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Modal Usage by Preschool Children

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Spontaneous language samples of 18 children in each age level of 2, 3, 4, and 5 years were analyzed for number of modals, semantic concepts, and first, second, and third person usage. The results revealed that the 2-year-old children used significantly fewer modals than the older children. No differences were found among the children in the remaining age levels. Ability and intention as well as first person forms were expressed most frequently. The implications of these results from an applied psychological perspective are discussed.

Mastery of modals represents a major accomplishment in the course of language development. Modals are English auxiliaries; they are the "helping words" associated with verbs and include *may, must, might, can, could, will, would, shall,* and *should* (Palmer, 1965; Twaddel, 1963). Success in using modals means learning their intricate semantic, pragmatic, and syntactic functions. The different aspects of modals will be presented followed by a discussion of the applications that can be derived from studying their development.

Modals incorporate a wide range of concepts that children acquire gradually. Kuczaj (1982) observed the following meanings in the language behavior of his son, Abe, from 2 years and 5 months to 4 years: future of present intent; future of prediction; future of present cause; ability; permission; possibility; willingness; obligation-necessity; and hypothetical. Potts, Carlson, Cocking, and Copple (1979) also focused on the semantic development of modals by investigating future conditionals, the negative modal *couldn't,* and the counterfactual meaning of *couldn't* in an elicited production task with 3, 4, and 5-year-old middle-class children who spoke standard English. Significant differences were not found among the age levels for these three meanings, although there was a tendency for increased usage with each succeeding age level. The investigators suggested that the relatively abstract meaning of counterfactuals is learned at relatively early age levels.

Hirst and Weil (1982) suggested that "the semantic organization of modals in the adult lexicon guides acquisition in children" (p. 665); there is a gradual

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process of semantic differentiation. Modals can be divided into two types of meaning: epistemic and nonepistemic. The former encompasses possibility, probability, and certainty (Fletcher, 1975). Nonepistemic meanings include ability, intention, and obligation (Fletcher, 1975). According to Fletcher (1975), "One might surmise . . . that the epistemic/nonepistemic distinction is relevant for [language] acquisition. . ." (p. 321). His analysis of Major's (1974) data supported tentatively this distinction. Kuczaj's data, described by Hirst and Weil (1982), indicated that children use spontaneously nonepistemic before epistemic meanings. Le Bonniec (1978), cited in Fletcher (1979), indicated that epistemic meanings are not cognitively mastered by 7-year-old children. However, Hirst and Weil (1982) found an opposite trend in that epistemic meanings were comprehended before nonepistemic meanings. Additional research is needed in order to fully understand the development of the semantics of modals.

One pragmatic function of early modal usage is evident in the interactions between children and adults (Fletcher, 1983). Fletcher (1983) observed that children use requests for permission as an indirect command because affirmation or denial of an event is not intended. Instead, acceptance or rejection of an utterance is sought. For example, when a child says "Can I go?" the reply is one for permission not for the truth value of the utterance. This type of indirect command regulates early parent–child interactions. Another pragmatic function of modals is to convey politeness, particularly in terms of requests. Children learn to use indirect requests with modals in order to soften the direct imperative form. Potts et al. (1979) investigated the use of modals with indirect questions. They used an elicitation task with 3- to 5-year-old children. For this structure, significant differences were found among the age levels. An indirect question was more difficult than the use of the semantic forms of modals described previously. The investigators suggested that the structure of indirect questions, which involve embedding, contributes to the difficulty of these forms for preschool children.

Regarding syntax, modals serve to form grammatical questions and negative structures. Major (1974) studied children from 5 to 8 years in their ability to use modals in four experimental tasks: sentence imitation, negative sentence formation, tag question production, and question usage. Although there was considerable variability in the data and among the tasks, it was evident that even by 8 years, children had not mastered all forms of modals. At 5 years, the children used the basic modal categories (i.e., *can, could, will, would,* and *should*). However, Fletcher (1979), Kuczaj (1982), and Miller (1981) reported modal usage well before 5 years of age. In the second year, children begin using these forms. Children use modals initially with self-reference and later with third-person forms, for example, *he, she* (Fletcher, 1979). Modals also begin with the learned form *can't* (Klima & Bellugi, 1966). Gradually, modals are increased throughout preschool and early school years (Menyuk, 1969).

Modals pose a challenge to individuals interested in language development because of their diverse composition. Semantic, pragmatic, and syntactic aspects influence their development. Without appropriate modal usage, children will not be able to form grammatical questions and negatives. A child might say, "I take it?" meaning "Can I take it?" or "I no reach it" in order to convey inability. Modals represent a cornerstone for language development, and for this reason, they are important from an applied perspective. The results of this investigation will be discussed in terms of the identification of deficient modal usage and utilization of procedures designed to foster their development.

METHOD

Subjects

There were 18 children in each age level of 2, 3, 4, and 5 years. A complete subject description is presented in Table 1. All children were considered to be normally developing and did not have any diagnoses of retardation or of perceptual, language, or emotional impairments. The subjects were monolingual Caucasian children who resided in middle-class neighborhoods.

Procedures

Language samples were elicited and tape recorded from the children in individual sessions. The conversations took place in the children's homes or in a place familiar to them. Toys and activities were introduced, such as cookie making, dolls, or trains. The children were engaged in spontaneous conversations in a naturalistic manner as opposed to an interview format in which a series of questions were directed at a child. The sessions and topics varied to some degree, depending upon the interests of the children. The sessions were similar in that the children talked in a spontaneous manner about a variety of topics. Initially, rapport was established for 15 min before the recording began. Each session lasted approximately 1 hour.

The mean number of utterances for each age group are presented in Table 1. A one-way analysis of variance revealed that the number of utterances did not differ significantly across the age groups, $F(3,71) = .83$, $p > .05$.

TABLE 1
Subject Description Data

Age	*M* Age in Months	*SD* in Months	*N* of Males	*N* of Females	*M* of Utterances
2	30.33	2.93	5	13	66.61
3	42.89	3.29	9	9	67.56
4	54.11	3.27	8	10	66.83
5	65.28	3.64	11	7	66.00

Analysis

The language samples were analyzed for the occurrence of modals, the concepts expressed by these forms, and the first, second, or third person forms associated with their usage. Initially, the number of modals was tabulated. Following this analysis, the modals were classified into one of the following semantic categories:

1) *Ability:* Child expresses capability or noncapability in carrying out a task. (Example: "I *can* see you.")
2) *Intention:* Child expresses his/her aim of doing something. (Example: "I'*ll* show how to do it.")
3) *Permission:* Child requests something. (Example: "*Can* I go now?")
4) *Obligation/Necessity:* Child expresses the importance of an activity. (Example: "Me *should* wash up now.")
5) *Probability* or *Possibility:* Child expresses the likelihood of an event. (Example: "It *may* rain.")
6) *Certainty:* Child expresses the fact that an event will occur. (Example: "Santa *will* bring me one.")

This categorization system was used because it reflects a wide range of meanings and covers the essential concepts described by Fletcher (1979) and Kuczaj (1982). An independent evaluator coded all the sentences containing modals from four samples at each age range in order to determine reliability (number of modals = 87). Intercoder agreement for categorizing the concepts expressed by the modals was 91%.

The utterances were also coded for first, second, and third person usage. First person forms were self-references: *I, me* for *I, we* or the child's name. Second person usage involved *you.* Third person productions included the pronouns *he, she, it,* and *they.* A pronoun was not necessary for the coding of this category. The utterance "My mom can" was also scored as third person usage. An independent coder analyzed the same 87 utterances; intercoder reliability was 100%.

RESULTS

The data were initially analyzed to determine whether there were any overall sex differences in the number of modals used. The mean number of modals used by the males was 5.24 (SD = 2.53) and by the females, 6.03 (SD = 3.83). Because the t value (-1.00, $df = 70$) was not significant, $p > .05$, the data for the sexes were combined for all subsequent analyses.

The means and standard deviations for the frequency of occurrence of the modals in six semantic categories are presented in Table 2. As can be seen, there is fluctuation within the age levels and for the use of the concepts. The standard

TABLE 2
Means and Standard Deviations for 18 Subjects at Each Age Level for 6 Concepts of Modals

	A		I		P		O		B		C	
Age	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
2	1.78	1.80	0.44	0.70	0.44	0.98	0.00	0.00	0.06	0.24	0.28	0.96
3	2.06	1.55	2.00	2.38	1.00	1.03	0.22	0.73	0.17	0.38	0.33	0.59
4	2.83	1.95	1.22	1.26	0.44	0.78	0.11	0.32	0.44	0.70	0.56	0.86
5	2.89	1.84	1.28	1.18	0.72	1.36	0.61	1.03	0.89	1.32	0.89	1.23

Note. A = ability, I = intention, P = permission, O = obligation/necessity, B = probability/possibility, C = certainty.

deviations are frequently higher than the means suggesting that the distributions were positively skewed and indicating variability of modal usage, particularly with respect to increased usage in relation to the mean. There were wide ranges in the number of modals used: at 2 years, from 6 to 8 modals were produced; 3 years, 1 to 12; 4 years, 2 to 10; and 5 years, 3 to 15. These data point out the variability of modal usage in the preschool years.

The data were also analyzed for age and concept usage, with one- and two-way analyses of variance (Winer, 1971). The F ratio for age was significant, $F(3,68) = 8.51$, $p < .001$. Similarly, a significant F ratio for concepts was obtained, $F(5,340) = 32.60$, $p < .001$. The interaction between age and concepts failed to reach significance, $F(15,340) = 1.37$, $p > .05$, suggesting a homogeneity in performance across concepts and age levels. Tukey (*b*) analyses revealed that for age the 2-year-olds used significantly fewer modals (M=3.00) than did the older children, who did not differ significantly among each other (3-year-olds, $M = 6.28$; 4-year-olds, $M = 5.67$, and 5-year-olds, $M = 7.72$, $p < .05$). Ability was the most frequent concept used ($M = 2.39$, $p < .05$). Intention ($M = 1.24$) was more frequently produced than permission, obligation/necessity, probability/possibility, and certainty, $p > .05$.

The data were analyzed for differences in the usage of first, second, and third person pronouns associated with modal usage. The means and standard deviations of the data are presented in Table 3. As can be seen, considerable fluctuation is evident in these data. The F ratio and the Tukey (*b*) results for age were the same as those obtained in the analysis reported above. The F ratio for person, $F(2,136) = 21.11$, was significant, $p < .001$. Again, the interaction between person and age was not significant, $F = 6,136 = 1.53, p > .05$. The first person pronoun was used more significantly ($M = 3.08$) than the second ($M = 1.10$) and third person ($M = 1.49$) pronouns, which did not differ significantly, $p > .05$, from each other.

In order to determine whether the 12-month span utilized in the above analyses was too large, the ages were divided into two 6-month levels and t tests were

TABLE 3
Means and Standard Deviations for 18 Subjects at Each Age Level for First (1), Second (2), and Third (3) Person Usage

	Person					
	1		2		3	
Age	*M*	*SD*	*M*	*SD*	*M*	*SD*
2	2.17	2.07	0.50	0.86	0.33	0.77
3	3.33	2.59	1.22	1.22	1.72	1.81
4	2.44	1.98	0.94	1.66	2.28	1.56
5	4.39	3.05	1.72	1.84	1.61	1.61

computed between the mean number of modals produced by each subgroup. The means were 2,0 to 2,5, 1.67; 2,6 to 2,11, 4.33; 3,0 to 3,5, 7.78; 3,6 to 3,11, 4.78; 4,0 to 4,5, 5.73; 4,6 to 4,11, 5.58; 5,0 to 5,5, 7.67; and 5,6 to 5,11, 7.83. Results of the t tests ($df = 16$) revealed significant differences ($p < .05$) between the 2-year-old subgroups ($t = -2.53$) and the 3-year-old subgroups ($t = 2.10$). Note, however, that there was no consistent trend as the older 2-year-olds outperformed their younger cohorts whereas the reverse pattern was evident for the 3-year-olds. Significant differences were not obtained for the 4-year-olds ($t = 0.12$) and 5-year-olds ($t = 0.11$). These findings suggest that there was less stability in the younger children than with the children at older age levels.

DISCUSSION

Significant differences were revealed in the number of modals used by the 2-year-olds in contrast with the older children. Although this is a rather general index of usage, it indicates that modal usage begins well before 5 years and in the second year of a child's life (Fletcher, 1979; Kuczaj, 1982). The lack of significance in modal usage above 2 years suggest that mean levels of performance may not be sensitive enough to ascertain developmental trends. The data were generally positively skewed, indicating that the children deviated from the norm by exhibiting relatively high usage of some modals. This finding, occurring at all age levels, supports the claim that individual patterns may be more sensitive to language development than group means (Goldfield & Snow, 1985). It is interesting to note that Potts et al. (1979) also did not find significant differences among 3- to 5-year-old children for three meanings of modals. These results show that modal usage in preschool children is variable and requires sensitive measures to describe their development.

The data concerning the concepts that the children used offer insight into the semantic aspects of modal development. Ability and intention were the most frequently used semantic categories for all age groups. These concepts reflect nonepistemic meanings. The epistemic meanings of possibility/probability and certainty were rarely used by any of the children. These findings support the viability of this distinction in language development, suggesting that non-epistemic meanings are acquired relatively early (Fletcher, 1975). The abstract nature of the epistemic concepts, which are not understood, even by 7-year-olds, influenced their usage by preschool children. These findings support the hypothesis of Hirst and Weil (1982) that semantic constraints guide the development of modals as abstract meanings are developed later than more concrete ones.

However, pragmatic considerations may also have influenced the usage of modals by the children. For example, the relatively rare usage of epistemic forms may have been due partially to the content of the dialogues between the adult and the child. The topics of the conversations centered around the child, incorporating familiar and recent activities and objects of interest. The opportunities for the concepts of ability and intention to be used may have been more frequent than for the more obscure and abstract epistemic concepts. The increased usage of first person forms by all the children also seems to reflect the pragmatic influence of the child-centered conversations in which self-related activities and interests were discussed. In addition, cognition may be involved as egocentricity should result in a high proportion of self-related utterances. Thus, the cognitive capacities of the children as well as pragmatic considerations appear to affect modal usage.

The findings of this investigation raise several methodological issues concerning research in language development. First, the focus on individual patterns cannot be ignored when studying early language development. Individual differences in language learning have already been described in several areas (Goldfield & Snow, 1985). The variability in the data of the present investigation suggests that close scrutiny of early modal usage needs to be undertaken. Individual differences may have been obscured by analyzing the data with group means. Second, there is also a need for longitudinal studies in order to fully investigate language development. This type of experimental design will permit the investigation of the emergence, development, and stabilization of modals. Longitudinal studies will also further our understanding of individual differences in the acquisition of modals. Finally, although language sample analyses enable investigators to look at naturalistic usage, this type of experimental design has some limitations. The nature of a dialogue may affect the outcome of an analysis, and absence of a form does not suggest that it has not been developed. Fletcher (1975) recommended that analysis of spontaneous language behavior as well as experimental studies be carried out in order to understand language development.

These data are relevant from an applied developmental perspective. Because modals play a central role in language development, it is important to determine whether children are delayed in using them. Preschool language-impaired children typically do not use modals (Menyuk, 1969; Trantham & Pedersen, 1976). As a consequence, their negatives and questions are ungrammatical even though the meaning of their utterances may be understood. Children who are not using early modals by 4 years would be suspected of exhibiting a delay based on the results of this investigation and other research (Miller, 1981; Trantham & Pedersen, 1976).

Research has shown that modal usage can be augmented in nonimpaired children. Nelson and his colleagues (Baker & Nelson, 1984; Nelson, Carskaddon, & Bonvillian, 1973) demonstrated increased usage of modals and other syntactic forms with recasting. A recasting is ". . . a discourse adjustment in maternal speech that provides new information in relation to the child's utterance. A recast occurs when, in a reply to the preceding utterance of the child, the mother maintains reference to the same basic meaning but syntactically changes one or more of these sentence components: subject, verb, or object" (Baker & Nelson, 1984, p. 5). A recasting with a tag question would be "You saw him, didn't you?" to the original utterance, "I saw him." Even when experimenters used recasting from 2 weeks to 2 months, children's syntactic repertoires were increased. It seems likely, then, that individuals working with preschool children could foster modal usage by using the recasting approach.

In a related area, the use of interrogatives (yes/no questions) in mothers' speech has been shown to be positively correlated to their children's usage of auxiliaries (Barnes, Gutfreund, Satterly, & Wells, 1983; Newport, Gleitman, & Gleitman, 1977). The research demonstrates that the use of inverted questions (e.g., "Can you go?") or noninverted questions (e.g., "You can go?") is associated with increased auxiliary usage. Question usage by individuals working with preschool children is likely to enhance their modal usage.

In summary, the results of this investigation indicate that by 2 years of age children use modals. The earliest concepts expressed, ability and intention, reflect concrete meanings that pertain to the child's cognitive development and social world. Longitudinal studies, which focus on individual differences and use both observational and experimental data, are recommended to further explore the development of modals. Modals can be introduced into preschool curricula by recastings and frequent use of questions in order to enhance their usage.

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