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ABSTRACT

Question development in English as a second language in four native Spanish-speaking children is described. The English questions initiated by four children differing in English proficiency (two limited English speaking and two fluent English speaking) were examined at two points in time to determine how question use changes in the syntactic, pragmatic, and semantic domains as a function of English language proficiency. Examination of the frequency with which various types of syntactic structures, pragmatic functions, and semantic functions appeared in the children's questions revealed that with greater English proficiency, these changes occurred: although there was less reliance on syntactically simpler constructions for wh-questions, syntactically complex wh- and yes/no questions were still infrequent; requests for factual information decreased and questions about personal information increased; there was a decrease in classification questions and an increase in actions/intentions questions. These findings are generally consistent with other studies of English question acquisition in monolingual children and child and adult speakers of English as a second language. Twenty-five references are listed. (Author/MSE)

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For further information contact:

Amado M. Padilla, Director
Center for Language Education and Research
1100 Glendon Avenue, Suite #1740
Los Angeles, CA 90024

ABSTRACT

The purpose of this study was to provide a framework for better understanding the process of question development in a second language. The English questions initiated by four English-Spanish second language learning children who differed in English language proficiency (2 Limited English Speaking, 2 Fluent English Speaking) were examined at two points in time to determine how question use may change in the syntactic, pragmatic, and semantic domains as a function of English language proficiency.

The frequency with which various types of syntactic structures, pragmatic functions, and semantic functions appeared in the children's questions were presented. These frequencies showed that with greater English proficiency: although there was less reliance on syntactically simpler constructions for wh-questions, syntactically complex wh- and yes/no questions were still infrequent; requests for factual information decreased and questions about personal information increased; there was a decrease in classification questions and an increase in actions/intentions questions. These findings are generally consistent with other studies of English question acquisition in monolingual children and ESL children and adults.

Theoretical discussions regarding the process of learning a second language have focused on whether there is an ordered sequence of stages (e.g., Dulay, Burt & Krashen, 1982; Wode, 1978, 1981), whether the developmental sequences are the same for the first and second languages (e.g., Hatch, 1974; Hatch & Wagner-Gough, 1976), and whether the strategies that are used to develop language are universal (e.g., McLaughlin, 1978; Seliger, 1984). Seliger (1984) and McLaughlin (1978), for instance, argue that there are universal strategies that are used by all learners and result in similar acquisitional sequences and that there are also more idiosyncratic problem solving techniques that result in deviations from the typical acquisitional sequence. This theoretical work has been very important in explaining the process of second language learning. However, neither this nor other theories account for deviations from ordered sequences or lopsided development in which syntactic rules occur in some contexts and not in others. At present, explanations for deviations tend to be based on individual differences or idiosyncratic problem solving strategies; more general second language acquisitional rules have not been identified.

New research is beginning to demonstrate that the process of development may be better understood by studying a constellation of linguistic factors rather than simply syntactic development (Bloom, Merkin & Wootten, 1982; Lightbown, 1978). In their study of wh-question development, Bloom et al. (1982) showed that three linguistic factors contribute to the acquisitional sequence: (a) the syntactic functions of different wh-forms, (b) the selection of verbs in wh-questions, and (c) the use of wh-questions in discourse.

The purpose of this study was to begin to lay a foundation for understanding the various factors that underlie the process of question development. To accomplish this purpose, this study provides a description of the syntactic, pragmatic and semantic factors in wh- and yes/no questions. Describing these domains of questions will provide the background information for further studies on how such factors interact in the process of question learning in a second language. A cross-sectional and longitudinal design was used to understand the process of question development through increasing English language proficiency: that is, from limited to fluent English speaking ability and over time.

Syntactic Development

Hatch (1974; Hatch & Wagner-Gough, 1976), summarizing the results of numerous studies of English second language learners, found that the general sequence of English question development was similar for many different samples of children. Despite considerable variation in the forms of children's English questions, six stages in the sequence were identified: (a) rising intonation, either learned or generalized from the native language, used in signaling a question; (b) emergence of single word tag questions; (c) questions with wh- fronting but without copula (e.g., "Where my ball?") and without do-support (e.g., "Why you speak French?"); (d) can as the first inversion form for the modals (e.g., "How can I finish?"); (e) be-inversion before the emergence of do-support in children's questions; and (f) a prototype of embedded questions in children's speech (e.g., "I no know what is it").

Dulay et al. (1982) also described the development of wh- questions in a second language as occurring in ordered steps. They viewed the process of question acquisition in a second language as a series of systematic changes or transitional constructions that indicate progress in understanding and producing a new language system. Four steps were identified as being characteristic of the transitional constructions in wh-question acquisition. First, a wh-word is placed at the beginning of a statement without any major alterations in the utterance structure (e.g., "What those are?"). Auxiliaries are not used in these early constructions. The second stage is marked by the emergence of some auxiliaries and modals. However, the auxiliaries are not yet inverted with the subject (e.g., "What she is doing?"). In the third step, early auxiliaries (e.g., is, are, was) are inverted, but late auxiliaries (e.g., do, am) are omitted from utterance constructions. This results in the production of some correct (e.g., "What are they?") and some incorrect (e.g., "Where I put the man?") question constructions. The last step in the process involves the acquisition of late auxiliaries and their inversion with the subject. It should be added that even though the do-insertion rule is applied, it is sometimes used incorrectly (e.g., "Do he make that?").

The steps outlined by Dulay et al. are similar to the developmental sequences observed in ESL speakers (Hatch & Wagner-Gough, 1976), bilingual children (Padilla & Lindholm, 1976), and monolingual children (e.g., Klima & Belugi-Klima, 1966). These descriptions suggest that child second language learners, regardless of their native language,

follow similar English question acquisition stages that are similar to those of monolingual English-speaking children.

Overall, a distinguishing characteristic of the developmental sequence in second language questions was the finding that inversions were usually avoided; children acquiring English as a second language were more likely to rely on rising intonation to signal an English question (Hatch, 1974; Hatch & Wagner-Gough, 1976).

The syntactic approach to children's question acquisition has been important for two reasons: (a) it is sensitive to change in language proficiency and has consequently enabled a description of the child's progressive acquisition of the grammatical structures underlying questions, showing that greater language proficiency leads to more complex syntactic structures; and (b) it has provided a framework for discovering the syntactic rules that the child is presumed to use to generate such utterances. Because of these reasons, syntactic descriptions have been very useful in advancing our understanding of the process of question development in a second language.

However, Todd (1982) has suggested that the apparent absence of a transformational rule may be due to context-specific knowledge about its use. That is, the child can use the rule in some specific contexts but not in others. Since contexts differ, the operations by which a rule is obeyed must take into account the specifics of each situation. At a given stage of acquisition, the child may have better attained this ability for one kind of context than for another. The pragmatic functions of question form contexts for question use that may influence

the ability of a second language learner to use specific syntactic rules.

Pragmatic Development

Studies of the pragmatic function of questions conducted with monolingual children have provided evidence that children's questions are multifunctional and that the way question functions are used changes over time. Van Hekken and Roelofsen (1982) examined changes with age in interrogative sequences among 38 male and female pairs of Dutch-speaking children. The children, whose ages ranged from 5 to 12 years, were observed cross-sectionally at the kindergarten, second, fourth, and sixth grade levels while they were engaged in a play situation. Question functions were categorized into two general types: questions designed to elicit information or knowledge, and those used to influence other people. The data showed that kindergarteners used questions mainly to influence the listener and they usually did this by giving suggestions in question form. As children became older, questions to influence others by giving suggestions decreased and there was a simultaneous increase in information questions. By the time children were approximately eight years old, they asked more information than influence questions. Also, more questions were asked about the physical than about the social world, especially by the kindergarten children.

Children's question use at different levels of proficiency in English and Spanish was studied by Rodriguez-Brown and Elias-Olivares (1983). These investigators identified six third-grade children, ranging from 8;6 to 9;6 years of age, who were representative of six

different levels of Spanish and English proficiencies from High English-High Spanish to No English-High Spanish. A total of 256 questions, collected in video taped recordings in school and home settings under semi-naturalistic conditions, were coded using a system that categorized questions according to their communicative intentions. For instance, questions could serve as requests for information, clarification, approval, action, permission, or as other communicative functions such as rhetorical and hesitation questions. Also included was a category for yes/no questions.

Several interesting findings emerged from the analysis. First, requests for information, yes/no questions, and requests for clarification had the highest frequency of occurrence in both English and Spanish. Many of these utterances, especially requests for clarification used by students in their low proficiency language, were not full propositions, but one word requests (e.g., "Huh?"). Also, it was reported that requests for permission and clarification were more likely to be used by the children who were more proficient in English. Even though similar types of questions appear in both languages, high English proficient students employed a greater variety of questioning strategies.

With second language learning children, the linguistic proficiency in a second language may limit the social functions the child may be able to use in questioning. Lightbown's (1978) functional analysis of two 6- to 7-year-olds provides evidence that the children developed strategies that enabled them to encode a broader range of question functions in their second language than might be expected. These

strategies permitted the children to extend functional question use beyond their mastery of the appropriate grammatical structures and syntactic rules for conveying the idea. It was also observed that children might use a more complex form to communicate a function best expressed in a simpler form. For example, even though the French form of the what question had not appeared, its function was served in utterances with the equivalent of the who form. In effect, the child substituted a question word in a sentence where the meaning intended was that of another question word. Lightbown suggested that these and other strategies are also used in native language acquisition, but that second language learners use them more often because the large gap between cognitive and linguistic development in the second language leads them to attempt to say things for which they are not linguistically prepared.

In sum, despite advances that have begun to be made in the pragmatic approach, considerably more information is needed on the pragmatic functions that are expressed in ESL children's questions in the process of learning a second language. Specifically, it would be useful to know the types and variety of pragmatic functions that children with different levels of second language proficiency are able to use in their questions. For example, do second language learners initially ask more questions about the physical rather than the social domains as monolingual children do?

Semantic Development

Early work by Piaget (1923/1955) has had a major impact on knowledge about the semantic basis of question development. His

detailed semantic classification of questions was derived from questions asked by a 6-year-old boy and recorded daily over a 10-month period. Questions were subdivided into several groups: questions of causal explanation; questions of reality and history (i.e., facts and events, place, time); invention and imagination; questions about human actions and intentions; questions about rules; and questions regarding classification and calculation. Piaget was interested in children's questions primarily for the insight they would shed on the development of children's cognitive abilities. He reasoned that question-asking behavior reflects the stage of cognitive development reached by the child. Accordingly, changes in the semantic content of questions over time would be indicative of growth in cognitive abilities.

Several researchers have investigated Piaget's contention that question-asking behavior reflects the stage of cognitive development reached by the child and that changes in the semantic content of questions reflect cognitive growth (Smith, 1933; Tyack & Ingram, 1977). For example, Smith (1933) examined the questions used by 219 preschool children ranging in age from 1;6 to 6;0. In addition to individual and situational differences in question-asking behavior, Smith found clear-cut differences in question use associated with chronological age. Questions that increased significantly in proportion with age were those concerning number and calculation, human intentions or actions, fact, time, invention, and causal questions. Questions that were frequent at two years and decreased with age were those that inquired about the location of people or objects, and those asking for the names of persons or things. Furthermore, it was found that what

and where questions decreased with age; who, whose, and which did not change appreciably; and how, why, and when increased regularly and significantly from year to year.

Results of studies by Meyer and Shane (1973) with school-age children, and Ingram (1976) with normal and aphasic children, provide added support for Piaget's position. Furthermore, a study of 19 Spanish-English bilingual children produced similar results in terms of the sequence of wh-questions (Padilla & Lindholm, 1976), as did a review of studies with second language learners of English by Hatch (1974; Hatch & Wagner-Gough, 1976). Similarly, Lightbown (1978), in her study of two 6- to 7-year-old English-speaking Canadian boys learning French, found that the sequence of question forms in French corresponded to that observed in native speakers of English: what and where appeared earliest and were most frequent; how, why, and when appeared later and were less frequent.

These investigations are important because they lend credence to the theoretical notion that the process of language development is orderly and sequential. However, many of the studies are limited to monolingual children's first language acquisition where the focus is on changes in the semantic function of questions as a result of greater cognitive development. For second language learners who are more cognitively advanced and possess the semantic functions necessary for producing a wide range of questions in their first language, it is important to determine whether the process of question development is or is not parallel to that of monolinguals; that is, an initial reliance on questions about the location of people and objects and

names for things, and with greater proficiency, more use of questions about human actions/intentions, causation, and calculations.

The purpose of this study was to examine the questions of four children who differed in English language proficiency (2 Limited English Speakers, 2 Fluent English Speakers) to determine how question use may change in the syntactic, pragmatic and semantic domains as a function of English language proficiency. More specifically, the children's questions were studied for information pertaining to: (a) the syntactic complexity of wh- and yes/no questions, (b) the pragmatic functions of their questions, and (c) the semantic functions of the questions. It was expected that with increasing English proficiency, there would be: (a) less use of syntactically simple structures and more use of syntactically complex structures, and (b) changes in the pragmatic and semantic functions that are used most often.

Two methodological perspectives were used to examine language proficiency: (a) a longitudinal approach for the limited English speaking and fluent English speaking children, showing change over a 12 to 16 month time span; and (b) a cross-sectional approach to compare children with two different language proficiency levels (limited versus fluent).

METHOD

Participants

The language data from four children are summarized here. These children were participating in an ongoing longitudinal study of language use in home and school settings. Three criteria were used to

select the children for this longitudinal study: a) that the children be youngest members of English-Spanish bilingual households; b) that children show some English-speaking ability; and c) that there be available for each child at least two home-recorded audio tapes at two points in time separated by approximately a one-year period. This last criteria was used to ensure that the number of questions for each child would be of reasonable size for our analyses. Further selection criteria for the question study were that the four home tapes would each contain: (a) an interaction between the child and the fieldworker and siblings, and (b) an interaction involving a game activity or natural conversation. These additional criteria provided some control for the context in which the children were interacting and producing questions.

The families from which the four children are drawn share some commonalities. First, the parents are Mexican-born, have limited educational backgrounds, and have resided in the U.S. for periods ranging from five to twelve years. Second, fathers are the primary source of income for the families and are primarily manual laborers. They provide what may be best described as a lower-middle class kind of socioeconomic environment for their families. Finally, although each family retains a strong Mexican identity, reinforced by networks of relatives and friends as well as by the parents' Spanish language use, the children are in various stages of bilingual and bicultural transition. Most of the children, including our target children, prefer English in their daily verbal interactions with siblings, neighborhood friends, and classmates. A more detailed description of family

backgrounds and home language environments is presented in Garcia, Veyna-Lopez, Siguenza, and Torres (1982), and a shorter summary in Romero and Veyna-Lopez (1983).

Table 1 summarizes these children's personal characteristics and language use patterns. Briefly, our sample consists of three males and one female, who, with one exception, are U.S. born. The children range in age from 4;2 through 8;0. The children and ages at which they were studied are: Teresa at 4;2 and 5;6, Roberto at 5;6 and 6;6, both Victor and Eduardo at 7;0 and 8;0. It is reasonable to assume that the ESL children's English development has been strongly influenced by their older siblings' English use, exposure to mass media, the neighborhood peer network, and (for three of these four ESL children) contact with the educational system. Also, the three children enrolled in school have had varying degrees of involvement in bilingual education programs. The language use data in the table indicate that the children adjust their English and Spanish use in a rather predictable fashion. (These data were obtained from parents' and fieldworkers' reports of children's language use.) Generally speaking, the children speak mostly Spanish to their mothers, both English and Spanish to their fathers, and mostly English to their siblings and peers.

The Basic Inventory of Natural Language (BINL) (Herbert, 1979) was administered for a measurement of oral language abilities. Categories coinciding with children's mean syntactic complexity scores for the two time periods at which they were studied are entered in Table 1. Roberto and Eduardo are classified as fluent in English, whereas Teresa and Victor are limited English speakers. The children's English

Table 1

Target Children's Personal Characteristics and Language Use Patterns

Name	Birthplace & Birth Order[1]	Sex	Child's Language Use[2]				Age at		Language Level
			Father	Mother	Siblings	Peers	Time 1	Time 2	
Teresa	California, 7/7	F	Bilingual	Spanish	Mostly English	Mostly English	4;2	5;6	Limited English Speaking
Roberto	California, 7/7	M	Mostly Spanish	Mostly Spanish	Bilingual	Bilingual	5;6	6;6	Fluent English Speaking
Victor	Tijuana, B.C., 6/6	M	Mostly English	Mostly Spanish	Bilingual	English	7;0	8;0	Limited English Speaking
Eduardo	California, 3/3	M	Mostly English	Mostly Spanish	English	Bilingual	7;0	8;0	Fluent English Speaking

[1]Birth order is represented as follows: Birth order/total number of children in family.

[2]Based on parent and fieldworker reports of children's language use.

language proficiency as measured by the BINL did not change categorically from Time 1 to Time 2. Finally, the ESL children scored in the normal range on two tests of intellectual abilities.

Coding the Question Data

Each utterance in the transcripts was coded for the following background information: (a) child's identification number, (b) sibling identification number, (c) session number of the transcript, (d) page number of the transcript, (e) sex of the child, and (f) age of the child. In addition, each utterance was coded for (a) Syntactic Structure, (b) Pragmatic Function, and (c) Semantic Function. Each of these variables will be briefly discussed separately. This coding system is described in detail in Lindholm (1984).

Syntactic Structure. Syntactic Structure categorizes each question according to the syntactic rules for formulating wh- and yes/no questions (e.g., subject/verb inversion, auxiliary verb insertion).

1. wh-word (+ demonstrative): a wh-question that consists of a wh-word only or a wh-word and a demonstrative (e.g., Where? What this?).
2. wh-word - subject/verb inversion and auxiliary verb insertion: a wh-question that does not contain subject/verb inversion or auxiliary verb insertion where they are required (e.g., How you do that?).
3. wh-word + subject/verb inversion: a wh-question that contains the wh-word and subject/verb inversion only (e.g., Why are we going home?).

4. wh-word + auxiliary verb insertion: a wh-question that contains only the insertion of the auxiliary verb (e.g., Why he did take it?).
5. wh-word + subject/verb inversion and auxiliary verb insertion: a wh-question that contains both subject/verb inversion and auxiliary verb insertion (e.g., Why did he take it?).
6. rising intonation: a yes/no question marked only by rising intonation; it does not contain either subject/verb inversion or auxiliary verb insertion (e.g., You read it all by yourself?).
7. yes/no + subject/verb inversion: a yes/no question that contains only subject/verb inversion, without any auxiliary verb insertion (e.g., Is this a ball?).
8. yes/no + auxiliary verb insertion: a yes/no question that contains the insertion of an auxiliary verb, but does not have any subject/verb inversion (e.g., You do want to come to my house?).
9. yes/no + subject/verb inversion and auxiliary verb insertion: a yes/no question that contains both subject/verb inversion and the insertion of an auxiliary verb (e.g., Don't you want to come to my house?).

Pragmatic Function. Pragmatic function was adapted from Padilla and Lindholm's (1979) communicative socialization coding system. This category abstracts the intention of the utterance--e.g., whether the question seeks permission, factual information, or clarification.

1. factual information: an utterance that seeks descriptive, locative, factual, or characteristic information about objects, people, events, etc. (e.g., What color is that? Where is the book?); or an utterance that requests specific information related to rules/regulations in game playing, or paper and pencil activities (e.g., Do I pick up another card when I land on the space?).

2. personal information: events, ownership, occurrences, wishes, thoughts, knowledge, feelings, opinions, implied thoughts asked about the recipient or others (e.g., Where are you going? What did Ana do yesterday? Do you know Patricia?).

3. directive: a question which directs the recipient's behavior (e.g., Would you like to sweep the floor?), or that directs the recipient's behavior and contains a question at the end to request acknowledgement of the directive (e.g., Go get my keys, would you?).

4. clarification--linguistic: a question which requests repetition or elaboration of the previous utterance (e.g., What? Huh?); in which the previous utterance is repeated partially or fully to either: (a) check whether the speaker heard the utterance correctly, (b) obtain the information that was not heard; or in which the converser elaborates on a previous utterance by rephrasing or expanding it to either: (a) determine whether it was heard correctly, or (b) obtain the information that was not heard.

5. clarification--meaning: the question function is to clarify the meaning or to seek further explanation of the thought in a previous utterance (e.g., Could you explain what you mean?). This function is distinguished from clarification--linguistic functions in that the other clarification function is used when the speaker did not hear part or all of the previous utterance and wants it repeated whereas in this meaning clarification, the speaker heard the previous utterance but did not understand it.

6. emphasis: a question in which the previous utterance (often the speaker's own utterance) is repeated partially or fully, or is rephrased, to emphasize a word or thought. This includes questions that are repeated because the response was not appropriate or because there was no response (e.g., You wanna see my picture?--Other conversation--You wanna see it?).

7. other: All other questions that cannot be described using the above categories.

Semantic Function. This category refers to the semantic classification or content that is being requested and was adapted from Piaget's (1923/1955) analysis of Wh-questions.

1. causal explanation: a question seeking an explanation in the form of a reason, purpose, or motive for an action or some aspect of a physical object or natural phenomenon. This includes the functions of objects (e.g., Why does that move like that? Why is he hiding?).

2. reality/history: a question about the reality or history of an object, event or fact, its location, or its time of occurrence (e.g., Where did you plug the cord in? When does class start?).

3. actions/intentions: questions about an action, an intention, or knowledge of a person or his/her psychological state (e.g., What do you want to do? Where are you going?).

4. classification: a question about the name of an object or person, the class to which it belongs, or its definition. Also a question seeking a value judgment about the characteristic of an object or person (e.g., What is that? What color is that?).

5. rules and calculations: a question about a rule of language, a social custom, or a game, or an organization or structure for engaging in an action or proceeding in a task (e.g., When am I supposed to throw the dice? Why do I have to say "thank you" all the time?); or about numbers or arithmetic (e.g., What is two plus two? How much is six times four?).

6. cognitive verification: a question verifying that the current speaker's understanding of a previous utterance is correct, or that the content of the speaker's statement is correct (e.g., Do you mean that one with the brown eyes?).

7. linguistic verification: a question concerned with matching the phonological or syntactic elements of a previous utterance or checking that the linguistic structure of the speaker's statement is correct (e.g., What'd you say?).

8. none: There is no cognitive function in the utterance (e.g., directive, attention questions).

These codes are illustrated in the following examples:

Question: What's that?
Syntactic: wh-word + demonstrative
Pragmatic: factual information
Semantic: classification

Response: It's a microphone.

Question: A what?
Syntactic: wh-word
Pragmatic: clarification--linguistic
Semantic: linguistic verification

Response: A microphone.

Question: What do you use it for?
Syntactic: wh-word + subject/verb inversion and auxiliary verb insertion
Pragmatic: factual information
Semantic: causal explanation

Response: (No response).

Question: What's the microphone used for?
Syntactic: wh-word + subject/verb inversion
Pragmatic: emphasis
Semantic: causal explanation

Intercoder reliability was established separately for syntactic structure, pragmatic function, and semantic function on a sample of 200 questions with two coders. Overall, intercoder reliabilities were very high; syntactic structure at 100% agreement, pragmatic function at 90% agreement and semantic function at 96% agreement.

RESULTS AND DISCUSSION

The results are based on a total of 1347 questions produced by the four children. Teresa produced a total of 465 questions (Time 1 = 290;

Time 2 = 175), Victor used 203 questions (Time 1 = 40; Time 2 = 163), Roberto produced 249 questions (Time 1 = 109; Time 2 = 140), and Eduardo 255 questions (Time 1 = 54; Time 2 = 201). (Time 1 and Time 2 are separated by a period of 12-16 months.)

Since there are two perspectives (longitudinal and cross-sectional) with which to examine syntactic, pragmatic, and semantic development, these two perspectives will be presented separately.

Syntactic Development

The first set of analyses focused on the syntactic complexity of the children's questions as a function of English language proficiency.

Longitudinal perspective. Table 2 summarizes the syntactic structures produced by the children. For three of the four children (Teresa, Victor, and Roberto), there was a highly significant relationship ($p < .001$) between time (Time 1 versus Time 2) and all syntactic structures. What this significant relationship indicates is that over the 12-16 month period from Time 1 to Time 2, the distribution of the syntactic structures changed. Looking at the different syntactic structures at Time 1 and Time 2 for these children provides information about these changes. For example, from Time 1 to Time 2, Teresa, Roberto, and Victor used substantially fewer wh-word (+ demonstrative) questions and Teresa and Victor used more rising intonation questions.

In order to better understand how the children's syntactic structures changed from Time 1 to Time 2, we used chi square analyses of the relationship between time (Time 1 versus Time 2) and presence versus absence of the structure. While this analysis does not indicate direction of an effect, it does detect whether there is a significant

Table 2

Percentage of Use of Syntactic Structure Components: Longitudinal Perspective

	LIMITED ENGLISH SPEAKERS						FLUENT ENGLISH SPEAKERS					
	Teresa			Victor			Roberto			Eduardo		
	Time 1	Time 2	X^2	Time 1	Time 2	X^2	Time 1	Time 2	X^2	Time 1	Time 2	X^2
	(4;2)	(5;6)		(7;0)	(8;0)		(5;6)	(6;6)		(7;0)	(8;0)	
COMPONENTS	(N=290)	(N=175)		(N=40)	(N=163)		(N=109)	(N=140)		(N=54)	(N=201)	
wh-word (+ dem)	31.7	19.4	7.74**	37.5	11.0	14.63***	13.8	2.9	8.85**	18.5	17.9	0
wh-word + S/V inv & aux	28.6	16.6	8.02**	15.0	22.1	.60	8.3	4.3	1.08	24.1	13.9	2.54
wh-word + S/V inv	6.2	2.3		7.5	8.0		5.5	6.4		0	1.5	
wh-word + aux	0	0.6		0	0		1.8	0		0	0	
wh-word + S/V inv & aux	1.4	4.6	3.24	7.5	3.1	.70	3.7	7.9	1.23	9.3	3.0	2.68
TOTAL WH-QUESTIONS	67.9	43.4		67.5	44.2		33.0	21.4		51.9	36.3	
rising intonation	22.8	46.9	28.11***	25.0	36.8	1.49	56.9	41.4	5.26*	44.4	51.2	.54
yes/no + S/V inv	2.1	0.6		0	1.8		0	2.1		0	0	
yes/no + aux	0.7	0		0	0		0.9	2.1		0	5.0	
yes/no + S/V inv & aux	2.4	2.9	0	2.5	1.2	0	7.3	22.1	9.08**	0	1.0	0
TOTAL YES/NO QUESTIONS	28.0	50.3		27.5	39.9		65.2	67.8		44.4	57.2	
ALL SYNTACTIC STRUCTURES			48.16***			27.05***			44.36***			.11

* $p < .05$
** $p < .01$
*** $p < .001$

relationship between the variables. Examination of Table 2 will indicate the direction of change from Time 1 to Time 2. It is assumed that a significant relationship between the structure and time will represent changes in English language proficiency from Time 1 to Time 2.

It was expected that from Time 1 to Time 2, there would be less reliance on syntactically simple questions (i.e., those having fewer transformations) to greater use of syntactically complex structures (i.e. those having more transformations). For Teresa, Victor, and Roberto, there is a statistically significant relationship between time (Time 1 versus Time 2) and the wh-word (+ demonstrative) structure ($p < .001$). Attention to Table 2 shows that the children used fewer wh-word (+ demonstrative) from Time 1 to Time 2. With respect to the other three wh-question structures, there was a decrease in wh-word - subject/verb inversion and auxiliary verb insertion for Teresa, Roberto and Eduardo. The other wh-question structures were used infrequently and did not vary much from Time 1 to Time 2, as indicated in the chi square analyses.

Except for Roberto, the children used more, not fewer, rising intonation questions with increasing English language proficiency. However, the relationship between time and rising intonation was significant ($p < .02$) only for Teresa and Roberto. The remaining yes/no questions were rarely used.

Cross-sectional perspective. This perspective examines whether there are significant relationships between level of proficiency (limited English speaking-LES versus fluent English speaking-FES) and

syntactic structures. For this set of analyses, there are two comparisons of interest: Teresa (LES) versus Roberto (FES) at age 5;6 and Victor (LES) versus Eduardo (FES) at age 8;0. These comparisons were selected to avoid confounding age with English language proficiency. Age 5;6 was selected because Teresa (LES) and Roberto (FES) were both assessed at age 5;6. Although Victor (LES) and Eduardo (FES) were both studied at ages 7;0 and 8;0, age 8;0 was selected because it contains the largest number of questions for both children and therefore will yield more stable percentages of question use. Table 3 presents the percentages for this analysis.

It was expected that the children categorized as limited English speakers would produce more syntactically simpler questions and the fluent English-speaking children more syntactically complex question structures. Overall, there is a significant relationship at both age groups between level of proficiency and the distribution of all syntactic structure components ($p < .01$). However, it appears that the direction of the differences varies between the two age groups.

At both ages more wh-word - subject/verb inversion and auxiliary verb insertion structures were observed in the limited than fluent English speakers although not quite significantly ($p = .07$). With respect to the more syntactically complex wh-questions, there was little difference in the frequency with which the four children used these structures. These analyses of wh-questions show inconsistent and insignificant relationships between level and structure, although they are more likely to be in the predicted direction for the 5;6 group.

Table 3

Percentage of Use of Syntactic Structure Components: Cross-Sectional Perspective

	5;6			8;0		
	Limited	Fluent		Limited	Fluent	
	Teresa	Roberto		Victor	Eduardo	
COMPONENTS	(N=175)	(N=109)	x^2	(N=163)	(N=201)	x^2
wh-word (+ dem)	19.4	13.9	1.14	11.0	17.9	2.84
wh-word - S/V inv & aux	16.6	8.3	3.32	22.1	13.9	3.59
wh-word + S/V inv	2.3	5.5		8.0	1.5	
wh-word + aux	0.6	1.8		0	0	
wh-word + S/V inv & aux	4.6	3.7	0	3.1	3.0	0
TOTAL WH-QUESTIONS	43.4	33.0		44.2	36.3	
rising intonation	46.9	56.9	2.31	36.8	51.2	7.01**
yes/no + S/V inv	0.6	0		1.8	0	
yes/no + aux	0	0.9		0	5.0	0
yes/no + S/V inv & aux	2.9	7.3	2.15	1.2	1.0	0
TOTAL YES/NO QUESTIONS	50.3	65.2		39.9	57.2	
ALL SYNTACTIC STRUCTURES			24.41**			38.47***

* $p < .05$
** $p < .01$
*** $p < .001$

Rising intonation questions were predicted to be used less by the fluent speakers of English. However, as Table 3 indicates, the fluent speakers produced more rising intonation questions, although this level by structure relationship was only significant for the 8;0 group ($p < .008$). There were no other statistically significant differences for the remaining structures.

Discussion. Tables 2 and 3 show that, in general, the syntactically simple structures of rising intonation and wh-word (+ demonstrative) questions occurred most frequently. Analyses of time and of level of English proficiency by all syntactic structures showed that the children's distributions changed over time and proficiency level, as predicted. However, the individual analyses of the particular syntactic structures did not always produce consistent results across the two measures of language proficiency (time and level) and they did not provide considerable support for the predictions. Generally, the two younger children showed more change over time and usually in the hypothesized direction. Thus, these results might suggest a trend toward more syntactically complex questions. That is, in the younger children, there was a general decrease in less complex structures (e.g., wh-word (+ demonstrative), wh-word - subject/verb inversion and auxiliary verb insertion) and an increase in more complex structures (wh-word + subject/verb inversion and auxiliary verb insertion, yes/no + subject/verb inversion and auxiliary verb insertion). Perhaps it is because of their parallel progression from less complex to more complex structures that the limited versus fluent differences predicted for the younger children failed to emerge.

The two limited English speaking children's (Teresa and Victor) wh-questions are somewhat consistent with the characterization given by Dulay et al. (1982) of the acquisitional sequence of wh-questions in second language learners of English: (a) wh-word placed at the beginning of the statement without any other alterations in syntactic structure, (b) auxiliaries and modals are inserted, but not inverted with the subject, (c) early auxiliaries (e.g., is, are, was) are inverted with the subject, and (d) late auxiliaries are inverted with the subject. With both Teresa and Victor, the majority of wh-questions consisted of either wh-word (+ demonstrative) or wh-word - subject/verb inversion and auxiliary verb insertion structures at Time 1. These constructions are consistent with Dulay et al.'s first stage. By Time 2 (12 - 16 months later), both children still used a number of these types of wh-questions, but they were also beginning to use other transformational rules, particularly subject/verb inversion and/or auxiliary verb insertion. This is not what Dulay et al. hypothesize as the next sequential step. According to Dulay et al., Teresa and Victor should exhibit more wh-word + auxiliary verb insertion then later wh-word + subject/verb inversion and wh-word + subject/verb inversion and auxiliary verb insertion. However, the ages we selected for observation may have been too far apart (from 4;2 to 5;6 and 7;0 to 8;0) to enable detection of the intermediate steps. In addition, as Allendorff and Wode (1981) point out, assessing order of acquisition through frequency counts can only provide an estimate of the true acquisitional sequence.

Finally, one other comparison with the literature is in order. Hatch and Wagner-Gough (1976) posit that ESL children progress from using rising intonation only to signal a question to wh-questions without the copula or do insertion. Although we recognize that frequency counts do not necessarily provide the acquisitional order (Allendorff & Wode, 1981), both of the limited English speakers demonstrated an increase from fewer (22.8%-25%) to more rising intonation questions (36.8%-46.9%) from Time 1 to Time 2. This higher frequency was similar to the frequencies produced by the two fluent English speakers (41.4%-56.9%) and to the percentages of two English monolinguals whose questions were also studied but are not reported on here (37.4%). Thus, it appeared that all children used a large number of rising intonation questions. Wh-questions without either transformational rule (Wh-word - subject/verb inversion and auxiliary verb insertion were fairly frequent across all children, even monolinguals who produced 11% of these types of syntactically simple questions.

While we recognize that our limited English speakers are probably more advanced than the ESL children Hatch and Wagner-Gough observed these sequences with, we want to point out that these syntactically simple structures were also used often with even fluent English speakers (and monolinguals). It is also important to note, as Todd (1982) has suggested, that the apparent absence of a transformational rule may be due to context-specific knowledge about its use. Thus, ESL and monolingual children and adults may produce far more syntactically simple questions (e.g., rising intonation, wh-word - subject/verb inversion and auxiliary verb insertion) although they are perfectly

capable of using complex questions as well. Thus, other aspects of questions must be studied to determine how ESL children use questions. We now turn to an examination of the pragmatic functions of the children's questions.

Pragmatic Development

Longitudinal perspective. Table 4 presents the percentage with which the different pragmatic function components were produced for the children over time. For Teresa, Victor and Roberto, there was a significant relationship between time and all pragmatic functions ($p < .003$). This result indicates that the distribution of pragmatic functions changed over time for these children, which is what we predicted.

It was expected that there would be a shift from fewer factual information questions to more personal information questions on the basis of findings that, with increasing age, children ask more questions about the social world than about the physical world (Van Hekken & Roelofsen, 1982). While this trend was observed for Teresa, Roberto and Eduardo, there was a significant relationship between time and this pragmatic function for only Teresa and Roberto ($p < .002$). With respect to personal information, only for Teresa was there a significant relationship between time and this type of function ($p < .0001$), although the trend approached significance for Roberto ($p < .07$). For both of these children, the relationship was as predicted: more personal information over time.

There was a slight and nonsignificant increase over time for the clarification--linguistic function with Teresa, Roberto and Eduardo.

Table 4

Percentage of Use of Pragmatic Function Components: Longitudinal Perspective

	LIMITED ENGLISH SPEAKERS						FLUENT ENGLISH SPEAKERS					
	Teresa			Victor			Roberto			Eduardo		
	Time 1	Time 2		Time 1	Time 2		Time 1	Time 2		Time 1	Time 2	
	(4;2)	(5;6)	x^2	(7;0)	(8;0)	x^2	(5;6)	(6;6)	x^2	(7;0)	(8;0)	x^2
COMPONENTS	(N=290)	(N=175)		(N=40)	(N=163)		(N=109)	(N=140)		(N=54)	(N=201)	
factual information	59.3	40.6	14.62***	35.0	63.2	9.3***	44.0	24.3	9.95**	50.0	44.8	.28
personal information	11.7	31.4	26.1***	22.5	16.0	.56	29.4	41.4	3.36	22.2	20.4	.01
directive	0.7	0.6		0	0.6		0.9	0		0	1.0	
clarification--linguistic	12.8	13.7	.02	35.0	11.0	12.13***	16.5	20.0	.29	18.5	22.9	.25
clarification--meaning	4.1	2.9		0	4.3		0	2.9		0	2.0	
emphasis	9.7	6.9		7.5	4.3		4.6	10.0		7.4	7.5	
other	0	0.6		0	0.6		0	0		0	0.5	
ALL PRAGMATIC FUNCTIONS			34.05***			19.8**			19.06**			2.84

* $p < .05$
** $p < .01$
*** $p < .001$

Only Victor significantly decreased his frequency of clarification--linguistic functions ($p < .001$). The remaining pragmatic function components were used only infrequently and did not differ much from Time 1 to Time 2.

Cross-sectional perspective. Table 5 presents the percentage with which the pragmatic functions were used by the limited versus fluent speakers. For the two 5;6 children's distributions of pragmatic functions, there was no significant relation between proficiency level and all pragmatic functions, factual information, personal information, or clarification functions.

Conversely, for the 8;0 group, three of these relationships were significant; level and all pragmatic functions ($p < .009$), factual information ($p < .001$), and clarification--linguistic ($p < .005$). These changes were in the predicted direction of fewer factual information questions from limited to fluent English speakers. Also, there was a trend toward greater use of personal information questions from limited to fluent that did not reach significance.

Discussion. As Tables 4 and 5 show, the majority of questions are related to factual information and personal information. In general, there is a decrease in factual information and a corresponding increase in personal information. Few questions were used at any point for directives, emphasis, clarification--meaning, or other pragmatic functions. The purpose of most questions was to obtain information about people and objects or for clarification purposes.

These results are consistent with Van Hekken and Roelofsen (1982) who also showed that in the period from 5 to 8 years, there is an

Table 5

Percentage of Use of Pragmatic Function Components: Cross-Sectional Perspective

	5;6			8;0		
	Limited	Fluent		Limited	Fluent	
	Teresa	Roberto		Victor	Eduardo	
COMPONENTS	(N=175)	(N=109)	X^2	(N=163)	(N=201)	X^2
factual	40.6	44.0	.20	63.2	44.8	11.52***
personal information	31.4	29.4	.05	16.0	20.4	.91
directive	0.6	0.9		0.6	1.0	
clarification--linguistic	13.7	16.5	.23	11.0	22.9	7.91**
clarification--meaning	2.9	0		4.3	2.0	
emphasis	6.9	4.6		4.3	7.5	
other	0.6	0		0.6	5.0	
ALL PRAGMATIC FUNCTIONS			5.3			18.78**

* $p < .05$
** $p < .01$
*** $p < .001$

increase in information function questions, that more questions are asked about the physical than about the social world, and that with increasing age there are more social- and fewer physical-world questions. Similarly, Rodriguez-Brown and Elias-Olivares (1983) found that requests for information and clarification had the highest frequency of occurrence by their more English proficient speakers.

The fact that children used largely information questions does not mean that the children did not use questions for a wide range of pragmatic functions; rather, it points to the focus of children's pragmatic functions as being oriented toward obtaining more information. In obtaining information, the children used a variety of categories of pragmatic functions (Lindholm, 1984) that are not distinguished here. This finding is consistent with Lightbown's (1978) conclusions that second language learners have a number of pragmatic functions available to them.

Semantic Development

Longitudinal perspective. Table 6 presents the percentages with which the various semantic function components were observed in the children's questions over time. For Teresa, Victor and Roberto, there was a significant relationship between time and all semantic functions ($p < .0001$). This result demonstrates that the distributions of semantic functions changed in the 12-16 months from Time 1 to Time 2, which is what was predicted.

From Time 1 to Time 2, Teresa, Roberto and Eduardo used fewer classifications questions, although the relationship between this semantic function and time was only significant for Teresa and Roberto

Table 6

Percentage of Use of Semantic Function Components: Longitudinal Perspective

	LIMITED ENGLISH SPEAKERS						FLUENT ENGLISH SPEAKERS					
	Teresa			Victor			Roberto			Eduardo		
	Time 1	Time 2		Time 1	Time 2		Time 1	Time 2		Time 1	Time 2	
	(4;2)	(5;6)	X^2	(7;0)	(8;0)	X^2	(5;6)	(6;6)	X^2	(7;0)	(8;0)	X^2
COMPONENTS	(N=290)	(N=175)		(N=40)	(N=163)		(N=109)	(N=140)		(N=54)	(N=201)	
causal	8.6	12.6		2.5	3.1		3.7	1.4		9.3	2.0	
reality/history	24.8	25.1	0	10.0	43.6	14.12***	17.6	20.0	.12	18.5	23.9	.42
actions/intentions	9.7	20.0	9.10**	25.0	22.1	.03	22.2	42.1	10.28***	31.5	31.3	0
classification	36.9	18.9	16.0***	10.0	13.5	.11	33.3	9.3	20.4***	14.8	9.5	.79
rules	0	0		15.0	5.5		0	0		0	6.0	
cognitive verification	4.8	4.0		2.5	3.7		1.9	4.3		3.7	6.0	
linguistic verification	5.9	14.9	9.47**	35.0	8.6	16.69***	14.8	17.9	.24	20.4	17.4	.04
none	9.0	4.6		0	0		6.5	5.0		1.9	4.0	
ALL SEMANTIC FUNCTIONS			35.3***			30.5***			28.3***			12.44

* $p < .05$
** $p < .01$
*** $p < .001$

($p < .0001$). For reality/history, Table 6 shows that there was little change from Time 1 to Time 2 for Teresa, Roberto and Eduardo. However, there was a significant relationship for Victor ($p < .001$), who quadrupled his use of reality/history functions from Time 1 to Time 2. Turning to actions/intentions, this function was significantly related to time for the two younger children (Teresa and Roberto, $p < .003$), but not for the older children. Further, both Teresa and Roberto doubled their use of actions/intentions from Time 1 to Time 2. Finally, with respect to linguistic verification, the two limited English speakers (Teresa and Victor) showed a significant relationship between time and this function ($p < .002$), but in opposite directions.

Cross-sectional perspective. Table 7, which shows the results from the cross-sectional perspective, indicates that a significant relationship was obtained between level and all semantic functions for both age groups ($p < .02$). Thus, the distribution of semantic function components was different for the limited versus fluent English speakers at both 5;6 and 8;0. For classification, Table 7 shows a lower frequency for the fluent English speaker than the limited English speaker in the 8;0 group. Conversely, in the 5;6 group, the fluent child used more classification functions than the limited English-speaking child. For the 5;6 age group, there were no significant relationships between level and reality/history, actions/intentions, or linguistic verification. On the contrary, for the 8;0 group, significant relationships emerged between level and reality/history ($p < .0001$) and linguistic verification ($p < .02$), and the relationship between level and actions/intentions approached significance ($p = .06$).

Table 7

Percentage of Use of Semantic Function Components: Cross-Sectional Perspective

	5;6			8;0		
COMPONENTS	Limited Teresa (N=175)	Fluent Roberto (N=109)	x^2	Limited Victor (N=163)	Fluent Eduardo (N=201)	x^2
causal	12.6	3.7		3.1	2.0	
reality/history	25.1	17.6	1.88	43.6	23.9	14.96***
actions/intentions	20.0	22.2	.06	22.1	31.3	3.44
classification	18.9	33.3	6.1**	13.5	9.5	1.1
rules	0	0		5.5	6.0	
cognitive verification	4.0	1.9		3.7	6.0	
linguistic verification	14.9	14.8	0	8.6	17.4	5.28*
none	4.6	6.5		0	4.0	
ALL SEMANTIC FUNCTIONS			14.75*			27.9***

* $p < .05$
** $p < .01$
*** $p < .001$

Discussion. The most frequent semantic functions were reality/history and actions/intentions followed by classification and linguistic verification. Analyses of time and of level of English proficiency by semantic functions indicated that the children's distributions varied over time and proficiency level. There was a general decrease in classification with time, but not with level. Actions/intentions increased for the younger children and stayed the same for older children with time, but did not change with level of English proficiency. On the other hand, linguistic verification increased for the younger children but decreased for the older children from Time 1 to Time 2. Thus, these results do not provide evidence that ESL learners follow a similar progression in question development as do monolingual children.

Rules were only observed with the older children. The literature supports a later emergence of this type of question (Piaget, 1923/1955; Smith, 1933), arguing that children must reach the cognitive stage of pre-operations (at approximately 7 years of age) in order to understand the semantic functions relating to rules and calculations.

These results demonstrate that these ESL children's questions reflect a wide variety of semantic categories, regardless of their linguistic level. There are questions relating to explanations of things (causal), location, timing, possession (reality/history), people and their experiences, thoughts and feelings (actions/intentions), definitions and characteristics of people and objects (classification), rules, calculations, and verifications of utterances. Children are able to produce questions with different semantic functions, although

the distribution of these functions may be influenced by language level. For example, a limited English speaker may need to use more classification and reality/history functions to learn about English and more clarification to have previous utterances repeated if they were not heard or understood. But, as these results show, limited English speakers are not limited to these functions and can produce a number of other semantic functions as well.

CONCLUSIONS AND IMPLICATIONS

The purpose of this study was to provide a framework for understanding the process of question development in a second language. To accomplish this purpose, the questions of four children who differed in English language proficiency (2 limited English speakers, 2 fluent English speakers) were examined to determine how question use may change as a function of English language proficiency. The frequency with which various types of syntactic structures, pragmatic functions, and semantic functions appeared in the children's questions were reported. There were a number of interesting results that showed changes in question use with increased English proficiency.

With respect to syntactic structure, two points are noteworthy. First, rising intonation accounted for a large proportion of the children's syntactic constructions and it was more frequently used at Time 2 and with the fluent English-speaking children. This finding was contradictory to what had been hypothesized. Second, although there were signs that the questions were becoming more syntactically complex, with decreases in the 12-16 months from Time 1 to Time 2 in wh-word (+ demonstrative) and wh-word - subject/verb inversion and auxiliary verb

insertion, there was not a clear progression in wh- and yes/no structures from fewer to more transformational rules with increased English proficiency. As noted in the discussion section, these results cannot be interpreted to indicate a lack of progression in syntactic complexity. The two youngest children showed increasing complexity from Time 1 to Time 2 and the limited English-speaking children seemed to follow the developmental sequence outlined by Hatch and Wagner-Gough (1976) for ESL children. In addition, the apparent absence of more advanced syntactic structures may be due to context-specific information about when it is appropriate to use simpler rather than more complex structures (Todd, 1982).

Turning to the distribution of pragmatic functions, it was found that the communicative intent of most questions was to obtain factual information or personal information or for clarification purposes. Factual information questions tended to decrease and personal information questions increased with greater English fluency for the two younger children. In addition, although the focus of children's questions was on obtaining information, they produced a wide variety of pragmatic functions.

Examining the semantic functions of the children's questions also showed a wide range of content they could request information about. However, the most frequent functions included reality/history, actions/intentions, classification, and linguistic verification. With increasing English proficiency, children relied less on classification and more on actions/intentions.

Findings about these ESL children's questions show that these children have a number of grammatical devices for constructing questions, although the questions may not be syntactically complex. These ESL children can use questions for obtaining a diverse amount of information, from classifications, to labels, location, and rules and so on. However, these questions are largely related to physical objects. Requests about people's activities, knowledge and feelings develop with increased English proficiency. These children, however, asked few questions about reasons or causes for actions or events. More information is needed about whether this lack of causal explanation questions is due to a situation that does not require this function or because these children do not have the linguistic skills to participate in a more abstract conversation.

Finally, it is important to point out that many of the results obtained in this study are generally consistent with findings reported in the literature on monolingual children and, where available, on ESL children and adults. Because of these consistencies, this study lends some support to the theoretical position advanced by Seliger (1984) and McLaughlin (1978) that there are universal strategies that are used by all learners and result in similar acquisitional sequences. These authors claim that there are also idiosyncratic problem-solving techniques that result in deviations from the typical acquisitional sequence. The fact that we observed deviations from expected sequences of development may also validate this claim. Using the question framework that we have developed here, we hope to be able to shed further light on the process of question development. The present

study is important because it demonstrates that the longitudinal and cross-sectional perspectives do not necessarily lead to consistent results about the process of question development. Furthermore, it demonstrates the need for additional research that can determine why there are inconsistencies in the developmental sequence and whether they can be accounted for by other factors involved in producing questions or by looking at how the syntactic, pragmatic and semantic domains interact to determine the complexity of a question.

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[illegible] (M.S. in Developmental Psychology, University of California, Los Angeles, 1981) is a member of the professional staff of the Center for Language Education and Research at UCLA. Her main areas of interest are bilingual and second language development, bilingual education, and school achievement.

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