity stimulated by experience" (p. 9). Clearly, the experience of infants and toddlers influences their cognitive and language trajectories.

Further, Hart and Risley (2003) discovered that there were differences in how families of different socioeconomic statuses used words and language with their infants and toddlers during their most formative years. These differences may influence life-long educational outcomes for young children. Most significantly for this work, Hart and Risley posited possible critical

periods during early childhood development that cognitive and language interventions could be used to help close the achievement gap.

Leffel and Suskind (2013) supported the association between early language development and closing the achievement gap. The language gap and the delayed formation of receptive and expressive language skills is mirrored by the academic achievement gap that can be evident the first day of school and persists throughout the educational careers of children from low socioeconomic status (SES) into adulthood. Fewer than half of children of low SES in the United States enter kindergarten at grade level, compared to 75% of children from homes of middle and high SES (Leffel & Suskind, 2013). The deficit does not improve with time. At least 79% of black and Latino public school students who are disproportionately impoverished, perform below grade level in math and reading in 4th, 8th, and 12th grades (Leffel & Suskind, 2013). The connection between poverty and educational outcomes cannot be denied. The question became, could Hart and Risley's (2003) research findings open the door to new recommendations and practices to assist in closing the achievement for children?

The purpose of this paper was to review the literature that examines the methods and recommended practices suggested by the "30 Million Words" research and to consider if subsequent research supports the outcomes Hart and Risley (2003) promised. Because of the centrality of economic status to this research, this paper also reviews literature related to the impact of poverty on early brain development.

Specifically, Hart and Risley's (2003) research is detailed. Additionally, Suskind's (2015) subsequent popular work is explicated *Thirty Million Words: Building a Child's Brain*—

Tune In, Talk More, Take Turns. This review of research and literature addresses the following questions:

1. Does the literature support the thesis of the “30 Million Words” work regarding early interventions?
2. What role does economic status play in early brain development?

Literature Search Description

In collecting information for this study, I utilized the St. Cloud State University electronic library system, searching articles in journal sources in Academic Search Premier, EBSCO, and Eric. Searching for related material, I used search terms either individually or in combination. In reference to: a) achievement gap, b) brain development in early childhood, and c) 30 Million Words and vocabulary development. Search filters were used to contain searches within peers-reviewed sources.

Definition of Terms

Achievement gap: the unequal distribution of educational results and benefits.

Poverty: income for a family of four or below: \$23,000 annually.

Vocabulary development in early childhood: differences in phonological discrimination and spoken-word recognition predict early vocabulary growth.

Chapter 2: Review of Literature

The Minnesota Department of Health Reduced and Free Lunch data reported that in 2014 to 2015, approximately four out of every 10 public school students in Minnesota were eligible for the free/reduced price lunch program, compared to three out of every 10 in 2005 to 2006. That is an increase of 33% children in roughly 10 years. With the change in socio-economic needs in our communities, schools are educating more children who live at or below the national poverty line resulting in greater daily challenges and impacting school readiness for students.

In the state of Minnesota, there has been a push to provide universal pre-K programs for all children in hopes of closing the achievement gap between affluent and impoverished children. But as Rolnick, Mortenson, and Fabre (2015) argued, if closing the achievement gap is the motivation for supporting Pre-K programs, it is simply too late since brain development is already complete by that age. They argued if the achievement gap is the priority, age 4 is too late for interventions. Current research supports this view because children born into poverty do not have the same brain development as children not born into poverty.

The body of evidence indicates that the effects of poverty on physiological and neurobiological development are likely to be central to poverty-related gaps in academic achievement and the life-long effects of poverty impacts physical and mental health outcomes for children and their families (Blair & Raver, 2014). The realization and findings related to early brain development and environmental factors were one of the catalysts for Hart and Risley's (2003) research investigating the achievement gap and early childhood developmental outcomes.

Hart and Risley (2003) decided to investigate environmental factors defining an infant and toddlers' home life rather than examining, as others have, the experiences of children in preschools or schools. Rejecting a focus on hereditary, they needed to consider the experience of children at home in their initial stages of vocabulary development.

Hart and Risley (2003) described their attempts in early interventions for children living in poverty and the impacts on the children's academic achievement. One such earlier intervention was designed into a half-day preschool program with impoverished preschoolers. Each preschooler's everyday language use in the preschool setting was evaluated. They also created a control group facilitating children of professors through the University of Kansas. They noted that there was a difference in how parents used words with their young children reflected in their socioeconomic status. This discovery was a catalyst for examining early interventions for very young children.

Hart and Risley (2003) then measured the growth of language for each preschooler. The language-interventions and activities increased in both the controlled and impoverished group increasing both their speech and vocabulary skills. Regrettably, Hart and Risley realized that, while the size of a child's vocabulary could be increased, the intervention did not alter the developmental trajectory of the children in the impoverished group. They also realized that the children of relative affluence not only learned new vocabulary, but they also retained and employed their new knowledge. The researchers were unable to account for the fact that while impoverished children lost their skills those of affluence retained theirs.

Hart and Risley (2003) redirected their research by examining vocabulary growth in the home. This redirection became the foundation for the findings discussed in the "30 Million

Words” research. Hart and Risley’s goal was to understand what was happening early in a child’s language development, across socioeconomic settings. Over a 2½ year period, the researchers observed 42 families of different socioeconomic backgrounds for 1 hour each month to learn about what typically occurred in the homes of 1- and 2-year-old children learning to talk. Hart and Risley elected to begin their research with children between 7-9 months old so that the researchers and families could become comfortable with the research observers before the children began talking. The researchers followed the children and families until the child was 3.

The next priority for the researchers was to assure an array of demographics related to socioeconomic standing, gender, and race. Their greatest challenge was in recruiting families willing to remain in the study until its conclusion (Hart & Risley, 2003). The study was made up of 13 families of upper socioeconomic status (SES); 10 were middle SES, 13 were lower SES, and six on welfare. There were African-American families in each SES category, in numbers roughly reflecting local job allocations. One African-American was upper SES, three were middle, seven were lower, and six families were on welfare. Of the 42 children, 17 were African-American and 23 were girls. Eleven children were firstborn to the family, 18 were second children, and 13 were third or later-born children. The data disclosed that families differ immensely in the amount of language and interaction they provide their children, and these differences in children’s language and relationship experiences were strongly linked to children’s language accomplishments at age 3 and socioeconomic status (Hart & Risley, 2003).

The foundation of Hart and Risley’s (2003) research findings demonstrate by 4 years, an average child in a professional family would accumulate experience with almost 45 million words, an average child in a working-class family 26 million words, and an average child in a

welfare family 13 million words. Hart and Risley reflected the word use of their parents. In fact, 86-98% of words by children were employed by their parents.

Children by the age of 3 mirrored their parents in their language development in the amount of talk, vocabulary growth, and style of interaction suggesting the widening gaps in language use to come. Hart and Risley (2003) proved that children are a product of their environment and they learn and observe from their very first teachers; their parents and caregivers.

Not only did Hart and Risley (2003) expose the discrepancy between the numbers of words a child is exposed to in her or his home, they related that exposure to the child's socioeconomic status and two other interesting findings from their research. One explored the relationship between language acquisition at 3 and test performance in the third grade. The question of whether a child's early life experiences could predict their educational trajectories led to a new body of supportive research, utilizing Hart and Risley's research findings.

Thus, Walker, Greenwood, Hart, and Carta (1994) followed the educational trajectory of the children from Hart and Risley's (2003) study over time. Thirty-two of the 40 original children were located in 1988 and successfully recruited for participation in the longitudinal study of early elementary school outcomes. Walker et al. hypothesized that the initial relations between family socioeconomic statuses (SES), parenting and early language would persist, demonstrated by the prediction of their elementary school outcomes based on earlier (SES), parenting and language indices. The Walker et al. hypothesis was correct: early home, subsequent schooling, and lower socio-economic status place children at risk for less successful performance in early elementary school.

The second realization from their research was that children from different socioeconomic statuses experienced either more positive or negative words used by their parents throughout their day. Hart and Risley (2003) also demonstrated that there was a difference in the kinds of words parents used with their children. They found that children from higher socioeconomic homes experienced more positive verbal interactions compared to children from lower socioeconomic households the differences were profound. The average child from a professional family experienced 32 affirmations and five prohibitions per hour or a ratio of six encouragements for each discouragement. Average children in a working class family experienced only 12 affirmations in an hour while also receiving seven prohibitions for a ratio of 2-1. These findings are even more arresting when compared to children living on welfare. These children received five affirmation and 11 prohibitions. Not only was the communication experienced almost twice as negative as that experience by children in a professional family, there were about half as many interactions making those negative responses even more potent.

Children born into poverty who are not exposed to a rich, engaged language environment, can experience intellectual and developmental disabilities. Significant disparities exist in children's early language environments, with equally significant life-long consequences. An early language environment lacking rich and abundant language input, joint attention, and verbal exchanges contributes to weaken a child's language outcomes, which includes smaller vocabularies and weaker expressive language and pre-literacy skills. This disparity in language input occurs in children with speech and language delays, children with intellectual or developmental disabilities such as autism spectrum disorder, children with hearing loss, and, most robustly, children born into poverty (Leffel & Suskind, 2013).

Initiatives

The recommendations of Suskind's (2015) *Thirty Million Words: Building a Child's Brain* and the practice of introducing the philosophy of "30 Million Words" to parents and educators has produced many city-wide initiatives throughout the U.S. in the hopes of educating parents about the importance of using words with infants and toddlers to help close the achievement gap. "Short of eliminating poverty, what might be done to close the language gap and give disadvantaged students a better shot at success? One obvious approach is to get parents talking to their kids more" (White, 2013, p. 17). The early intervention in helping or teaching parents to use more words with their children has become a strategy in helping to close the achievement gap.

Talbot (2015) employed the "30 Million Word" initiative in Providence Talks. A venture funded by a \$5 million investment from Bloomberg Philanthropies. Taveras, the mayor of Providence, Rhode Island, believes conversational strategies could be taught to new parents closing the word-gap challenge. The push for early parental language interventions can be found even closer to home.

Closer to home, Minneapolis Mayor Hodges, by launching the first major project out of her *Cradle to K* initiative for babies and young children, focused on encouraging parents to talk more to their children. The word-gap campaign, which the mayor's office is calling "*Talking=Teaching*," is the most specific project to emerge from the mayor's *Cradle to K* cabinet, which was formed more than a year and a half ago and focuses on babies and children under the age of 3 (Golden, 2015). The focus on infant and toddler language exposure in their

natural home environments hopes to change the educational trajectories of children living in poverty.

During the Obama administration, Obama, persuaded by the “30 Million Words” research, created a partnership between stakeholders in hopes of providing families with resources and strategies to educate parents about the importance of early language exposure (Early Childhood Development Office, 2015). These leaders, as well as others, have accepted the work of Hart and Risley (2003).

Sampling of Challenges

Hart and Risley’s (2003) conclusion stressed that their longitudinal data demonstrates the problem of skill differences among children at the time of school entry is bigger, more challenging, and more important than they had originally thought. So much is happening to children during their first 3 years at home at a time when they are especially vulnerable and exclusively dependent on the family for virtually all their experiences, that by 3 years, an intervention must address not just a lack of knowledge or skill, but an entire general approach to understanding how to interact and engage with their children. The challenge is how interventions can be taught in a child’s home environment by their earliest teachers: their parents and care givers.

Hart and Risley (2003) cautioned that their data provide insight into children’s early life experiences related to their first learning environments and language development but more research was needed to support and corroborate their findings. Walker et al. (1994), in related research, cautioned that the findings of their research were not absolutes needing replication and

larger sample sizes to be truly valid. One of the challenges with this literature review has been the limited supportive research contributing to Hart and Risley's (2003) hypothesis.

Given the lack of supporting research, there are those who questioned Hart and Risley's (2003) hypothesis related to social norms and practices. Others questioned Hart and Risley's research methodology finding it to be flawed. Others raised concerns regarding the failure to account for cultural in the research.

Michaels (2013) pointed out that the so-called "quality" features have to do with politeness and cultural preferences, based on middle class, academic researchers' "impressions" that these features in Hart and Risley's (2003) research result in higher quality interactions. Michael's argued that Hart and Risley unwittingly formulated their findings through their own social-economic lens. They coded for and counted upper middle class (professional/academic) trappings of language with no research evidence that these forms of language relate to reasoning, memory, intelligence, or ability to learn. Michaels noted they neglected decades of sociolinguistic and anthropological work on minority and working class speech communities. Although different from Hart and Risley's communities, the language used was still rich and complex.

Michaels (2013) shared her concern that Hart and Risley's (2003) longitudinal study was limited in its scope and numbers researching only six welfare families and 13 upper SES families for the body and conclusion of their research.

Forcefully she noted, Hart and Risley (2003) did not consider the social norms of language from different social classes or cultural backgrounds; they ignored the fact that regardless of a child's race, culture, or socioeconomic status, all children have well-developed

“ways with words,” ways of telling stories, and sharing their knowledge with others. Michaels (2013) went on to support her stance by pointing out that “this has been robustly documented in the classic research literature on children’s language and culture, in the fields of linguistics, sociolinguistics, anthropology, developmental psychology, and cognitive science” (p. 36). Michaels’ argument provides a wider view of language use in families from different SES backgrounds and families with different cultural norms compared to Hart and Risley’s narrower view; that of higher SES backgrounds as the measurement of the highest order. Michaels posited that the achievement gap might not be due to language exposure, but to the differences in opportunity for children from lower SES backgrounds to experience the same cultural events, such as attending theater, museums, and exhibits as children from higher SES backgrounds.

Michaels (2013) further questioned Hart and Risley’s (2003) six “quality features” when coding verbal interactions between parent and child. She argued that Hart and Risley’s quality features identified had no explicated basis in any kind of linguistic, psycholinguistic, or cognitive research linked with children’s language learning and cognitive development. She also questioned Hart and Risley’s coding was that of “Feedback Tone.” Tone signifies the usual effect of parent-child interactions, as demonstrated by the ratio of affirmative feedback parents use with their child. Examples include expansions, extensions of a child utterances, plus words such as “good” and “right” to the total feedback.

Dudley-Marling and Lucas (2009) also questioned the strength of Hart and Risley’s (2003) findings. They argued that Hart and Risley’s work is undermined by these factors:

- methodological flaws in how Hart and Risley selected their participants and collected their data;

- an ethnocentric bias that takes for granted the normative status of linguistic and cultural practices of the middle- and upper-income families in their sample,
 - failure to make explicit the theory of language and culture that frames their analysis.
- (p. 364)

Like Michaels (2013), Dudley-Marling and Lucas (2009) questioned Hart and Risley's (2003) findings and conclusions based on language differences because all children enter school with language basic skills required for school success. They argued that the "deficiencies" seen by Hart and Risley are merely differences.

Additionally, concern has been raised regarding the number of participants in the study. Fernald, Marchman, and Weisleder (2013) conducted a longitudinal study that took into consideration the limitations of Hart and Risley's (2003) research. The research team tracked developmental changes in language processing efficiency in relation to vocabulary learning in diverse sample of English-learning children (Fernald et al., 2013). Fernald et al. discovered that by 24 months, there was a 6-month gap between infants at higher SES than those at the lower SES. These findings support Hart and Risley's (2003) earlier findings that children begin learning language and build relationships surrounded by communication sooner in their development than had previously believed in child development. Fernald et al.'s research demonstrated not only were those differences seen earlier but that real-time language processing was also noted. Fernald et al.'s study was based on a sample of 48 children. While expecting different results, Fernald et al.'s research supports the work of Hart and Risley (2003).

A new study by Morgan, Hillemier, Scheffner, and Maczuga (2015) analyzed data from a sample of 8,650 U.S. children. In addition to expanding the population-based, longitudinal

sample, they factored sociodemographic characteristics of families including SES, race or ethnicity, maternal age, and parental marital status. They also considered gestation, birth weight, multiple gestation, and medical risks, and complications during pregnancy and at delivery in their study. The research team addressed the child's parents parenting skills and the quality of their home environment. This included family stressors, whether a family member had a mental illness, learning disability, or special need. They went on to add how much time a child spent watching television and whether or not the child attended daycare. These detailed factors were analyzed and examined and the results of their findings supported the conclusions of Hart and Risley (2003) that a child's vocabulary at twenty-four months is an accurate predictor of academic and behavior functioning in Kindergarten.

While a variety of studies had initially questioned Hart and Risley's (2003) results, independent research confirmed those results almost unanimously.

Sampling of Support

Harris, Michnick, and Hirsh-Pasek (2009) focused on early exposure to language and enhancing vocabulary skills for children from PreK-third grade. They argued that vocabulary development can be enhanced not from memorization of vocabulary but rather from classroom conversations and playful engagement. They, like Hart and Risley (2003), believed that early verbal interactions with parents and caregivers are how a child learns vocabulary and word usage. Harris et al., expanding the work of Hart and Risley, argued that the same strategies and recommendations recommended for infant and toddlers could also be applied for older children.

The research team went on to explore how what is learned from the crib can transfer to teaching vocabulary in the classroom. Distilling the findings from multiple researchers, Harris et al. (2009) suggested six principles:

- First, children learn the words that they hear most—frequency matters.
- Second, they learn words for things and events that interest them.
- Third, they learn best in interactive and responsive rather than in passive contexts.
- Fourth, they learn words in meaningful contexts that exemplify the meanings of the words.
- Fifth, they can learn words from definitions when those definitions are presented in a ‘child-friendly’ way that take children’s prior knowledge into account.
- And finally, vocabulary learning and grammatical learning are reciprocal processes. Offering definitions or using words in sentences during interaction always includes a surrounding linguistic context. (p. 12)

The principles outlined the process of vocabulary acquisition recognized by Harris et al. (2009) in many ways reflects the recommendations from Suskind (2015) discussed earlier. Like Suskind, Harris et al. believed that language learning takes place best in meaningful and playful settings where a child is engaged and absorbed. Harris et al. went on to stress that the acquisition of vocabulary in preschool occurs most effectively when “mimicking” the experience in the home. Through this spark, a child is engaged and learning new concepts and new vocabulary.

Recognizing the foundation created by Hart and Risley (2003) with younger learners, Harris et al. (2009) pointed out that this same foundation can be carried over into the classroom setting for young learners, reminding readers that, . . . *how* you learn is as important as *what* you

learn” (p. 29). Harris et al.’s research demonstrates the importance of how a child learns language in the importance of engagement and focusing on child’s interests. Not only do we need to focus on the research centered on the onset of language acquisition but we need to carry over these findings to our classrooms and preschool settings.

Hindman, Wasik and Snell’s (2016) literature review pointed out the importance of using evidenced-based research to move forward in closing the word gap. They noted, “Amid multimillion dollar investments in efforts to close the word gap, we must carefully summarize and apply evidenced-based research, and develop strategies for studying these pressing questions” (p. 134). Hindman et al. supported the current research that by 18 months, children of higher socioeconomic status know 60% more words and are faster at comprehending words than their lower income peers. Hindman et al. maintained that word acquisition occurs at the juncture between cognition and social interaction, as children attend to and then make meaning of the embedded language they hear. Again, Hindman et al. stressed the importance for additional studies and new research related to vocabulary growth in the home and in school to support how children learn vocabulary especially for children at risk. As White (2013) observed, “The language gap between rich and poor children may be well known but new research suggests the gap may be taking shape earlier than anyone had expected” (par. 1). There can be no question that mitigating poverty and its effects would dramatically alter the developmental trajectory of children.

This chapter demonstrates that, while some legitimate concerns have been raised regarding the features of Hart and Risley’s (2003) research methodology, by and large, no substantive questions were raised regarding their conclusions. A variety of researchers have

demonstrated that vocabulary use and vocabulary exposure can influence a child's educational outcomes and that interventions to assure that all children are engaged in rich, meaningful verbal interactions with caregivers can change a child's developmental trajectories.

Chapter 3: Recommendations

Given the findings of Hart and Risley (2003), Suskind (2015) suggested three strategies to implement the recommendations thereby enhancing the communication experienced by children: “Tune In, Talk More, and Take Turns,” otherwise known as “Three Ts” (p. 134) which will now be explored in detail.

Suskind (2015) recognized that “Tune-In” is an essential feature. Infants and toddlers learn through the realm of “relationships;” they do not learn in isolation. As Suskind pointed out, without the “Tune-In, the other T’s” cannot function. An essential difference between adults and children must be recognized. Adults are thought to be able to attend to a variety of stimuli simultaneously, even if the stimuli is uninteresting, children, however must be engaged. Suskind remarked, “If there is no interest, then words, even the words of a really good story, float in the air, having little or no effect on that child’s brain development” (p. 136).

Parents and caregivers are challenged in that they need to be responsive and alert to the needs and interest of the child. The key purpose of “Tune In” is parental responsiveness. A child’s future well-being, including cognitive development, social-emotional development, self-regulation, physical health, and countless other outcomes, has been linked to the responsiveness of the parent, particularly in the first 5 years of life. As Suskind (2015) noted, science tells us clearly that sympathetic, appreciate responses to a child are essential to behavioral and brain development.

All children benefit from strong parental bonding, and this is the very foundation, either rich or poor, that a child’s maximum brain development can begin: “a caregiver’s loving, positive responsiveness to a child is an essential factor in the child’s development as a human

being. No matter the country, what culture, no matter the temperament of the child, handling things in a loving, responsive way predicts the ultimate stability of the child” (Suskind, 2015, p. 140). Yet there are those infants who are not provided this benefit. Due to circumstances out of their control the simple foundational role of “Tune In” is not theirs, and they are denied this primary opportunity for maximum brain development.

The second “T” of Suskind’s (2015) work is “Talk More,” the core of Hart and Risley’s (2003) research. Suskind pointed out the number of words spoken to a child is not the crucial element, but the kinds of words and how those words are used that builds on a child’s increasing vocabulary. Suskind broke the “Talk More” scaffolding into four important elements: narration, parallel talk, pronouns, and decontextualized language.

“Talk More,” which goes hand in hand with “Tune In,” refers to a parent’s engaged, purposeful conversation with a child, especially regarding the child’s interest. While this may seem a subtle distinction, this distinction is fundamental to the “30 Million Words” approach. “Talking More” requires a mutual level of engagement between the child and parent. Like “Tune In,” this dimension is another critical element of child-parent attachment and brain development.

Suskind (2015) shared that narration is also a way to familiarize a young child with the steps involved in routine activities; although the parent will be doing most of the work, the goal is for the child to eventually do it alone. The effort to use engaged, descriptive words with a child is a concept that, for some parents, is a challenge. The very idea of using words that surround the child is hard to fathom—I often try to demonstrate what narration might look like, using the example of changing a child’s diaper: “Oh, someone needs a diaper change,” “Come

here big girl, my little sweet pea,” “Let’s change your wet diaper,” “I am going to lay you down and Mommy, is going to change you,” “Look at you so big” By taking an active role in narration with a child, her or his brain neurons are expanding and connecting in ways that provide future positive developmental outcomes for the child.

Whereas narration is one of the elements in “Talk More,” “Parallel Talk” is another. Suskind (2015) described parallel talk as “While narration occurs when parents talk about what they’re doing, “Parallel Talk” is commentary on what the child is doing. “Tuning In” is a strong component of “Parallel Talk.” This practice expands the child’s experience in the moment. Suskind used the following example of parallel talk:

“You have Mommy’s purse.”

“The purse is so heavy.”

“Should we see what’s inside?”

“Ah, you found Mommy’s keys.”

“Not in your mouth, please. We don’t chew on keys.

“They’re not food.”

“Are you trying to open your truck with the keys?”

“The keys open the door”

“C’mom. Let’s go and open the door with the keys.” (p. 145).

“Parallel Talk” is not using words that are complex, but involve a practice that allows for “child level” interest and are related to their immediate activities or interests. Again, the role that “Tune In” plays is fundamental in all aspects of the “30 Million Word” philosophy. This

practice takes time and energy on the caregiver's part and not all parents understand the importance of parallel interactions with their child and the expansion of vocabulary.

Another key to "Talk More" is that of pronouns; the simple act of labeling things, people, and places. By using pronouns, a child is learning to label things in her or his environment and with that labeling can expand and elaborate her or his own ideas and experiences. The last segment of "Parallel Talk" is decontextualized language development.

Young children use contextualized language often to label objects in their environment, "Dada," "Kitty," "No go nap." Suskind (2015) described these words as referring to a visual object or action. As children get older, however, usually between the ages of 3 and 5, they begin to use language about things or events that they are not currently seeing or experiencing. The term for this is "decontextualized language" (p. 147). Suskind expanded on this theory commenting that while some might be intimidated, this simply means using words to which the child is familiar to talk about familiar things like toys, activities, or favorite people. This expansion of vocabulary requires, as Suskind recognized, "The child has to tap into existing vocabulary to understand, without the support of clues from the immediate environment" (p. 147). The technique expands a child's language skills and builds on a child's understanding of the world around her or him. Parents are encouraged to use expansion, extension, and scaffolding to stay one or two steps ahead of a child's ability to communicate, encourage more elaborate, detailed communication, an important goal of "Talk More" (Suskind, 2015).

The third element, the final T, "Take Turns," entails engaging a child in a conversational exchange. As a child matures, turn taking changes and expands. Suskind (2015) encouraged

parents to “wait” as a young child searches for a word to use, instead of providing the word for the child. She also recommended asking open-ended questions.

Suskind (2015) noted, for example, “A simple ‘how’ or ‘why’ allows a child to respond with a wide range of words, thoughts, and ideas. There is no way to answer a why question with a nodded head or a pointed finger. ‘How?’ and ‘Why?’ start a thinking process that can lead, eventually, to the skill of problem-solving” (p. 151). Merely by asking, parents can transform the scientist in the crib to the scientist in school.

Chapter 4: Summary

This paper has summarized and reviewed a sampling of the challenges and supports related to Hart and Risley's (2003) works consistent with the current 30 Million Word movement using peer reviewed research, literature review articles, publications, and journal articles. The next part of this paper is dedicated to summarizing the findings.

Hart and Risley's (2003) research demonstrated that there is a word gap between children from different socioeconomic backgrounds, and the most striking findings are that infants and toddlers are absorbing language/vocabulary sooner in their development than had previously been understood.

Walker et al. (1994) established that the "word gap," a gap in vocabulary knowledge, could predict a child's educational outcomes over time. They noted the findings support that both early home and schooling factors related to SES may place children at risk for advanced and cumulative poor performance in early elementary school.

Hart and Risley (2003) and Walker et al.'s (1994) research had been questioned due to their small sample size and their lack of understanding cultural differences in how families relate to one another. They believed higher socioeconomic groups in their study were the gold standard and all children should be exposed to language and relationships like that of the upper class children.

One of the early challenges with this literature review was that there were few research articles that supported Hart and Risley's (2003) research related to 30 Million Words. There were several literature review articles that analyzed their works, but all articles recommended

further research was needed to be completed with larger sample numbers and consideration of cultural norms needed to be considered for future research.

Fernald et al. (2013) wondered when socioeconomic status differences began to emerge. They went on to share their methodology to answer validity concerns related the 30 Million Word research. One of the most noted findings from this research was significant disparities in vocabulary and language processing efficiently was already evident at 18 months among infants and by 24 months there was a 6-month gap among SES groups in processing skills critical to language development.

Morgan et al.'s (2015) research findings reinforced the original findings of Hart and Risley (2003) verifying vocabulary has a unique relation in children's developmental outcomes over time. Morgan et al. also supported the findings of White (2013), children's vocabulary acquisition at 24 months can predict the child's academic and behavioral trajectories at kindergarten.

Discussed and reviewed in the literature was the current literature, parent practices, and community programs that have embraced the 30 Million Word movement in hopes of beginning to close the language gap. Suskind et al.'s (2015) work was reviewed in detail to demonstrate the practices that should be reinforced to assist parents and policy holders in how to engage and implement the 30 Million Word practice.

The first question proposed for this literature review was if the literature supported the thesis of the 30 Million Words works by Hart and Risley (2003) questioning how and when children begin learning. Through their research it has been discovered infants and toddlers are learning from their environment from the moment of birth. They are building brain neurons at

one of the fastest paces in their overall development and their environments can dictate how strong their brain connections develop over time. The importance of Hart and Risley's (2003) research is that we need to provide our children with rich environments of language and relationships sooner in their development than we had previously understood.

The second question of this literature review was: "What role does economic status play in early brain development"? The answer to this question is "yes" indeed economic status plays a role in how a child is exposed to and engaged in language acquisition. If we want to address the language gap, we need to invest and implement interventions at the root of a child's beginning development, that of his or her home at the moments of birth.

Chapter 5: Position

As an Early Childhood Special Education teacher, one of the biggest challenges has been to determine if a child has a learning disability or qualifies for special education due to the ramifications of living in poverty; sometimes they go both. With this current literature review in hand, I have been able to share with parents, caregivers, teachers, and others the importance of providing all children with a rich and caring environment focused on language to assure that we are making and changing children's educational outcomes associated with the language gap related to socioeconomic status.

As an early interventionist, I often work with parents and caregivers in how to engage and expand on a child's developmental needs within their home environment. Parents are a child's first teachers. I have tried to educate and inform parents about the importance of Suskind's (2015) recommendations for expanding and harvesting a child's language development early on in development. One such parent looked at me thoughtfully one afternoon and shared "You know, I really do not use a lot of words with my child." I am always working or needing to rest, but I will try to use more words with my child." I often also share with parents that they do not need to "read" the words of a book with their child but "describe" what they are seeing on the page with their child. That the "words" do not matter but the opportunity for shared learning is fundamental to their child's learning opportunities.

If we want to close the language gap and assure that children living in lower socioeconomic status educational needs are being addressed, we need to assure that we are identifying at risk families sooner. I am currently on a task force in the county of my small school district. The goal of the task force is to address out of placement services for children and

how to close the need for such services over time. I have been able to share the research findings from this project, demonstrating the need to invest in early intervention services to assure optimum brain development for children at risk. We, as a community, need to provide and address the developmental needs of a child at birth or in many cases before birth. This philosophy has been a hard sell, but Rolnick et al.'s (2015) economic findings support the shift of focus and Hart and Risley's (2003) research findings, supported by recent research.

Children living in poverty have increased over time, through no fault of their own, and the disparity between children of affluence in our communities has widened. Not only are children from lower socioeconomic backgrounds left behind their wealthier peers developmentally, but if not addressed, they too will continue the possible negative trajectories for their children.

Public Health, Early Head Start (birth-3), Early Childhood Family Education, and other community supports could address some of the educational interventions needed, but there needs to be more investment in early interventions for children and families at risk. The importance of this research has demonstrated the need for early intervention to assure that all children can gain a fair playing field as they mature and grow in our communities and homes.

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