

The Relationship Between Parents' Literacy Skills and Their Preschool Children's Emergent Literacy Skills

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Abstract

The aim of the present study was to investigate the correlational and predictive relationships between parents with low literacy skills ($n = 96$) and their 3–5 year old children's emergent literacy skills ($n = 96$). In the study parents were assessed on measures of reading comprehension, decoding, fluency, oral vocabulary, and word identification, and prekindergarten children were assessed on similar measures of alphabet knowledge, beginning sound awareness, print awareness, and oral vocabulary. Results indicated that parents' word identification

and fluency skills were positively correlated with all of the children's literacy skills with the exception of print awareness. Parents' decoding, receptive vocabulary, and expressive vocabulary skills were positively associated with all of the children's literacy skills with the exception of phonological awareness. Also, hierarchical regressions indicated a predictive relationship between several of the skills after accounting for child age and parent educational level. This study adds to the family literacy literature indicating the importance of the relationship between children and their parents' literacy skills.

As research has focused largely on the role of emergent literacy skills in children's subsequent reading achievement (National Early Literacy Panel, 2008), the role of the parent has also been endorsed as a fundamental component in children's early reading success (Sénéchal & Young, 2008). Based on prior research showing a correlation between the mother's educational level and the child's achievement in school, many assume that a positive causal relationship exists (Kogut, 2004; Korat, 2009; Magnuson, Sexton, Davis-Kean, & Huston, 2009). As this causal relationship is one of the major presumptions for the provision of family literacy programming and initiatives, it is often assumed that improving the parent's literacy level will lead to improvement in other environmental, social, and cultural factors that support literacy. Surprisingly, these presumptions are supported primarily by data on parent variables that is either self-reported (e.g., surveys) or indicated by educational level. There is a lack of empirical research that measures both the parent's and child's literacy skills.

Ample evidence supports the strong relationship between parents' educational levels and their children's literacy levels (Korat, 2009; Magnuson et al., 2009). Meanwhile, according to the 2000 United States Census, it is estimated that 21% of the adult population does not have a high school diploma, or a high school equivalence diploma (Lasater & Elliot, 2005). Parents' low levels of educational attainment likely impact their children's literacy development. For example, in a longitudinal study of children's reading and reading-related abilities in kindergarten through fifth grade, Hecht et al. (2000) found that a composite score comprised of parents' grade attainment and occupation significantly and independently accounted for growth in children's reading and oral language abilities. Korat (2009) found significant positive correlations between mothers' educational level and children's (ages

5–6 years old) literacy performance. Children of mothers with a Bachelor's degree or higher scored significantly higher than children of mothers with a high school diploma or less on measures of print concepts, word recognition, receptive vocabulary, emergent word writing, and emergent book reading, but not phonological awareness. Finally, Magnuson et al. (2009) found significant positive relationships between mothers' educational levels and preschool children's oral vocabulary comprehension and expressive language skills.

Despite the potency of these findings, a measure of parents' educational level (e.g., highest grade completed in school) is only a proxy for adults' true academic abilities. Education level does not provide a complete picture of one's academic ability. For example, Greenberg (1995) found that 63% of her adult participants who read at a third to fifth grade level had completed the 11th grade, and an additional 24% were high school graduates. Gross measures of educational attainment, like "highest grade level completed," may mask low literacy rates that are present within the general adult population in the United States. According to the most recent assessment of adult literacy skills, one in six adults in the United States reads at or below elementary school levels (OECD, 2013). Many of these adults exhibit limited literacy capabilities and have difficulty with tasks such as filling out an application, reading news stories, reading labels, or reading instructional materials (National Center for Educational Statistics, n.d.). Thus, in order to investigate the relationship between parents' and children's literacy skills, it may be important to assess both groups' skills directly.

It is important to investigate this relationship directly because many adults who participate in family literacy programs may be at the lowest literacy levels, but are expected to work with their child on literacy related tasks in the home (Chen, Pisani, White, & Soroui, 2012; Wen, Bulotsky-Sharer,

Hahs-Vaughn, & Korfmacher, 2012). Therefore it is important for educational programs to be aware of the diverse literacy needs of families as they provide services. Moreover, as the current study is a first step in exploring the correlation between parent and child skills it is our hope that this research may be extended in the future to yield helpful information about the intergenerational transfer of literacy skills which has been considered in previous research as important (e.g., Bus, van Ijzendoorn, & Pellegrini, 1995; Hecht, Burgess, Torgesen, Wagner, & Rashotte, 2000; Korat, 2009). Research on family literacy programs and strategies suggest that effective programs require parents to actively engage with texts and use of strategies such as print referencing, conversational expansions, and other reading-related strategies (Wen et al., 2012). Thus, parents themselves need to have sufficient literacy capabilities to implement these programs and strategies effectively (Chen et al., 2012). Unfortunately, little research in this area has considered whether or not program implementation is effected by parents' literacy levels. As attention to the intergenerational cycles of functional illiteracy increases both in the research literature and among service providers, it may be valuable to consider the value of adult education alongside early childhood education. Accordingly, the following research questions were posed:

1. What are the relationships among parents' educational level, their literacy skills (receptive and expressive vocabulary, decoding, word recognition, fluency) and their children's related emergent literacy skills (receptive and expressive vocabulary, phonological awareness, letter knowledge, print awareness)?
2. After accounting for the child's age and parents' educational level, do parent literacy skills account for variance in related child emergent literacy skills?

This correlational study serves as a necessary first step in investigating the relationship between

parents' specific literacy skills and their children's specific literacy skills. It was conducted with the hope that information would be gathered to help guide future intergenerational researchers investigate causal intergenerational relationships.

Method

Participants

This study included 192 participants, which consisted of 96 primary caregivers and one prekindergarten child of each primary caregiver. Children (100% African American, 60% female, mean age = 55 months, $SD = .37$) were attending a state-funded pre-kindergarten program that was also participating in an Early Reading First (ERF) project. ERF is a federally-funded early education grant program that sought to create early childhood centers of excellence that served primarily children from low-income families. Through provisions established by ERF and state-mandated standards for prekindergarten instruction, children in these prekindergarten classrooms received high-quality, developmentally appropriate instruction in oral language, emergent literacy, and cognitive, socioemotional, and physical development. Children completed several assessments of early literacy skills as a part of ERF. Caregivers (hereafter referred to as *parents*) were recruited to participate in this study if their children completed testing within the ERF project.

Responses on demographic surveys revealed that 99% of the adult participants were African American, 80% were female, and their average age was 32 years old ($SD = 8.84$). Mothers were the majority of the primary caregivers who participated in the study (i.e., 75%), with others self-identifying as grandparents, fathers, or other guardians. All participants were native English speakers. Additionally, all of the adults reported their highest level of education—20% reported that they did not complete high school, 24% reported graduating from high school, 26%

reported having a high school degree with some college or associates education, 2% reported having an associate's degree, and 28% reported having a four year degree or higher.

Procedure

Prior to recruitment for this study, the investigators obtained IRB approval. The parent participants for this study, whose children had available literacy scores (from a separate larger study) were recruited to participate. Parents were assessed in a quiet location at their child's school. All participants started with item number 15 on the Letter-Word Identification subtest of the *Woodcock Johnson Tests of Achievement, 3rd Edition* (WJ-III; Woodcock, McGrew, & Mather, 2001). This item is the first word reading item which does not have letter identification items following it, and is at the k.7 grade level (therefore it was anticipated that all parents would be able to easily read the first few words). The age level equivalencies obtained on this subtest forecasted the starting points for the *Peabody Picture Vocabulary Test, 3rd Edition* (PPVT; Dunn & Dunn, 1998) and *Expressive Vocabulary Test* (EVT; Williams, 2007) to ensure that the adults were started at an appropriate level that would not be too difficult. Testing for the adult participants was completed in one session lasting 25 to 40 minutes.

Children were tested prior to their parents, individually at the beginning of the school year by trained ERF staff as a part of the separate larger study (investigators from the current study were granted access by the parents to the child assessment data). Tests were administered in random order and in standardized format according to directions stated in the test manuals. All testing occurred during the morning school hours, in two or three sessions.

Measures

Parent Oral Language and Literacy

Oral vocabulary. To measure oral receptive vocabulary, the PPVT (Dunn & Dunn, 1998) was administered. Participants were instructed to look at a template with four pictures, listen to the word orally presented by the examiner, and chose the picture that best represents the word. This test was normed on people ages 2 to 90+, with reliability of .97.

The EVT (Williams, 2007) was administered to measure expressive vocabulary. Participants were shown a picture and asked to provide a single word to label a picture or to provide a single word synonym for the target word. This assessment was normed on people ages 2 to 90+, with a reliability of .97.

Word recognition. The Letter-Word Identification subtest of the WJ-III measured the participants' word identification skills as they identified words of increasing difficulty. This subtest was normed on people ages 5 to 80+, with a reliability of .94.

Decoding. The Word Attack subtest of the WJ-III measured the adults' decoding skills requiring participants to read aloud pseudo words (of increasing difficulty) that are phonetically consistent or regular patterns in English orthography. This subtest was normed on people ages 4 to 80+, with a reliability of .87.

Reading fluency. The Fluency subtest of the WJ-III assessed the participants' reading speed and rate within a 3-minute time limit. The Fluency subtest was normed on people ages 6 to 80+, with a reliability of .90.

Child Oral Language and Literacy

Oral vocabulary. Similar to the adults, the children were administered the PPVT and EVT (see descriptions above).

Phonological awareness. The Beginning Sounds subtest of Phonological Awareness Literacy Screening (PALS PreK; Invernizzi, Sullivan, Meier,

& Swank, 2004) measured children's phonological awareness skills and required children to orally produce the beginning sounds of words that were first spoken aloud by the examiner. This assessment was intended for preschoolers, with a reliability of .93.

Alphabet knowledge. Letter Knowledge subtest of the PALS PreK assessed alphabet knowledge. The test administrator asked children to name the 26 upper-case letters of the alphabet presented in random order. This assessment was designed for preschoolers and no information regarding reliability is available for this subtest.

Print awareness. The Print and Word Awareness subtest PALS PreK measured print identification, concepts of print, and concepts of word. This subtest contained 10 items and mimicked a naturally occurring book reading event. This subtest was designed for preschoolers with a reliability of .75.

Demographics

Demographics. Parents provided the following demographic information about themselves: age, gender, ethnicity, educational level, language spoken in the home, and caregiver role. Parents also reported demographic information about their child (e.g., gender, age, and ethnicity). Parents completed this survey orally with a trained examiner who read the questions and wrote down their responses.

Results

Similar to many adult literacy studies, raw scores were used for all analyses because it is unclear whether standard scores are appropriate for adults with low literacy skills (e.g. Greenberg, et al., 2013; Nanda, Greenberg, & Morris, 2010). Another reason for using raw scores was due to the fact that one of the child assessments (PALS PreK) does not have standard scores available.

Parent Oral Language and Literacy Performance

As shown in Table 1, there was a fair amount of variability in parents' performance on each of the main variables. However, based on the average reported educational level of the parents (nearly 80% high school graduates, with 56% having attended some college), the data demonstrate that the adults performed lower on these measures than what may have been expected. Specifically, their mean grade equivalency level on word identification was 9.85 ($SD = 5.43$), on word attack was 8.20 ($SD = 5.37$), and on fluency was 10.00 ($SD = 4.5$). Their mean age equivalency level on receptive vocabulary was 15.30 ($SD = 6.26$) and on expressive vocabulary was 15.24 ($SD = 5.37$).

To further explore the variability of the adults' performance on the assessments, analyses were conducted to determine the percentage of adults who were one standard deviation above and below the mean and two or more standard deviations above and below the mean on all the assessments. Within the analyses, educational level was considered to determine if there were differences between low-educated adults (some high school and or graduated high school) and high-educated adults (some college and above). Results indicated that the high-educated group included a greater percentage of participants than the low-educated group who performed one standard deviation above the mean on the assessments (79.7% vs. 66.7%, respectively). Similar results were obtained when looking at the performance of the adults at two or more standard deviations above the mean. The high-educated group included a greater percentage of participants than the low-educated group (55.6% vs. 23.8%, respectively). Likewise, the low-educated group included a greater percentage of participants than the high-educated group who performed one standard deviations below the mean (78.6% vs. 64.9%, respectively) and two or more

standard deviations below the mean (35.7% vs. 18.6%, respectively). Additionally it was noted that parents with higher literacy skill levels included children with higher literacy skills levels and lower parent literacy skill levels included children with lower literacy skill levels.

Child Oral Language and Literacy Performance

As shown in Table 2, there was also a fair amount of variability in children's performance on each of the main variables. Age equivalency means demonstrated that the children performed lower than expected (the average age of the children was four and a half years) on the oral language assessments of receptive vocabulary ($M = 3.11$, $SD = 1.21$) and expressive vocabulary ($M = 3.86$, $SD = 1.05$).

To provide context on the children's performances on the literacy assessments, it is important to note that according to the PALS-PreK manual (Invernizzi et al., 2004), by the end of prekindergarten children's subtest scores should range between 12 and 21 on alphabet knowledge, between 5 and 8 on beginning sounds, and between 7 and 9 on print awareness. There are no developmental ranges provided for how children should perform in the Fall, which is when the children in this study were tested. The children's mean performance on alphabet knowledge ($M = 15.60$, $SD = 9.29$) showed that at the beginning of the school year, many of the children were already performing within the expected developmental range for the end of prekindergarten. The children's performances on phonological awareness ($M = 4.70$, $SD = 3.43$) and print awareness ($M = 3.93$, $SD = 2.16$) demonstrated they were below the developmental range expected for the end of prekindergarten. However, since these scores are an indication of the children's performance at the beginning of prekindergarten, it is unclear

whether or not their Fall phonological awareness and print awareness scores were within developmental expectations.

Relationships Between Parents' and Children's Oral Language and Literacy Skills

Correlations between parents' educational levels, their literacy skills and their children's literacy skills are presented in Table 3. Although significant positive correlations are indicated among many of the parent and child variables, the strength of these associations are small to moderate ($r = .21$ to $.45$). Parents' educational level positively correlated with all the tested parental literacy skills and with all of the children's literacy skills, with the exception of phonological awareness and print awareness. Parents' word identification and fluency skills were positively correlated with all of the children's literacy skills, with the exception of print awareness. Parents' decoding, receptive vocabulary, and expressive vocabulary skills were positively associated with all of the children's literacy skills, with the exception of phonological awareness.

A hierarchical regression model was carried out to examine whether specific parental literacy skills contributed unique variance to specific child skills. In the regression the children's ages and parents' educational levels were entered before the parental literacy skills because previous research has indicated that both account for significant variance in child performance on emergent literacy measures (e.g., Bingham, 2007; Evans, Shaw, & Bell, 2000; Hood, Conlon, & Andrews, 2008; Hecht et al., 2000; Korat, 2009).

For the children's receptive vocabulary, parents' educational level accounted for the largest amount of variance (15%) followed by the child's age (11%) and parental receptive vocabulary skills (5%) For the

children's expressive vocabulary, child age accounted for the largest amount of variance (20%) followed by parents' educational level (17%) and parental expressive vocabulary skills (6%). For the children's alphabet knowledge, parental word identification skills accounted for the most variance (14%) followed by parents' educational level (12%). For the children's phonological and print awareness, none of the variables accounted for variance. (see Table 4).

Discussion

The main goals of this study were to (1) go beyond self-reported parent educational level to investigate the relationships between specific parent literacy skills and their child's emergent literacy skills (2) to examine whether a predictive relationship exists between the parent and child literacy skills after accounting for child age and parent educational level. Overall, this study's findings showed that relationships do exist between specific parent and child literacy skills.

The results of this study support previous research demonstrating a positive relationship between parents' educational level and their child's emergent literacy skills (e.g., Hecht et al., 2000; Korat, 2009; Magnuson et al., 2009; Tracey & Young, 2002). Findings from this study also extend those previously reported by documenting these relationships when skills are measured directly among both parents and children. Furthermore, the findings differed by specific skill, which may have implications for family literacy programs. For example, in this study, parents' receptive and expressive vocabulary skills accounted for significant variance in their children's receptive and expressive vocabulary skills. This finding aligns with existing literature by supporting the notion that the way parents communicate with their children has direct influences on their children's emergent oral language development. For example, Paris, Morrison, and Miller (2006) describe how children's

vocabularies are dependent upon the frequency and quality of the interactions between parents and their children. Although further research needs to be conducted to depict a causal link between parents' and children's skills, findings from this current study support the notion of developing parent engagement activities that support parent and children's oral vocabularies. Both are amenable to instruction, and therefore could be impactful targets for family literacy programming (Chen et al., 2012). Similarly, parents' word identification skills accounted for significant variance in their children's alphabet knowledge. Further research may want to disentangle the relationship between parents' word identification skills and parents' role in assisting their children with alphabet knowledge.

Conversely, in this study, parents' word attack skills did not account for variance in their children's phonological awareness skills. This association might have been expected because stronger phonological awareness skills support stronger decoding skills (NELP, 2008). However, in this study, parents' ability to decode may not have been related to their children's beginning phonological awareness. It may be that parents were unaware of how to effectively teach phonological awareness skills to their children. Moreover, as a more advanced emergent literacy skill, phonological awareness may not have been the focus of instruction at the beginning of the school year when children were assessed; yet it is a skill that must be taught explicitly in order for children to demonstrate proficiency on direct measures. Finally, another angle to consider is that children's performance, on average, was quite low, with most children scoring below 50% on the task. Therefore, due to these floor effects significant variability in performance could not be achieved. Future researchers may want to explore the relationships using other phonological awareness tasks that may discriminate more at lower levels.

Interestingly, significant relationships were

not observed between parents' educational or performance levels and children's print awareness skills. These findings may reflect the nature of the support that children and families received through ERF. That is, parents were given books, games, workshops, and other materials and resources to use at home to support children's print awareness explicitly. Moreover, children's interactions with parents and other family members around books and print materials prior to prekindergarten may contribute significantly to their print awareness skills, such that development of this specific child skill may not be particularly sensitive to specific parent skills. Thus, all children may have performed similarly on this measure, resulting in less variability in children's performance on the print awareness measure and preventing the emergence of significant correlations.

Conclusions

In sum, this study contributes a nuanced perspective on the contribution of parents' education level to children's early literacy development. In general, the findings indicate that a gross measure like level of educational attainment is not always commensurate with parents' performance on various measures of reading and oral language skills that are known to support early literacy development. Such findings are particularly relevant to family literacy programs that seek to include parent engagement in child-focused literacy activities (Wen et al., 2012). Findings from direct measurement of parents' language and literacy skills can provide insight on impactful areas of focus for these programs.

This study is not without limitations that should be considered in reviewing the findings. The parental skills assessed in this study were limited to those that matched skills that were already assessed among their children. Future research may focus on other parent skills that may support child language and literacy development. Secondly, although the tests

administered to the parents are measures used by other adult literacy researchers (e.g., Davidson & Strucker, 2002; Dietrich & Brady, 2001; Sabatini, Sawaki, Shore, & Scarborough, 2010), they were not developed to capture the strengths and weaknesses of adults who have difficulty with reading, and therefore may or may not have appropriately captured the performance of the adults who had difficulty with reading in this study. Thirdly, the children's participation in ERF classrooms and in state funded prekindergarten programming likely contributed to their performance on the language and literacy measures, as both programs emphasized high quality early language and literacy instruction. It is possible that different findings might emerge among children and families not involved in this kind of early learning programming. Another limitation is due to the generalizability of the findings as the participants in this study were overwhelmingly African American from low-income families living in urban areas. It would be advantageous for future research to investigate if the relationships found in this study are true for other ethnically and culturally diverse participant samples, including those high-risk populations that are important to family literacy researchers and providers (e.g., rural populations; English language learners; families experiencing multigenerational poverty; parents of children with disabilities). Future research involving other high-risk populations might focus on the types of schooling experiences the children are receiving (for example, attending formal prekindergarten programs versus not attending formal prekindergarten programs) in addition to other background factors the parents may be faced with which may impact their achievement levels (for example, language barriers).

Additional research is needed to understand underlying factors involved in parental transmission of literacy skills to their child. Although the results of this study indicate a positive relationship among

parents' educational level, their literacy skills, and most of the children's emergent literacy skills, the findings are correlational and causal statements cannot be made without further investigation. Moreover, findings of insignificant relations between parents' skills and children's phonological awareness and print awareness warrant further investigation. For instance, it may be that parent skills that were not measured directly in this study contribute to children's development of these skills. Alternatively, it may be that the measures used in this study for both children and parents were not sensitive enough for significant relationships to emerge at the beginning of the prekindergarten school year. Perhaps different relationships emerge after children have participated in classroom instruction on these very skills. Finally, although the finding of a direct relationship between children and parents' oral vocabulary skills is neither novel nor surprising, it does encourage continued investigation of ways to support and harness parents' oral language abilities in the development of their children's oral language abilities. Given the critical importance of oral language to later literacy achievement in school, this may be a promising area of study for the family literacy researchers. ♦

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Table 1—Raw Score and Standard Score Performance of Pre-K Parents^a on Literacy Measures

Test	Raw score		Grade Equivalent Score	Age Equivalent Score
	Range	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
PPVT	83-188	154.03 (24.48)	n/a	15.30(6.26)
EVT	65-186	124.32 (30.92)	n/a	15.24(5.37)
WJ Word ID	23-76	61.25 (10.47)	9.85(5.43)	14.68(4.69)
WJ Word Attack	4-32	22.85 (7.60)	8.20(5.33)	13.09(4.73)
WJ Fluency	2-95	2.91 (18.63)	10.00(4.50)	15.69(4.90)

Note. PPVT-III= Peabody Picture Vocabulary Test; EVT = Expressive Vocabulary Test; WJ = Woodcock Johnson; ^a n = 96.

Table 2—Raw Score and Standard Score Performance of Pre-K Children^a on Literacy Measures

Test	Raw score		Age Equivalent Score
	Range	<i>M (SD)</i>	<i>M (SD)</i>
PPVT	8-86	44.37 (16.65)	3.11 (1.21)
EVT	25-65	40.46 (8.00)	3.86(1.05)
Sounds	0-10	4.70 (3.43)	n/a
Alphabet	0-26	15.60 (9.30)	n/a
Print Awareness	0-9	3.93 (2.16)	n/a

Note. PPVT = Peabody Picture Vocabulary Test; EVT = Expressive Vocabulary Test; Sounds = Phonological awareness; Alphabet = Alphabet Knowledge; ^a n = 96

Table 3—Correlations among Parents' Literacy Skills and their Children's Literacy Skills

	1	2	3	4	5	6	7	8	9	10	11
1. Parent Education Level	--										
2. Adult Word ID	.40**	--									
3. Adult Word Attack	.23*	.76**	--								
4. Adult Fluency	.46**	.79**	.70**	--							
5. Adult PPVT	.30**	.61**	.70**	.64**	--						
6. Adult EVT	.23*	.46**	.57**	.53**	.76**	--					
7. Child PPVT	.38**	.31**	.21*	.37**	.43**	.27**	--				
8. Child EVT	.39**	.32**	.23*	.36**	.43**	.37**	.82**	--			
9. Child Alphabet	.34**	.31**	.27**	.36**	.45**	.43**	.49**	.55**	--		
10. Child Sounds	.20	.28**	.16	.27**	.16	.05	.41**	.43**	.39**	--	
11. Child Print Awareness	.16	.14	.21*	.18	.25*	.31*	.35**	.41**	.50**	.24*	--

Note. ** $p < .01$. * $p < .05$

Table 4—Hierarchical Regression Assessing Prediction of Children's Skills

Step and Predictor	<i>F</i> change	<i>r</i> ² change	β
Receptive Vocabulary (PPVT)			
1. Child Age	11.05	.11*	.32*
2. Parent educational level	19.15	.15*	.39*
3. Adult PPVT	3.37	.05*	.26*
Adult EVT			-.02
Expressive Vocabulary (EVT)			
1. Child Age	23.50	.20*	.45*
2. Parent educational level	24.15	.17*	.41*
3. Adult EVT	5.12	.06*	.22*
Adult PPVT			.06
Alphabet Knowledge			
1. Child Age	1.75	.02	.14
2. Parent educational level	12.28	.12*	.34*
3. WJ Word ID	3.47	.14*	.07
WJ Word Attack			.16
WJ Fluency			.02

Note. * $p < .05$