

Implications of the frequency of engagements in a variety of learning-related activities in the home on preschool-aged children's overall developmental accomplishments

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There has been a plethora of research focusing on the engagement of parents with preschool-aged children in the home via reading to them, working on letters, words, numbers, and more (Anderson, 1997; Bergeson and Trehub, 1999; Senechal and LeFevre, 2002; Wollmaman-Bonilla, 2001). The research has shown that when parents engage children frequently in a variety of learning-related activities in the home, these children do make substantial gains in specific developmental skills (e.g., literacy) (Feierabend et. al., 1998; Nord et. al., 2000; Wells, 1985). However, there has been little research focusing on the affects of frequent engagements across several learning-related activities in the home and how the frequency of such engagements contributes to advancements in preschool-aged children's *overall* developmental skills (e.g., literacy, numeracy, speech, and creativity). Unfortunately, with ever-increasing demands on parents' time, both inside and outside of the workforce, they are not always able to engage their preschool-aged children frequently enough in a variety of learning-related activities in the home (Bianchi and Robinson, 1997; Huebner, 2000; Sayer, Bianchi, and Robinson, 2004). This has important implications for the advancement of their children in the literacy, numeracy, speech, and creativity domains.

This proposed paper will present data demonstrating how frequent parental engagements across several learning-related activities in the home affect the advancement of preschool-aged children in overall developmental accomplishments. The primary hypothesis is that children who are engaged more frequently across a number of learning-related activities in the home achieve the greatest gains in overall developmental skills.

Data to be included in this proposed paper are from the 1993 School Readiness Survey (SR), the 1999 Parent Interview (PI), and the 2005 Early Childhood Program Participation Survey (ECP), with each being part of the National Household Education Surveys Program. These surveys provide national estimates of preschool-aged children's usage of nonparental care by types of arrangements, the types and frequency of learning activities for which parents or others engage their preschool-aged children in the home, the developmental accomplishments of these preschool-aged children, and more. In addition are data pertaining to the characteristics of the preschool-aged children and other children in the home, mothers, fathers, and other household members. Households were sampled using random-digit-dialing (RDD) methods and interviews were conducted using computer-assisted telephone interviewing

(CATI) technology. For the purpose of this extended abstract, only data from the 2005 ECPP Survey will be presented.

The proposed paper will be based on 4,423 interviews completed with parents of preschool-aged children through the 1993 SR Survey, 3,561 interviews completed with parents of preschool-aged children through the 1999 PI, and 3,354 interviews completed with parents of preschool-aged children through the 2005 ECPP Survey. The results, for each survey, will be weighted in order to provide unbiased and consistent estimates of national totals.

With respect to the methodology to be used to conduct the analyses, the home activities items from each questionnaire to be included in the analyses are frequency of reading to child, telling stories, teaching letters, words, or numbers, teaching songs or music, or working on arts or crafts over the previous week. A variable will be derived from these items summing the frequency of engagement (actual number of or average number of days) for each of these activities to arrive at an overall frequency of engagement score. The developmental accomplishment items from each questionnaire to be included in the analyses are number of primary colors can identify, number of letters can recognize, how high can count, whether or not can write first name, and whether or not can read storybooks on own. A variable will be derived from these items summing the actual or proximal number of colors, letters, and numbers that the child can name in order while counting. For the writing first name and reading storybook items, a value of 1 will be assigned if they can do this, otherwise 0.

Preliminary findings show that for each age or age grouping, preschool-aged children whose parents engaged them more frequently in a variety of learning-related activities in the home over the previous week acquired more overall developmental skills (see Table 2). For example, 3 year old children who received the mean or above the mean (18.90 from Table 1) number of engagements in a variety of learning-related activities with parents in the home over the previous week achieved a higher mean score in overall developmental accomplishments (35.36) than other 3 year old children (28.42). Again, these results are consistent for other ages or age groupings favoring those whose parents engaged them more frequently in a variety of learning-related activities in home over the previous week.

Initial results from an ordinary least squares multivariate regression model with only one control variable controlling for child's age show that for each incremental increase in the frequency of engagement in a variety of learning-related activities in the home, a child's overall developmental achievement ability increases by .85 (see Table 3).

There are other variables known to be linked to advancements in preschool-aged children's overall developmental skills, such as parent's highest education level, children's attendance in center-based preschool programs, children's disability status, and more. Therefore, additional multivariate analyses will need to be conducted to account for the effects of these

variables on preschool-aged children's advancements in overall developmental skills. A plethora of socio-demographic variables pertaining to the preschool-aged children, their parents, and their households will be included as control variables as well. It is expected that, even with these other factors controlled, there will still be a positive and significant relationship between the frequency of engagements in a variety of learning-related activities in the home between parents and preschool-aged children and the children's gains in overall developmental skills.

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Table 1. Descriptive statistics on the frequency of engagements in learning-related home activities and developmental achievement scores for children from 3 years of age through 5 plus¹ years of age not yet enrolled in kindergarten: 2005 ECPP Survey

Score	Number of children				
	(thousands)	Mean	Std. Dev.	Min.	Max.
Age 3					
LR-HA Freq. Score	4,069	18.90	6.14	0	27
DA Score	4,069	32.09	21.39	0	132
Age 4					
LR-HA Freq. Score	3,872	18.43	6.30	0	27
DA Score	3,872	50.44	32.53	0	132
Age 5 plus					
LR-HA Freq. Score	1,148	18.51	6.26	0	27
DA Score	1,148	70.05	42.65	0	132

¹Due to small sample sizes, children who were over the age of 5 but not yet in kindergarten (mostly 6 and 7 year olds) were grouped with 5 year olds to create a 5 plus age category.

Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECPP-NHES:2005)

Table 2. Independent samples difference of mean t-test results on developmental achievement scores by frequency of engagements in learning-related home activities breakdowns for children from 3 years of age through 5 plus¹ years of age not yet enrolled in kindergarten: 2005 ECPP Survey

Score	Number of children				
	(thousands)	Mean	Std. Dev.	Min.	Max.
Age 3					
DA Score – Categ. 1 ²	1,920	28.42	20.67	0	131
DA Score – Categ. 2 ³	2,150	35.36***	21.49	0	132
Age 4					
DA Score – Categ. 1	1,760	45.87	31.10	0	132
DA Score – Categ. 2	2,110	54.27***	33.19	0	132
Age 5 plus					
DA Score – Categ. 1	567	64.12	41.98	0	132
DA Score – Categ. 2	582	75.81***	42.50	0	132

¹Due to small sample sizes, children who were over the age of 5 but not yet in kindergarten (mostly 6 and 7 year olds) were grouped with 5 year olds to create a 5 plus age category.

²Categ. 1 for frequency of engagement in learning-related home activities includes all children of that age residing in households deemed to be below the mean for this variable as shown in Table 1 (e.g. 18.90).

³Categ. 2 entails all children of that age residing in households deemed to be at or above the same mean value for this variable

Note: *** indicates that statistically significantly different at $p < .001$

Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECPP-NHES:2005)

Table 3. Ordinary Least Squares multivariate regression results for the regression of frequency of engagements in learning-related home activities and age of child on developmental achievement scores for children from 3 years of age through 5 plus¹ years of age not yet enrolled in kindergarten: 2005 ECPP Survey

Model - Variables	DF	Parameter			
		Estimate	Std. Error	T Value	Pr > t
Intercept	1	-41.20523	0.06121	-673.14	<.0001
LR-HA Freq. Score	1	0.85238***	0.00156	546.09	<.0001
Age	1	19.03043	0.01416	1343.95	<.0001

¹Due to small sample sizes, children who were over the age of 5 but not yet in kindergarten (mostly 6 and 7 year olds) were grouped with 5 year olds to create a 5 plus age category.

Note: N = 9,089,550; *** indicates that statistically significantly different at $p < .001$

Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECPP-NHES:2005)