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Perception fathers have on time spent with preschool children and its impact on language outcome measures

Abstract Current

Research has shown there are differences between mother and father language usage with their children. There is no information on language use of fathers who spend a high quality amount of time with their children. This study attempted to identify language characteristics of fathers who report high participation in household and childcare activities.

The impact fathers have on their child's development is an emerging area of research interest. In the past, most research has focused on the mother's impact on their child's development. The primary reason for a focus on mothers was the assumption that mothers tend to be more involved in caring for the child (Easterbrooks & Goldberg, 1984; Pancsofar & Vernon-Feagans, 2006). However, this assumption has changed recently with more mothers going back to work and working unpredictable hours (Pancsofar & Vernon-Feagans, 2006). Research has been conducted to examine both how and how much fathers contribute to their child's development (Easterbrooks & Goldberg, 1984). One area of significant interest is whether or not paternal language factors (i.e., amount and quality of language fathers produce while talking to their children) are closely associated with language development. Recent research suggests that fathers contribute substantial information to young children, yet little is known about how they contribute to early language growth (Pancsofar & Vernon-Feagans 2006). It is not well-understood whether factors such as paternal vocabulary use, time spent in active play, or other factors are contributors to language outcomes. As such, it is of critical importance to understand paternal influence on language development.

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In accordance with a significant paternal role in areas of child development, a number of early studies demonstrated that a father's influence may be associated with a range of factors. Warren-Leubecker and Bohannon (1984) examined the differences between mother and father intonation patterns when speaking with 2- and 5-year old children. The results showed fathers changed their pitch more than mothers when speaking with 2-year olds. However, by the time the children were 5, fathers no longer changed their intonation while speaking with the child. In contrast, mothers continued to change their intonation. Easterbrooks and Goldberg (1984) examined the impact of the amount of time a father spends with their toddler as compared to the amount of time a mother spends with the child. The researchers examined the child's attachment style through a task that required help from the child's parent. Researchers also examined the impact fathers' behaviors, aggravation levels, encouragement forms, and job satisfaction had on a child's attachment style and how the child behaved during tasks. The child's attachment style and child's behavior were also compared with the mothers' discipline strategies, aggravation levels, and attitudes towards house hold chores. The findings from that study suggested that fathers do in fact have an effect on their child's development in the areas studied. Nevertheless, no study has examined the impact father's involvement has on specific aspects of language.

While studies have not yet investigated how fathers influence language outcomes, a recent study did investigate how cognitive factors are associated with paternal interaction. Cabrera, Shannon, and Tamis-LeMonda (2007) investigated a number of factors relating to father's influence on cognition in general along with language in children at 24, 36, and 64 months of age. The children used in this study were drawn from the National Early Head Start Research and Evaluation Project (EHS study) and the EHS Father Study's Project. Researchers only used biological fathers who were also residents. This study was interested in how fathers

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living in the home interact with their children, how resources and mothers impact the father-child relationship, and the differences between a father-child relationship and mother-child relationship. To assess children's development researchers used the subtest mental development index from the Bayley Scales of Infant Development, 2nd Edition (BSID-II) (Bayley, 1993), the Peabody Picture Vocabulary Test- III (PPVT-III) (Dunn &Dunn, 1997), The Woodcock-Johnson (WJ) Applied Problems and Letter-Word Identification and the Leiter-Revised Examiner Rating Scale (Mather & Woodcock, 2001). Findings suggested that fathers and mothers interacted similarly with their children at all ages examined. Financial resources impacted father's supportiveness at 2 years and pre-kindergarten, but did not show to have an impact at age 3. Family finances were weakly associated to the child's scores on the Mental Developmental Index (MDI) at age 3. However, finances were significantly associated to all scores during pre-K. The education of the father was significantly correlated to the child's scores on the MDI and PPVT-III at the age of three. During pre-K, father education level correlated to the scores of the child on the WJ letter-word recognition, applied problems, and PPVT-III. Based on the results, Cabera et al. (2007) examined the correlation between father's interaction with the child, education status, and finances on the child's cognition and language development; however, that study did not discuss the amount of interaction between the father and child on a daily basis or the type of interaction between them. Researchers also did not examine type of language (e.g., number of interrogatives vs. directive state) used during father-child and mother-child interactions might have influence receptive vocabulary as measured by the PPVT-III.

Pancsofar and Vernon-Feagans (2006) did examine the amount of language input of both mothers and fathers while interacting with their child. The researchers included as possible variables affecting child language development: parental education, childcare quality, and the

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language parents used while interacting with their children. The children involved in the research had been enrolled in childcare from their first year of life through three years of age. The *Who Does What Questionnaire* (Cowan et al., 1985) was administered to mothers and fathers separately to gather information about how each interacts with the child on a daily basis. Most of the families involved in the study indicated the mother was more involved in most of the tasks the questionnaire examined. That is not to say the questionnaire indicated fathers were not involved, the questionnaire indicated the tasks examined were well shared between the parents. Language samples were also obtained from both parents. Overall, the results showed fathers talk less while interacting with their children than mothers do. However, results showed fathers' language is more predictive of their child's language later on when compared to mothers' language. This study examined the differences between mother and father language use with their child, but the study did not examine the relationship between quality or quantity of time spent with the child and factors affecting language outcomes.

McLaughlin, White, McDevitt, and Raskin (1983) examined the differences between the language use of mothers and fathers using language samples. The researchers examined 24 first-born children ages 18 months to 3.5 years of age. The parents were asked to play with their child as they normally would and were video-recorded for 8 minutes each, once with the father and once with the mother. Research assistants were then asked to code the parent-child interactions based on utterance, turns, verbal responsiveness, directives, questions, and discourse features (i.e., self-repetitions, imitation, and expansions). The findings discovered mother's mean length of utterance (MLU) was consistently longer than that of fathers. The research suggests the mother's MLU changed based on their child's MLU. However, fathers do not show this characteristic. Another significant finding was mothers ask more binary choice questions

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(yes/no) than fathers. Researchers also report that fathers repeated themselves while speaking with their child more so than mothers. Other results suggested that mothers and fathers are relatively similar in their communication and interactions with their children.

Given that previous studies have not examined measures of quantity or quality of child-father interactions, the first aim of the current proposal was to investigate how much time fathers spend in child-parent interactions via a survey used in previous studies (Pancsofar, & Vernon-Feagans, 2006; Cowan et al, 1985; Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowski, 2008). One family was then selected to complete a language sample analysis. The second aim of the current study was to collect naturalistic language samples during father-child play analyze the language samples using Systematic Analysis of Language Transcript (SALT) (Miller, Andriacchi, & Nockerts, 2011). It was expected that the survey instrument would provide accurate information regarding paternal interactions and involvement in the home environment. Further, systematic analysis of a paternal/child language sample was expected to reveal description information of paternal language. Overall, it was expected that use of the *Who Does What Questionnaire* would provide critical information about how much father's interact with their children in the Northwest Arkansas area and language sample analysis would provide preliminary measures exploring how paternal times spent with a child may affect language output.

Participants

This study provided the *Who Does What Questionnaire* to daycare centers in the Mid-South area. The families included in the study are natural two parent households, one mother and one father, with a two- to four-year-old child in the house. Surveys included questions regarding socioeconomic status, education levels of both parents, and the amount of time and where each

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parent works. Implied consent approved by the State University Institutional Review Board (IRB) was incorporated for the survey.

Measures

The *Who Does What Questionnaire* (Cowan et al., 1985) is an instrument used to measure the quality of parent interactions, including: differences in how a couple separate duties in regards to household and family tasks, family decisions, and child-related tasks. The questionnaire has been used in a number of studies and is considered a sensitive measure of the amount of time a father and mother spend in interaction with their children. Using a Likert-scale, the questionnaire quantifies how much fathers and mothers report they contribute to the care of their children (1: she does it all through 10: he does it all). The questionnaire looks at a variety of activities parents perform for and/or with their children and family. The activities include preparing meals, taking and picking the child up from daycare, and doing chores around the house. This survey allows researchers to identify how much a parent participates with and does for their family.

SALT analyzes specific characteristics of speech. SALT includes a database to compare language samples in order to compare children to their typically developing peers. Some specific characteristics SALT analyzes include mean length of utterances (MLU) in words, total utterances, Type-Token Ratio (TTR), number of different words (NDW), and mean turn length in words. The language sample was analyzed using SALT. Inter-rater reliability was determined using two trained students. Both students transcribed the language sample and with 80% agreeability; all discrepancies were reconciled prior to the final analysis.

Procedures

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A flyer approved by the IRB was distributed to participating daycares. It was left to the daycare's discretion to print and display the flyers as they saw fit.

The *Who Does What Questionnaire* was distributed using survey monkey. All information obtained from the questionnaires was stored on a password protected hard drive. While fathers were encouraged to fill out the questionnaire, completed questionnaires from mothers were also accepted. Questions regarding parental education status, work status, number of hours the parents work per week, how many children lived in the home, and the order of the children in the home were also included in the survey.

The language sample was conducted using an audio-video camera. Researchers recorded the father's interactions with their child for approximately 100 utterances. Only the father and child were asked to participate in the sample. The sample took place at the University of Arkansas in the Speech and Hearing Clinic. Age appropriate materials were provided for the child during the language sample. The families were asked to bring materials of high interest to the child to sample as well.

Analysis

The *Who Does What Questionnaire* scores were added to determine the averages of individuals and also as a group. A high representative was chosen for the language sample. The father and child were asked to come to the University of Arkansas Speech and Hearing Clinic for the language sample.

Using SALT (Miller, et al., 2011), the researchers analyzed the amount of interrogatives compared to declaratives fathers use with their child, total number of utterances, MLU in words, TTR, NDW, number of different morphemes (bound and free), and mean turn length in words.

Results

Descriptive statistics for educational level and a paired sample *t*-test was used to compare the age and income of mothers and fathers that participated in the current study. Means and standard deviations for age and income are included in Table 1. Results revealed a significant difference in the age ($t(14) = 2.22, p = 0.43$) from the 15 of 17 participants that reported parent age. No significant differences were found for level of income ($t(.13) = .628, p = .541$) for the 14 participants that reported income levels. Of the 16 participants that reported education level, 50% of fathers and 55.6% of mothers had a bachelor's degree. See Figures 1 and 2 for levels of education of mothers and fathers.

	Mean	Std. Deviation	N
Father's Age	36.53	6.534	15
Mother's Age	33.93	3.936	15
Father's Income	65571.43	42076.330	14
Mother's Income	58571.43	43111.152	14

Table 1 Means and standard deviations (SD) for ages and income for mothers and fathers.

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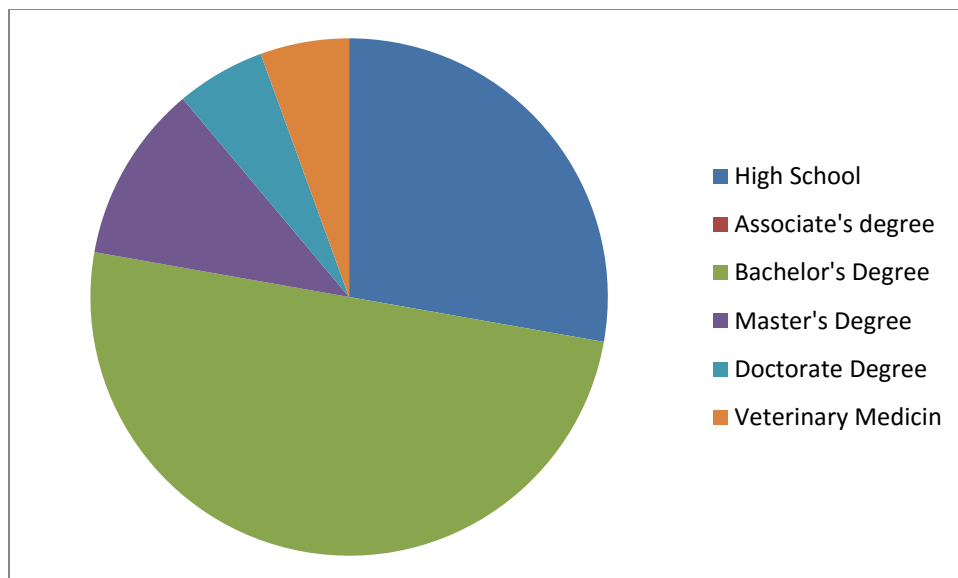


Figure 1 Father's education status

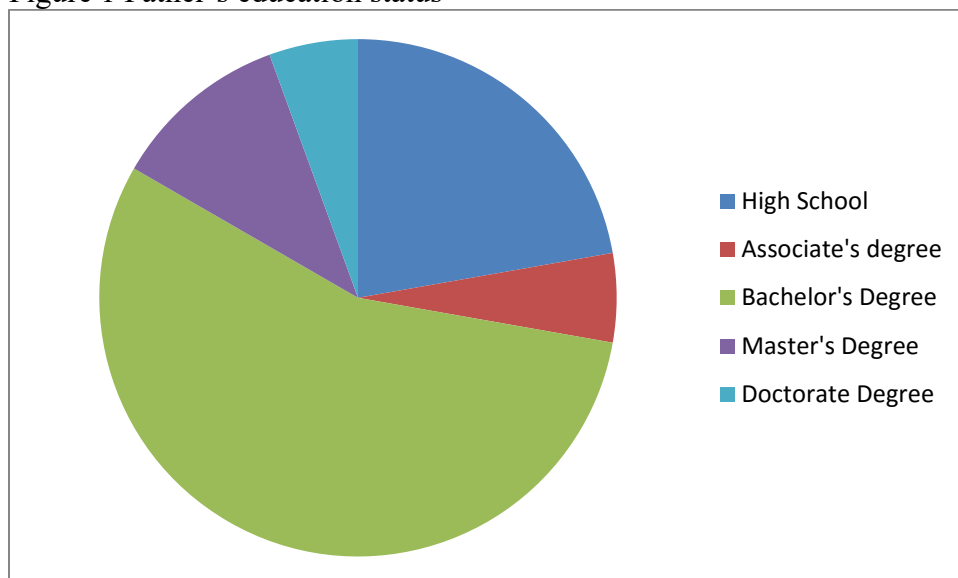


Figure 2 Mother's education status

Mean data was taken from the *Who Does What Survey* to describe what parent took on more responsibility in different roles in the home. Part one questions addressed household chores while part 2 questions examined childcare activities. The surveys were answered on a scale from 1-10 on the following scale: 1 represented the mother completing the task 100% of the time, 5 represented both parents participating about equally, and 10 represented the father completing the task 100% of the time. Results showed a significant difference between the parental roles

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with household chores and childcare items ($t(16) = 2.973, p = .009$), with moms taking on a significant more amount of child care responsibilities than household related chores. Means and standard deviations are included in Table 2.

The representative father (i.e., the father that participated in the language sample analysis) reported that he participated in household chores with an average of 7.25, while the mean for the other participants was 4.85. For Part 2 of the survey, the representative father perceived himself as participating in childcare activities with an average of 4.08. The mean for the group was 3.96 in the same section of the survey.

Part	Mean	Std. Deviation	N
Part 1 (household)	4.85	1.48	17
Part 2 (childcare)	3.96	0.92	17

Table 2 Means of *Who Does What Questionnaire* Part 1 and 2

A language sample was conducted using a representative from the answered surveys. The child was the oldest at age 3;9. The father had 178 total utterances during the sample, while the child had 62. The father averaged 6.16 MLU in words. His child averaged 3.58 MLU in words, which is about average for a child of this age compared to normative data. The child used 91 different words and 197 total words. Giving a TTR of .46, which is comparable to the age matched peers included in SALT's database. The father used 276 different words, 1066 total words, with a TTR of .26. Out of 173 verbal utterances the father asked 59 questions, made 98 statements, and 3 imitations. Looking at the specific words used by the father, the word *what* was used 16 times, *how* 10 times, *and* 17 times, *or* 8 times, and *so* five times. He used personal pronouns 194 times during the sample, specifically he used *we* and *you* more than 50 times each.

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The father used 102 bound morphemes in the analysis set, while his child used 30 bound morphemes in the analysis set. When analyzed without the story, the father's TTR is still .29. His number of different words drops to 131, and the total number of words drop to 457. The father's mean turn length in words was 20.09. His child's mean turn length in words was 3.98, which is within normal limits when compared to his age matched peers.

Discussion

The purpose of this paper was to examine the amount of time fathers perceive they spend with their family and the impact on language outcome. Data included from self-reports of perceived time dads spent on household and childcare activities, as well as a language sample analysis from one father / child dyad. While we cannot report that the amount of time fathers perceive they spend with their families has an impact on child language; results showed that fathers reported they participate in household and childcare activities for their families more than has previously been reported (Pancsofar & Vernon-Feagans, 2006). The *Who Does What Questionnaire* answers showed fathers are reporting to share household responsibilities with their spouses on average 4.85 out of a possible score of 10, with 1= mom does everything, 10 = dad does everything and 5 = equal distribution between mom and dad. Thus, an average score of 4.85 means fathers are splitting the household chores almost exactly in half with mothers. For childcare activities, fathers reported less of an equal distribution, with an average of 3.96 out of a possible 10. The data demonstrate that in both categories, while moms are reported to have more involvement in household and childcare tasks, fathers are spending a considerable amount of time, almost equally in the category of household tasks, as mothers.

Demographic data for the participants revealed no significant differences in age or income when mothers were compared to fathers. In addition, the majority of both moms and

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dads reported to have a bachelor's degree in education. Thus, as the income responsibilities in these homes and education levels were similar, it is not surprising to see relatively equal distribution of household chores between parents, and dads participating in childcare responsibilities, although to a lesser degree than general household chores.

From the WDW questionnaire, the representative father used for the language sample analysis portion of the study reported to complete an average of 7.25 in household chores. Meaning, this particular father perceived himself as spending more time doing household chores than the other participants. On questions pertaining to childcare responsibilities, he reported a mean of 4.08 which is just slightly above the average of the group.

The second portion of this study focused on the language sample of one father/son dyad that reported a higher score on the WDW questionnaire in both chores and childcare sections. Language samples have been used to compare mother and father language in the past, but never to specifically look at father's language with their children (McLaughlin, White, McDevitt, & Raskin, 1983). Results showed the representative father's mean turn length was 20.09 and his child's was 3.98. This shows on average, the father used more turns than the child did. The father also used many more words than his child, 1066 compared to 197. The father had a TTR of .26 and his child a TTR of .46. The difference is because of the amount of repeated words the father used during the sample. Many of the words were repeated because of the number of questions the father asked as well as he read a repetitive child's story to his child. The father performed very similarly to other fathers from previous studies during the language sample (Pancsofar & Vernon-Feagans, 2006 and McLaughlin, White, McDevitt, and Raskin, 1983). Fathers are expected to ask a high percentage of questions and this father is no different (Pancsofar & Vernon-Feagans, 2006). Research has shown that fathers ask very few binary choice questions

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(yes/no responses), this father is not exception to that (McLaughlin, White, McDevitt, and Raskin, 1983). Overall, during the language sample the child performed very similar to children his age. There was not any category where he appeared to be ahead or below his fellow peers. The father was very attentive to his son throughout the language sample. They appeared to thoroughly enjoy spending time together. They laughed and joked while bowling and reading a book.

Research has shown that father's influence language outcomes (Pancsofar, & Vernon-Feagans, 2006). This study was an attempt to look at how much time fathers report to spend engaged in activities around the home and specifically with their children as well as their language use during conversations with their young children. Data revealed that fathers in two-income homes where moms also work and have equal educational backgrounds report participating almost equally to moms on household chores and to a lesser degree participating in childcare responsibilities. Analysis of one father/child dyad revealed that the child's language while conversing with dad was within normal limits when compared to the child's peers. Analysis of the father's language demonstrated use of asking appropriate questions and engaging his child during play and book reading activities.

Limitations

One limitation of this study is only one language sample was utilized. This means researchers cannot make any direct conclusions about how the father's language differs and how that impacts their child's language outcomes. Researchers also cannot make any direct conclusions about time spent at home as answered in the questionnaire since there were so few samples. A larger study will need to be conducted in order to generalize the results.

Conclusions

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This study showed that fathers are reporting to have more responsibilities at home than before. The language sample conducted with the father/child dyad showed the father asked several questions, and used many of the same words throughout the sample. Future research will have to be conducted to examine the true impact a father has on his child's language, and the variability of language used based on the amount of time spent between father and child.

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