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Language Development and Day-Care Experience

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LANGUAGE DEVELOPMENT AND DAY-CARE EXPERIENCE

A Thesis

Presented to the
Department of Psychology
and the
Faculty of the Graduate College
University of Nebraska

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
University of Nebraska at Omaha

by

Amy C. Elofson

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THESIS ACCEPTANCE

Acceptance for the faculty of the Graduate College,
University of Nebraska, in partial fulfillment of the
requirements for the degree Master of Arts, University of
Nebraska at Omaha.

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Abstract

The effect of day care on children's development is widely debated. The purpose of this study was to complement and extend the knowledge of variables moderating children's language development in day care. Forty-one 30- to 36-month-old children, with varying amounts of experience in day care, were given a standardized language test. Stepwise regression analyses indicated receptive language was predicted by age of entry, chronological age, and the educational level of the parents. Expressive language was predicted by age of entry and parent's rating of the language environment of the day care center. These findings suggest that early entry into day care has a positive affect on children's subsequent language development. Social pressures to communicate have a significant influence on expressive and receptive language skills.

Chapter I

Language Development and Day-Care Experience

Children's day care and its subsequent effects on development have interested parents, psychologists and educators for several years. Within this time, the prevalence and purpose of child care outside the home have significantly shifted. Today, approximately 8 million mothers with children under the age of four are employed outside the home (U.S. Census Bureau, 1987). New mothers often return to work after maternity leaves as short as six weeks. Women with infants under one year constitute the most rapidly expanding segment of the labor market (Klein, 1985). Their children are left in the care of family members, babysitters, or day-care centers. The emphasis in child care has moved from intervention and enrichment-oriented programs for low income families toward routine, custodial care for children of every socioeconomic status (Wittmer, 1986). Working mothers are no longer viewed as necessarily depriving their children of constant maternal care, rather they are considered to be choosing a satisfactory and fulfilling role (Belsky, 1984). With increasing numbers of children entering day care in infancy, the developmental outcomes become an issue of great importance. Caregivers, parents, and policy makers

should be aware of the variations in child care which facilitate or hinder developmental processes.

Research questions regarding child care have changed along with cultural and demographic changes in day care. Many of the early investigations focused on comparisons of children reared at home with children exposed to non-maternal care at early ages. Others focused on children from disadvantaged backgrounds who were enrolled in enrichment programs and contrasted to home-reared control groups. The results in both types of studies were similar -- day care had neither consistently good nor consistently bad effects on children's development (Belsky, 1984; Rutter, 1982). The effects of infant day care on attachment processes, and the interpretation of findings in day-care attachment research, are currently the subject of intense debate among developmental psychologists (Clarke-Stewart, 1989). There have been no definitive conclusions made in this area.

As day care became a more widely accepted institution, the research question moved from "is day care good or bad for children?" to "which aspects of day care may affect the child's social, emotional, and cognitive development?" Family dynamics may change as a result of both parents working; quality of child care may vary with type of setting (babysitter, family day-care home, or

center) or within types of care as a result of differences in such factors as staff training and staff:child ratio; individual children may react differently to daily separations based on age, sex, or an interaction of all these variables. In general, these studies have concluded that variations in quality of care and children's daily experiences have differential effects on developmental outcomes. High-quality care tends to be comparable to optimal parenting skills, and thus facilitates children's development (Belsky, 1984). The effects of day care are currently studied as the result of interactions between family, child, and day-care variables (Goelman, 1988; Belsky, 1984).

Similarly, the methodologies employed by day-care researchers have changed substantially. Many methodological restrictions must be taken into account in order to make valid conclusions from day-care research. Belsky and Steinberg (1978) cite severe limitations on the generalizability of the early day-care research results: the dependence of researchers on high-quality, university-run centers for subjects; the reliance on standardized tests; and the narrow scope of behaviors studied. Day-care centers which are operated by universities may be atypical in that they are usually well funded and staffed by well-educated people. This environment and any subsequent effects may differ greatly

from the average day-care experience (Belsky & Steinberg, 1978). These authors also indicate that performance on standardized tests may reflect the children's behavior on strange tasks with strange adults rather than any substantial differences in cognitive or emotional development.

The possibility of a selection bias exists in those studies that compare children raised exclusively at home with children placed in day-care centers. There may be inherent differences between these groups: families who choose to utilize day care may have significantly different attitudes toward childrearing than families who raise their children at home.

In recognition of these limitations, researchers began to evaluate day care and its effects from a different perspective. Belsky (1984) describes the renewed emphasis on ecological concerns and the processes of families, employment, and day care as the "second wave" of day-care research. Efforts to include a wide range of day-care environments were made through sampling community-based, rather than university-based, programs. Standardized tests are of course still utilized, but often are combined with naturalistic observation or parent and teacher ratings of the child's behavior. Comparability between groups can be attained through use of waiting lists for centers or parental attitude questionnaires, thus assuring that

parents have similar motivation toward day care. Measuring the amount of time currently-enrolled children spent in day care through variables such as age of entry or number of hours per week allows a regression model to be used rather than rely upon comparison groups for demonstration of effects. While attempting to ensure ecological validity by utilizing the above methodological controls, recent research efforts have focused attention on a variety of outcomes, from compliance with instructions (e.g. Howes and Olenick, 1986) to social competence (e.g. Vandell, Henderson, & Wilson, in press).

Surprisingly, very few studies have examined the relationship between normative day-care programs and language development. The purpose of this study was to examine relationships between day-care variables and language development. Specifically, this study will examine the influence of age of entry into day care on children's receptive and expressive speech.

Social Influences on Language Development

In day care, children are exposed to a great deal of social interaction with peers and caregivers, which may increase the necessity of effective communication. Children may be less able to rely on idiosyncratic gestures or utterances when communicating with a caregiver instead

of a parent. Linguistic labels and grammatical sentences are easier for adults to comprehend, and thus more efficient; this pragmatic need for efficiency may influence the child's acquisition of language (Campbell & Wales, 1975). Similarly, the daily exposure to adults who, presumably, attempt to enhance the child's development may result in the child understanding the purpose and utility of linguistic symbols at an earlier age (O'Connell & Farran, 1982).

Language development is clearly an interactive process between maturational and environmental variables. The exact role of the environment in language development is widely debated among psychologists and psycholinguists (Berko-Gleason, 1985). Cazden (1972) believes that language-specific knowledge (such as vocabulary) may be mediated by environmental exposure to a greater extent than other, more universal, aspects of language (such as grammar). Cazden argues that all children in all cultures seem to follow a general pattern in acquiring language skills such as the subject-verb-object order of sentences. This sort of universal language ability "should require less exposure to samples of speech, show less variability across children, and be reflected in a shorter learning period and fewer errors on the part of any one child" (p. 104). Learning the idiosyncrasies of specific languages, on the other hand, may be enhanced through more exposure

and variability in speech samples. Such variety would naturally occur in a day-care setting, yet it is unclear if day care provides a rich linguistic environment, or deprives children of individual contact with adults who may facilitate language development through conversation. McCartney (1984) contends that talk with peers (increased in day care) is less valuable in language development than interaction with adults.

The social-interactionist position of linguistic development posits language is the result of innate mechanisms and social-environmental needs to communicate (Berko-Gleason, 1985). Rice (1989) describes the importance of recognizing the social functions of language:

Language skills emerge from prelinguistic communicative needs. The social dimension controls the early uses of language, and the social setting in turn provides validation and confirmation of the child's effectiveness as a communicator (p. 152).

All children will eventually learn to communicate through language, but for those who enter day care early, the need to express desires and demands to their caregivers may facilitate their emerging expressive language skills. The interactive processes inherent in the day care setting may provide children with additional opportunities to determine their effectiveness at communicating (and thus meeting) their needs.

The present study examines the relationships between experience in day care and receptive and expressive

language development. Receptive language involves the child's ability to comprehend and respond to the spoken language; whereas expressive skills encompass the child's productivity and effectiveness in communicating messages. Although both receptive and expressive communication skills are critical aspects of the development of language, there is evidence that they do not emerge simultaneously (Reynell, 1985). Snow (1984) explains the impact of social interaction on each facet of language development:

Expressively, the child's acquisition of semantic-syntactic constructions and simple morphology is guided by his communicative needs in the social context. Receptively, his performance is guided by his world knowledge and communicative expectations, not by syntactic analyses (p. 72)

In day-care programs, the pressure to communicate effectively should enhance the child's expressive abilities; yet the pressures on receptive language skills are probably not as great. Aside from the larger number of names and faces, day-care environments are not entirely dissimilar from most home environments: each contains toys, furniture, rules, and a comparable amount of routine events (e.g. snacks, lunch, naps). It is therefore predicted that children who enter stable day care of reasonable quality at an early age will perform better on the expressive scales of a standardized language test than children who enter at a later age. No differences are predicted for general cognitive abilities or receptive language scores.

Variations in Day Care Experience

The primary independent variables examined in this study were age of entry into day care and quality of care.

Quality and Day Care Setting

The great variation which exists in the quality of care given by all types of caregivers has been found to be related to developmental outcomes such as social and interactive skills, academic performance, and overall adjustment.

Vandell and Powers (1983) found that children in high quality centers (favorable staff:child ratio, educated caregivers, and well-equipped facilities) had more beneficial interactions with adults, more positive behaviors and vocalizations, whereas those in moderate- and low-quality centers spent more time in solitary play. Similarly, Howes and Olenick (1986) investigated children's variations in day-care quality and family characteristics (father's involvement, family support systems, maternal job satisfaction) with children's compliance. "Stressed" families were more likely to enroll their children in low quality centers; parents and teachers in these environments were less interactive and less involved in the children's development. Children exposed to this combination of factors were less compliant and less able to regulate their behavior. In contrast, children enrolled in high-quality

centers were rated as more socially mature than the low-quality group and a home-reared comparison group.

Vandell, Henderson, and Wilson (in press) studied the effect of quality longitudinally. The amount of positive interactions with adults (more common in high-quality centers) and the amount of time spent in unoccupied behaviors, such as wandering and standing alone (greater in low-quality centers), at the age of four were related to children's later school and peer adjustment. The eight-year-olds who had attended low-quality centers were rated more negatively in compliance, aggression, and peer relations. Children from higher quality day care centers engaged in more friendly interactions with peers and were rated as 'more socially competent' than those attending low-quality centers.

Two major research projects have examined relationships between quality variations in day care and language development. The Bermuda Day Care Study (McCartney, Scarr, Phillips, Grajek, & Schwarz, 1982; McCartney, 1984) includes issues of quality, structure, and daily processes in day care, family influences, and children's social, emotional and cognitive development. The Victoria Day Care Research Project (Goelman & Pence, 1987) similarly examined what aspects of the child's daily care influence language development.

Nine centers of varying quality were involved in the Bermuda study. Quality variations were assessed through caregiver surveys and ratings by trained observers. Measures of quality examined characteristics of the program (noise level, space, program goals), staff training and experience, and variety and structure in daily activities. The amount and types of verbal interactions in the centers were recorded separately. Four language tasks were given to the 166 children who participated: Peabody Picture Vocabulary Test (PPVT); Preschool Language Assessment Instrument (PLAI); Adaptive Language Inventory (ALI); and an experimental communication task. The overall quality of the center environment was significantly correlated with children's scores on each language task. While verbal interaction with peers showed little effect, the amount of verbal interaction with adults was a significant predictor of language ability and communicative competence (McCartney, 1984).

The Victoria Day Care Research Project (Goelman & Pence, 1982) studied the interactions of family structure, child care setting, and children's language development. The project included children enrolled in day-care centers, licensed family day-care homes, and unlicensed family day-care. There were no differences between groups on parent education, occupation, income, or age of entry into

day care. Receptive and expressive language were measured with the PPVT and the Expressive One Word Picture Vocabulary Test (EOWPVT). No single variable predicted the children's language scores; there appeared to be an interaction between variations in care (setting and quality) and family (structure and support). Day-care centers tended to be rated higher and more homogeneous than both types of family day-care. In family day-care, overall quality and caregiver education were significant predictors of language scores; in both high and low quality centers, the mean language scores were not significantly different. The differences between centers and family day care reflect differences in the structure of activities between these two types of care. In unlicensed day-care homes for example, children spent more time watching television and playing alone than in licensed homes and centers.

The family variables examined in the Victoria study included measures such as economic status, educational level, marital status, and language environment in the home. Children of "low-resource" families (low economic status, low level of education) tended to be enrolled in low-quality centers and homes. These children, according to Goelman (1987), are faced with the "worst of both worlds" -- neither of their daily environments are facilitative of language development.

Age of Entry as a Variable

Age of entry and the number of day-care facilities attended are good indicators of child care history. Early entry (before 1 year) into day care has been associated with increases in assertiveness and aggression, less compliance and cooperation, and low frustration tolerances (Rutter, 1982; Schwartz, Strickland, & Krolick, 1974; Macrae & Herbert-Jackson, 1976). McCartney et al. (1982), controlling for quality of care, concluded Bermudian children who entered day-care before their first birthday were viewed to be more maladjusted than children cared for at home or by babysitters. Such negative ratings seem somewhat program- and rater-specific, and fall well within the 'normal' ranges (Belsky, 1984). The day-care children in Schwartz et al. (1974) adapted more readily (more positive affect, less tension, and more social interaction) to a new center environment than children with no previous experience, according to observer ratings. After four months, teacher ratings indicated that the experienced group was generally less cooperative, more aggressive and active, and tended to be less tolerant of frustration. Belsky (1984) suggests day-care children have a great deal of both positive and negative peer interaction, which may account for the higher levels of aggression and assertiveness.

Day-care experience may affect language development by requiring the child to communicate effectively with multiple caregivers. O'Connell and Farran (1982) found that children in a day-care enrichment program since infancy were more linguistically and communicatively competent at 20 months than a home-reared control group. The children in the day-care program used words to give and request objects, and demonstrated more intentional communicative acts than a matched control group with no day-care experience. The day-care program, however, was geared toward intervention and prevention of language delays in children from high risk environments, so the results are not completely generalizable to the average day-care setting. The study does indicate that early experience outside the home may facilitate language skills.

The Bermuda Study did not find age of entry to be significant in predicting language performance, perhaps because of the wide age range included in the project. Any child over 3 years who had attended one of the target centers for more than six months was eligible to participate. Children ranging from 36 to 68 months were thus included in the study. Age of entry effects may interact with chronological age. It seems possible that early entry into day-care may differentially impact language performance at varying ages. At 36 months,

previous exposure to day-care may have greater effects on language abilities, whereas by 68 months, these early differences may have disappeared. The present study includes children between 30 and 36 months who have had varying amounts of experience in day care. At this point, differences in language development should be most pronounced, allowing any correlations or relevant relationships to be exposed. Cazden, Baratz, Labov, and Palmer (1972) describe the tremendous variations in language development within a day-care setting: "... at age 2 1/2, many children are talking a great deal, while others do not utter a word. The child who talks well at age two is not necessarily brighter, nor will he necessarily be more verbally capable at age three" (p. 84). If the amount of experience in day care has an impact on children's communicative abilities, differences will be greatest during this blossoming period of language development.

Both the Bermuda and Victoria projects utilized well-established, standardized tests of language development and intelligence. Nevertheless, measures such as the PPVT and EOWPVT require only one-word responses or gestures and thus may not be sensitive to some differences in communicative abilities. The Reynell Developmental Language Scales (Reynell, 1985) were selected for this study because of the sensitivity to differences in

structure, vocabulary, and content of children's utterances, as well as comprehension.

Hypotheses

The purpose of this study is to investigate the relationships between children's experiences in day-care and their language development. It was hypothesized that age of entry, quality of day-care center, family variables, and chronological age would predict language abilities. The specific hypotheses tested include: 1) children who enter day care at an early age will perform better on the expressive scales of a standardized test 2) the quality of the language environment in the day-care center will predict expressive and receptive language abilities; and 3) familial variables, such as parent's educational level, will be related to the child's language development. Chronological age should also be of primary importance in predicting the child's receptive and expressive language abilities.

Chapter II

Method

Variations in children's amount of experience in day care and quality of care were measured through parent and caregiver questionnaires. Children's receptive and expressive language development were assessed using the Reynell Developmental Language Scales, 2nd Revision (Reynell, 1985).

Subjects

Families were recruited to participate through community-based day-care centers. Directors of 70 day-care centers listed in the telephone directory were contacted by phone and asked if their center might be interested in becoming involved in the study. Letters explaining the purpose and procedure of the study were sent to the 48 center directors (Appendix A) who indicated interest in the study.

Of those who received the letter, 12 center directors agreed to participate (response rate = 25%); they were asked to distribute letters and consent forms to parents of 30 to 36 month-old children (Appendix B). Approximately 200 letters were distributed; 41 parents of children within 30 to 36 months returned postcards indicating interest in participating in the project (response rate = 20.5%). Those parents were contacted by telephone to arrange convenient times for testing.

Demographic characteristics of participating families are listed in Table I. Testing was conducted in the home, with

Table I
Demographic Characteristics of Participating Families

<u>Occupation Category</u>	<u>% of Mothers</u>	<u>% of Fathers</u>
Professional (attorney, doctor)	16.3	16.7
Professional (teacher, nurse)	35.6	38.2
Clerical Services	14.1	8.1
Laborer (general and skilled)	17.4	19.6
Student	10.1	8.2
Homemaker	6.5	0
Military	0	9.2
<u>Formal Education</u>	<u>% of Mothers</u>	<u>% of Fathers</u>
Post-Graduate Studies	32.2	34.4
College Graduate	41.5	36.2
Assoc. Degree/College Credits	15.1	21.3
High School Graduate	12.2	8.1
Below High School	0	0
<u>Dichotomous Variables</u>		
Marital Status	83% married	17% unmarried
Sex of Child	42% male	58% female
Number of Hours Attending	68% full-time	32% part-time

one or both parents present, to control for familiarity of the setting. Children who entered day care at an early age may have been more familiar with the day-care setting, and thus more comfortable in the testing situation.

It was anticipated that approximately 100 subjects would participate in the study. However, only 41 could be recruited after two mailings. The implications of this limited sample size is fully discussed in the Results and Discussion Sections. Twenty-four girls and 17 boys between 30 and 36 months were included in the study. No children who had been diagnosed as developmentally delayed or speech impaired were eligible to participate.

Materials

The Caregiver Survey (Appendix C) included items which cover indices of center quality utilized in previous research: staff ratio, turnover, education and training, group size, program goals, and physical facilities (e.g. Vandell & Powers, 1983; McCartney, et al. 1982; Fiene & Nixon, 1985; Newhouse, 1986).

The Parent Survey (Appendix D) requested child-care history (age of entry, number of child care arrangements, hours per week, and reasons for changing arrangements) and demographic information. In addition, parental attitudes toward their present child-care arrangements and satisfaction with employment were reported on a 5-point,

Likert-type scale. Parents were also asked to respond to questions regarding the center's language environment and quality of the day care center on a scale adapted from the Parent Guide to Quality Day Care Centers (Bradbard & Endsley, 1978) and Cazden's (1972) recommendations for promoting maximizing language development within the day care settings. Using this 23-question survey, parents reported the types of language-stimulating activities and quality components they had observed at their child's day-care center. Bradbard and Endsley (1978) found that such quality indices were easily and reliably observable to parents.

The Home Observation for Measurement of the Environment (HOME) scale (Caldwell & Bradley, 1984) was used to assess the quality of the language environment in the home. The observationally based HOME scale is designed to measure several dimensions of the home setting: responsiveness, acceptance, organization, play materials, involvement, and variety. The subscale "Emotional and Verbal Responsivity of the Mother" (Appendix E) was used since the primary focus of this study was language development. The HOME Inventory for Families of Infants and Toddlers was employed since the subjects were under the age of three. The 11-item, binary scale was completed by the experimenter during the course of the visit.

The Reynell Developmental Language Scales, 2nd Revision (Reynell, 1985) consist of separate tests of receptive and expressive language abilities. The receptive tests involve common toys and objects and require the child to comprehend increasingly complex verbal instructions (e.g. "Put the spoon in the cup" and "Put all the horses outside the fence"). The expressive language scale includes measures of structure, vocabulary, and content. Language structure is assessed through an analysis of the complexity of the child's spontaneous expressions throughout the testing period. The vocabulary section includes objects to name, pictures to describe, and words to define (What is an apple? or What does loud mean?). Content of the child's speech is measured by asking the child to describe drawings which involve several activities. Connected ideas and sentences are scored.

The reliability and validity of the Reynell Scales were assessed with a sample of 1318 children from England. Split-half reliability coefficients range from .93 (at age 1 1/2) to .80 (at age 7) on the expressive tests, and from .82 (at 1 1/2) to .45 (at 7) on the receptive tests. For 30 to 36 month old children (the age range used in the proposed study), the reliability coefficients are .96 for both scales. The concurrent validity of the Reynell Scales was examined by comparing the scores with other tests of language and cognition. The correlations between the

Reynell Scales and tests such as the Stanford-Binet and the WPPSI range from .53 to .76 confirm the concurrent validity (Silva, Bradshaw, & Spears, 1978). Reassessment of a portion of Silva's subjects indicate significant predictive validity between the scores on the Reynell Scales and later performance on standardized intelligence tests such as the WISC. Content validity for the scales stems from the fact that these scales were developed and tested in a clinical setting.

The correlations between the expressive and receptive scales vary with the children's age. In the early years (1 through 4) the correlation between the scales ranges from .67 to .64. From 4 to 7, the correlation declines from .5 to .32. Reynell (1985) suggests this change is due to language functions becoming more specific with age.

Procedure

The Caregiver Survey was completed by center directors at their convenience and returned directly to the experimenter.

The Reynell Scales were administered in the child's home, with one or both parents present. The parent(s) were asked to complete the Parent Survey while testing was taking place. Parents were encouraged to remain in the room while the child was tested; all parents complied with this request. The presence of parents seemed to lessen

children's stress and aided in keeping their attention on the test.

Before the Reynell Scales were administered, the experimenter read a children's book to the subject in order to establish rapport. The story, Hide and Seek Duck (Szekeres, 1985) provided opportunities for the child to use both receptive and expressive language skills. The story involves a game of hide-and seek between a duck and a rabbit; on each page, one of the characters is partially hidden in the colorful and elaborate drawings. The experimenter read the book to each child, pausing after each page to allow the child time to comment or point out any objects of interest on the page. No data was recorded during this portion of the testing.

The receptive portion of the Reynell Scales is typically given first to allow the child to adjust to the testing situation. Verbal Comprehension Scale A consists of 10 sections. As recommended by the test manual, testing began with Section 2 (Section 1 measured preverbal concepts) and continued until the child failed two sections in a row. In Sections 2, 3, and 4, the child was asked to identify a single object from a group. Section 2 contained the following objects: ball, spoon, toy car, small doll, hair brush, sock, cup, and block; Section 3 had dollhouse furniture: chair, bathtub, table, bed, and knife; Section 4 used animals and people: horse, dog, mother, father, and

baby. Section 5 involved relating two objects -- putting a spoon in a cup, a block in a box, a doll in a chair, and a knife on a plate. Sections 6 and 7 required the child to identify objects by comprehending characteristics of the objects. Questions such as "Which one do we sleep in?" and "Which one barks?" were typical of these sections.

Sections 8, 9, and 10 consisted of more complex verbal instructions and relations (e.g. "Find a yellow pencil," "Which horse is eating the grass?" and "Put all the animals except the black pig into the box").

The expressive language test was divided into three scales: vocabulary, content, and structure. There is much overlap between these three areas of language, but they do not share a linear relationship with each other.

Vocabulary expands most quickly between 1 1/2 and 4 1/2; content of language continues to develop past the age of 6; and structure of sentences and speech are somewhat established by age 5 (Reynell, 1985). The vocabulary portion of the expressive scale involves naming of objects (from Section 2 of the Verbal Comprehension Scale A); identifying pictures (e.g. flower, window); and defining words (e.g. What is a book?). The content section had the child describe the activities in several drawings (e.g. setting the table). The child's responses were scored by the number of concepts named, the number of connected ideas, and the number of additional sentences produced by

the child. The structure of the child's language was determined through recording the child's spontaneous utterances during the test. These were later examined to determine the number of words, word combinations, sentences, and parts of speech the child used. If there were an insufficient number of utterances, the toys were used to elicit additional speech samples.

Chapter III

Results

A stepwise multiple regression (as outlined by Cohen and Cohen, 1975) was used to analyze the data. Due to the number of independent variables, approximately 100 subjects were required to avoid violation of statistical assumptions. The limited number of subjects necessitated a priori determination of the variables to be included in the data analysis. Age of entry into day care, chronological age of the child, parental educational level, and parent rating of the child's language environment were determined to be variables of primary interest and therefore were included in the analysis. The theoretical importance of age of entry has been discussed in the context of both language development and day care research. Chronological age should be of primary importance in predicting the child's language skills on an age-normed test such as the Reynell. Parental educational level was selected as the measure of familial background to be included in this study as there was a great deal of variation in the amount of formal education participating parents had received. Other measures (e.g. socioeconomic status) did not reflect as much variability. The parent's rating of the child's language environment (PRCLE) was used as the measure of center quality on the basis of Bradbard and Endsley's (1978) research, which suggests quality variables are

readily observable to parents. Descriptive statistics for these variables are listed in Table II.

Table II

Descriptive Statistics of Variables Examined

<u>Variable</u>	<u>Mean</u>	<u>S.D.</u>	<u>Range</u>
Age of Entry (months)	8.61	10.04	1 - 36
Chronological Age (months)	33.37	1.84	30 - 36
Parent Educational Level (years)	16.29	2.61	12 - 20
Language Environment (PRCLE)	20.15	2.21	14 - 23

The Pearson product moment correlations between these variables are presented in Table III. Age of entry (AOE) was significantly correlated with the parent's rating of the child's language environment (PRCLE). Parents of children who entered early tended to rate the center environment more highly than parents of children who entered later. This inverse relationship may be indicative of the amounts of experience the parents of early enterers had with the day care center. PRCLE was also significantly related with the parent's educational level. The positive correlation implies more highly educated parents utilize day care centers of higher quality.

Age of entry, chronological age, and parent educational level were significantly correlated with the

receptive score. Age of entry was the only independent variable which correlated with expressive language score. The correlation between receptive and expressive language score was quite high ($r = .822$).

Table III
Correlation Matrix

	AOE	AGE	ED	PRCLE	RECP	EXPR
AOE	1.00	.136	-.017	-.367**	-.308*	-.352*
R ²		.0185	.0002	.1347	.0950	.1235
AGE		1.00	.040	-.167	.331*	.213
R ²			.0016	.0279	.1095	.0454
ED			1.00	.261*	.296*	.194
R ²				.0681	.0878	.0375
PRCLE				1.00	-.005	-.108
R ²					.0000	.0116
RECP					1.00	.822***
R ²						.6760
EXPR						1.00

[* $p < .05$; ** $p < .01$; *** $p < .001$]

A separate regression was calculated for each dependent variable: receptive and expressive language score. The result of each regression analysis are listed in Table IV.

Table IV

Results of Stepwise Regression Analysis

<u>Dependent Variable</u>	<u>Beta</u>	<u>t</u>	<u>p</u>
<u>Receptive Language</u>			
Age of Entry	-.418235	-2.854	<.01
Chronological Age	.344001	2.488	<.05
Parent Educational Level	.324503	2.297	<.05
PRCLE	-.186146	-1.217	
<u>Expressive Language</u>			
Age of Entry	-.494818	-3.291	<.005
Chronological Age	.216589	1.527	
Parent Educational Level	.260847	1.799	
PRCLE	-.321444	-2.048	<.05

Receptive Language Score

Regression analysis suggests the receptive language score is predicted by age of entry ($t(1,36) = -2.854$, $p \leq .01$); chronological age ($t(1,36) = 2.488$, $p \leq .05$); and parental educational level ($t(1,36) = 2.297$, $p \leq .05$). The parent's rating of the center's language environment was not significant in this equation.

Age of entry into day care is negatively related to the receptive language score, indicating that children who entered day care at early ages performed better on the receptive portion of the Reynell Scales. This finding is contrary to the hypothesis that age of entry would not affect receptive language development.

Chronological age of the child, as expected, is a significant predictor of the child's receptive language score. Older children are able to comprehend more complex instructions and demonstrate greater word knowledge. Parental educational level (number of years in formal education) also proved to be a significant factor. More highly educated parents may invest more time and energy into facilitating their child's receptive language abilities.

Parents' ratings of the language environment (PRCLE) at the day care centers did not account for a significant amount of variance in this regression equation.

Expressive Language Score

The expressive language score was predicted by age of entry ($t(1,36) = -3.291, p \leq .005$) and parent rating of the child's language environment ($t(1,36) = -2.048, p \leq .05$). As predicted, children who entered day care at early ages exhibited a higher level of expressive abilities on the Reynell Scale. Surprisingly, the PRCLE ratings were

inversely related to the child's expressive language score; children attending the more highly-rated centers scored lower on the expressive scale.

Data collected from the HOME Scale and the remainder of the parent survey was not included in the regression analyses due to the limited sample size. There was very little variation of scores on these measures (descriptive statistics are listed in Appendix F), which indicates there may have been a ceiling effect. This effect could be attributed to a self-selection bias (parents who were more interested in language development volunteered), a performance bias (parents were anxious to demonstrate their involvement with their child), or perhaps the measures utilized were insensitive to differences.

Chapter IV

Discussion

The results of this study indicate that age of entry into day care predicts the receptive and expressive language of young children. The earlier a child entered day care, the more advanced was his or her language use and comprehension than those who entered day care at later ages. This finding supports the concept that the social pressures to communicate have a significant impact on both expressive and receptive language development. The day care environment influences the child's expressive abilities by requiring effective communication skills on the part of the child. Receptively, the child's language skills may be facilitated in day care by exposure to a greater number of instructions and more interaction with peers and adults.

These findings contradict previous research which did not find age of entry to be a significant predictor of language abilities (e.g. McCartney, et al., 1982; Goelman & Pence, 1982). This difference may be attributed to the test of language development used. The Reynell Scales require more comprehensive testing of the child's receptive and expressive language skills than the PPVT and the EOWPVT, and thus may be more sensitive to differences.

An additional possibility for explaining this contradiction lies in the ages of the children tested in

these studies. While the Bermuda study involved children between the ages of 36 and 68 months, the age range tested in the present study included children from 30 to 36 months. Age of entry may differentially affect children's language capacities; by 68 months, these early differences may be negligible. Further research is needed to determine the longitudinal effects of age of entry on both receptive and expressive language development.

The quality of the day-care environment was assessed through the parent's rating of the child's language environment in this study, due to the statistical restrictions related to the sample size. The PRCLE was not related to the receptive language score, however, it was inversely related to the child's expressive score. This inverse relationship could possibly be related to the necessity for the child to communicate effectively. In a center which does not actively promote language development, children may be under additional stress to communicate, thus their expressive language abilities may develop more quickly.

It seems plausible, however, that this finding is more directly related to the difficulty of isolating center quality variables. McCartney et al. (1985) speculate that, due to the complexity of the relationships among quality indices, quality of center would best be investigated through experimental manipulation of factors. Although parents are readily able to observe components of the day

care program and can provide ratings of quality, additional research must be conducted to draw conclusions regarding the effect of quality of care on language development.

The primary limitation of this study is the small sample size. There are other family and day care factors which may also affect language development (e.g. the number of hours per week a child spends in day care, parent's satisfaction with child care arrangements), yet these could not be analyzed without violating statistical assumptions. Subsequent analyses to investigate potential trends with variables not selected for the primary regression analyses suggest that parental marital status and sex of the child may also be important predictors of receptive and expressive language. The limited sample size of this study prohibits such conclusions from being made. Descriptive statistics for the variables which were not included in the regression equations (number of centers attended, HOME scale scores, etc.) are listed in Appendix F.

The fact that both centers and parents within the centers volunteered to participate may have resulted in a self-selection bias: directors of centers may have been hesitant to participate if they believed the quality of their program was questionable; similarly, parents who placed little value on their child's language development may have opted not to participate. The inverse of the self-selection bias may also be true: centers and parents

who were quite interested in language development, and therefore actively promote and provide language stimulation, volunteered to participate. Studies which control for these factors through random sampling of a large number of centers and families should be conducted in the future.

Despite these limitations, the results of this study suggest that the earlier a child enters day care, the more positive the affect on children's subsequent receptive and expressive language development. Future research should address the longevity of these differences. This study also indicates the need for research which quantifies the dimensions of high-quality care and investigates differing types of day care arrangements (e.g. sitter, family day-care, and center care) in order to determine the full affect of day care on child development.

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APPENDIX A

Director Interest Letter

Dear Director:

I am conducting a study of language development and day care experience for my developmental psychology master's degree. I am contacting center directors for help in recruiting participants and providing information regarding day care. The project involves three components:

- 1) Caregiver survey -- a short survey of the child's day care environment, to be completed by the director at her convenience. The survey requests basic information about the center and staff.
- 2) Parent survey -- a short questionnaire about the family and their attitudes and experiences with day care.
- 3) Child Language Test -- a standardized test (using familiar toys and pictures) of language development in preschool children.

All of the information collected will be strictly confidential. No center or individual names will be included in the analysis or final report. Centers and parents who participate will be mailed copies of the results. There are no dangers associated with this study, and the research procedures will be submitted for approval by the Institutional Review Board of the University of Nebraska before testing begins.

If you are interested in participating, you will be given the Caregiver Survey to complete at your convenience. You would also be given interest forms (see attached) to distribute to parents of 30 to 36 month old children. Parents who agree to participate will be contacted and arrangements made to test the child when they can be present. The parents survey and the child language test will be administered at the parent's convenience; no testing will take place at the child care site.

Please let me know if your center would be interested in participating in this project by completing the enclosed post card. I am hoping to start testing in early to mid-January. If you have any questions about the study, I can be reached at 399-9773 or 559-5738.

Sincerely,

Amy C. Elofson

APPENDIX B

Parent Interest Letter and Consent Form

Dear Parents:

I am conducting a research project on language development and day care for my master's thesis in developmental psychology. Your child is eligible to participate because he or she is between 30 and 36 months of age and is enrolled in day care.

The study will examine the relationship between experiences in day care and language development. If you agree to participate, you will be asked to complete a short survey which requests demographic information, your child's experiences in day care, and your attitudes toward day care. Your child's language development will be measured with a standardized test (the Reynell Developmental Language Scales) which uses common objects and toys to measure speech. The test is presented as a game, and children often enjoy playing with the toys.

The language tests would be given in your home, at any time or day convenient for you and your child. The entire session would last no more than 45 minutes.

All of the responses will be strictly confidential. Neither your name nor your child's name will be associated with the results. You will be sent a copy of the research results once the project is completed. Dr. Greg Simpson, Associate Professor of Psychology at UNO is supervising this project.

If you are interested in participating in this study, please complete and mail the attached post card. If you have any questions about the study, I can be reached at 559-5738 or 399-9773. Thank you for your time and consideration.

Sincerely,

Amy C. Elofson

Parental Consent Form

Your child has been invited to participate in a study of language development and day care. Your child has been selected for possible participation because he or she is between 30 and 36 months of age and is currently enrolled in a day care program.

The purpose of this study is to examine the relationship between children's language development and their experiences in day care programs.

Your child, if he or she participates, will be given a standardized test of receptive and expressive language development called the Reynell Developmental Language Scales. This test involves common toys and objects, as well as pictures and drawings of familiar objects and activities. Receptive language is measured by asking the child to perform simple manipulations and identification of the objects (e.g. "Where is the ball" and "Put the button in the cup"). Expressive language is measured by asking the child to name pictures and recording the child's spontaneous speech through the testing period. The test will take no longer than 45 minutes to administer. The study will take place in your home, and you may remain in the room while the testing is taking place.

There are no risks associated with this study. Your child may benefit from playing with new materials and interacting with another adult. The test is presented as a game, and children often enjoy participating. Neither your child's name nor your own will be associated with the research results in anyway. Families of children who participate will be sent a copy of the research results.

Your participation is voluntary. You may withdraw your consent at any time. If you have any questions regarding this study, please call me at 559-5738 (work) or 399-9773 (home).

I have read the description of the language development and day care study, and I understand the procedures to be followed, the absence of risk and discomfort, and the benefits of participation. I also understand that I may withdraw my consent and discontinue my child's participation at any time.

YOU ARE MAKING A DECISION WHETHER TO ALLOW YOUR CHILD TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT, HAVING READ THE INFORMATION PROVIDED ABOVE, YOU HAVE DECIDED TO PERMIT YOUR CHILD TO PARTICIPATE.

_____ has my permission to participate
in this study.

Signature of Parent or Guardian

Date

Signature of Investigator

Date

Appendix C
Caregiver Survey

Name of Center: _____
Address: _____
Director: _____
Owner: _____
Date Completed: _____

The following survey requests information about your day care center and staff, your philosophies and policies. Please complete it at your earliest convenience and mail it back in the attached envelope. All of the collects information is strictly confidential; neither your name nor the center's name will be used in the analysis or final report. If you have any questions, please contact me at 399-9773 or 559-5738.

PLEASE RETURN BY MAY 1

Date Opened: _____ State Licensed: Yes No

Ages Served: _____ Cost per week/per child: _____

Type of Ownership: corporate private non-profit other

Number of children enrolled full time _____
part time _____

Number of staff employed full time _____
part time _____
substitute _____

How many new staff members have been hired
a) in the past six months? ____
b) in the past year? ____
c) in the past two years? ____

How many staff members have left
a) in the past six months? ____
b) in the past year? ____
c) in the past two years? ____

New staff members have been hired because of (circle all that apply)
a) increases in enrollment
b) staff turnover
c) temporary absences
d) other, please specify

Please complete the following chart

Job Title	Years experience in child care	Highest Grade completed	Major Area of study
Director	_____	_____	_____
Ass't. Dir.	_____	_____	_____
Head Teacher	_____	_____	_____
Teachers	1 _____	_____	_____
	2 _____	_____	_____
	3 _____	_____	_____
	4 _____	_____	_____
	5 _____	_____	_____
	6 _____	_____	_____
	7 _____	_____	_____
	8 _____	_____	_____

Please indicate the number of courses, seminars, workshops, or certificate programs in early childhood education or child development completed by the following persons.

Director:
 Assistant Director:
 Head Teacher:
 Teacher 1:
 Teacher 2:
 Teacher 3:
 Teacher 4:
 Teacher 5:
 Teacher 6:
 Teacher 7:
 Teacher 8:

Which of the following best describes your facility?
 a) building made specially for child care
 b) private home converted or modified for child care
 c) space available in building (e.g. church, school); modified for child care
 d) other (please specify)

How many separate classrooms are there in your center? _____

How many indoor areas for large group activities are there in your center? _____

What is the approximate square footage indoors? _____
 outdoors? _____

Please estimate the number of hours in an average day children in your center spend in each of the following activities:

_____ teacher-planned activities
 _____ children's choice of activities
 _____ large group activity (more than 10)
 _____ small group activity
 _____ free play

Do the 2 1/2 and 3 year old children play in mixed-age groups (with children older or younger by one year? Yes No
 If yes, approximately how many times per day? _____

Who is primarily responsible for the daily lesson plans?
 Director Head Teacher Every Teacher

How many times in a typical day are children involved in a language-oriented activity such as reading, role-playing, sound games and songs, playing 'house' or 'dress-up', or show and tell? _____

Please rank the importance of the following objectives as they apply to your program. A rating of 1 indicates the primary goal of your center, 2 indicates an important goal, etc. If the goal is not at all important to your center, please indicate by marking an X beside that statement.

- _____ Providing a safe and clean environment for children while their parents work
- _____ Providing a creative learning environment
- _____ Preparing children academically for school
- _____ Providing opportunities for children to learn social skills and interact with others
- _____ Providing emotional or therapeutic care for children
- _____ Providing convenient and reliable care for the children of working parents
- _____ Providing an atmosphere similar to the child's home

Please take 20 minutes to unobtrusively observe your 2 1/2 to 3-year-old teacher and record the frequency of the following behaviors. NOTE: The 20-minute period can be completed at your convenience. Observe for 10 minutes in the morning activity and 10 minutes in the afternoon on a typical day. The goal of this section is to assess how many times in an average 20-minute period these actions occur.

- Adults are observed praising children _____
- Adults explain clearly what they want children to do _____
- Adults answer questions in words children understand _____
- Adults kneel to childrens' eye level when speaking _____
- Adults ask questions of children which require more than "yes" or "no" answers _____

Comments: _____

Appendix D
Parent Survey

Name: _____
Child's Name: _____
Address: _____
Phone: _____
Day Care Center: _____

The following survey requests information about your family and your experiences with day care. Please complete the questions as accurately as possible. All the information collected will be strictly confidential: neither your name nor that of your child will be used in the analysis or final report. After you complete this form, this cover sheet will be removed and a code number will be assigned.

Subject Code Number: _____
Center Code Number: _____

Child's Birthdate: ____/____/____ Age in Months: _____

Sex of Child: Male/Female Number of Siblings: _____
Sibling Rank: _____

	<u>Mother</u>	<u>Father</u>
AGE	_____	_____
OCCUPATION	_____	_____
Gross Income (circle one)	\$0 - \$10,000 \$10,000 - \$20,000 \$20,000 - \$30,000 \$30,000 - \$40,000 \$40,000 - \$50,000 \$50,000 +	\$0 - \$10,000 \$10,000 - \$20,000 \$20,000 - \$30,000 \$30,000 - \$40,000 \$40,000 - \$50,000 \$50,000 +

Highest Grade Completed _____

Marital Status _____

How important are the following qualities to you in selecting a day care center for your child? Please rank them from 1 to 12 (1 being the most important).

Amount of toys and equipment	_____
Qualifications of staff	_____
Physical safety or health care	_____
Space inside the center	_____
Space outside the center	_____
General resources	_____
Planned activities	_____
Quality of food	_____
Appropriate discipline policy	_____
Personal care given	_____
Child's social opportunities	_____
Sensitivity to the child	_____

CHILD CARE HISTORY

How old was your child when he or she started child care outside the home? _____ years; _____ months

Please list each child care center or family day care home your child has attended, beginning with the present arrangements.

Center or Caretaker	# of months attended	# hours per week	reason for leaving

Child has been with the current group leader or teacher for _____ months.

The following questions should be answered on the basis of your observations of your child's current day care center. For each item, circle Y for yes, N for no, or D for don't know.

1. Enough adults are available so that children can be given individual attention if needed. Y N D
2. Adults are observed praising children. Y N D
3. Adults seem to be effective in communicating with the children. Y N D
4. Adults explain clearly what they want the children to do, and answer questions in words the children can understand. Y N D
5. Adults frequently kneel to the child's eye level when speaking to children. Y N D
6. Children appear happy while around the adults. Y N D
7. The children seem to enjoy one another. Y N D
8. The children play in groups without much fighting (hitting, kicking, punching, etc.) Y N D
9. Adults appear warm and affectionate toward the children. Y N D

- | | | | |
|--|---|---|---|
| 10. Adults use a child's first name or nickname when referring to him or her. | Y | N | D |
| 11. Adults eat with children and talk with them in a relaxed way during snack and mealtimes. | Y | N | D |
| 12. Adults encourage children to do things (wash their hands, fasten clothing) independently. | Y | N | D |
| 13. Adults ask some questions of children that require more than 'yes' or 'no' answers. | Y | N | D |
| 14. Attractive and well-written story and picture books are available for children. | Y | N | D |
| 15. Adults encourage the use of speech through some or all of the following activities: puppetry, doll play, storytelling, word games, sound games, show and tell. | Y | N | D |
| 16. The center has materials and equipment for quiet play (books, puzzles) as well as active play (riding toys, climbing structure) | Y | N | D |
| 17. A variety of materials and equipment are available so that children do not have to wait more than a few minutes to use them. | Y | N | D |
| 18. The children are given opportunities to run and climb both indoors and outdoors. | Y | N | D |
| 19. Adults offer more than one activity (at least at certain times during the day) so that children are free to choose what they want to do. | Y | N | D |
| 20. Both children and adults are involved in the process of cleaning up after activities. | Y | N | D |
| 21. Adults do some or all of the following: Read to the children; play records for the children; sing with the children; point out objects of interest to the children; talk to and answer questions for the children. | Y | N | D |
| 22. The center's director is willing to answer questions or talk about the program. | Y | N | D |
| 23. The center has individual spaces for each child to store his/her belongings. | Y | N | D |

Please indicate the extent to which the following statements describe your family, using a scale of 1 to 5, with 1 indicating you "completely disagree" and 5 indicating you "completely agree" with the statement to the left.

	Completely Disagree			Completely Agree	
1. I am satisfied with my current child care arrangements.	1	2	3	4	5
2. Mother is satisfied with her job.	1	2	3	4	5
3. Father is satisfied with his job.	1	2	3	4	5
4. Either parent would be happier staying home with the children. Please indicate who: Mother Father Both	1	2	3	4	5
5. Mother feels financial pressure to work outside the home.	1	2	3	4	5
6. Father feels financial pressure to work outside the home.	1	2	3	4	5
7. Mother feels social pressure to work outside the home.	1	2	3	4	5
8. Father feels social pressure to work outside the home.	1	2	3	4	5
9. Our child has benefited from his/her experience in day care.	1	2	3	4	5
The following sentences should be rated with the following scale:	Extremely Dissatisfied			Extremely Satisfied	
10. I am happy with my current relationship situation.	1	2	3	4	5
11. If married, I am happy with my relationship with my spouse.	1	2	3	4	5

ANY COMMENTS MAY BE WRITTEN ON THE BACK OF THIS PAGE

Appendix E

Home Inventory for Families of Infants and Toddlers
Emotional and Verbal Responsivity
(Caldwell & Bradley, 1984)

1. Parent spontaneously vocalized to the child twice.
2. Parent responds verbally to child's verbalizations.
3. Parent tells child name of object or person during visit.
4. Parent's speech is distinct and audible.
5. Parent initiates verbal exchanges with visitor.
6. Parent converses freely and easily.
7. Parent permits child to engage in "messy" play.
8. Parent spontaneously praises child at least twice.
9. Parent's voice conveys positive feelings for child.
10. Parent caresses or kisses child at least once.
11. Parent responds positively to praise of child by visitor.

The majority of these items were readily observed during the testing session. Item 7 ("messy play") was more difficult to observe, as most parents had prepared the home for a visitor. During the course of conversation, the experimenter asked if the child enjoyed playing with paint, clay, mud, or food. The parent's response was scored.

Appendix F

Descriptive Statistics of Excluded Variables

<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>
Number of centers attended	1.659	.911
HOME Scale	9.610	1.115
Socioeconomic Status	4.317	1.993
Job Satisfaction	4.200	.552
Relationship Satisfaction	4.402	.776

Dichotomous Variables

Parental Marital Status	83%	married
	17%	unmarried
Sex of the Child	42%	male
	58%	female
Number of Hours Attended	68%	full time
	32%	part time