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ABSTRACT

An observable feature of learner language, linguistic variability, is described and used as the basis for speculating about an aspect of the process of second language learning. It is hypothesized that variation in correct use of target language forms varies as a function of the demands placed on the learner to produce these forms. Three groups of adult subjects enrolled in community college programs participated in the study. Twenty-six were intermediate English as a second language (ESL) students, 21 were advanced ESL students, and 16 were native speakers of English. Transcripts of planned discussions provided the data of the analysis which examined the use of the Wh-question system and the verb system. The linguistic variability in the data seemed to be systematic. With regard to dimensions of language proficiency, these appeared to be the extent to which the learner's knowledge of the language is analyzed, and the extent to which the knowledge is automatically accessible. The framework generated by these two dimensions describes the learner's knowledge of the language; it serves to separate formal knowledge from the ability to apply known aspects of the language to various purposes. The model derived from the data is that the process of language learning involves the gradual analysis of the structure of language and the development of more fluent retrieval procedures. (AMH)

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On Learning Language Form and Language Function¹

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Attempts to describe the process of language learning are necessarily inferential. Models of psychological functioning ultimately remain approximate descriptions of observable events which attempt to parsimoniously accommodate those observations. So it is with second language learning. On the basis of what learners do with the language, descriptions of how they may have learned that language are hypothesized. The basis of these hypotheses are typically the theoretical paradigms current in other related fields - psychology, linguistic, sociolinguistics.

In this paper, an observable feature of learner language will be described and used as the basis for speculating about an aspect of the process of second language learning. A study illustrating the behaviour of this feature will be reported and the results will be interpreted within a theory of second language learning.

The feature of learner language which is central to the discussion is that of linguistic variability. Variability has been noted as an important and recurring aspect of learner speech (Tarone, Frauenfelder, & Selinker, 1976; Corder, 1978; Meisel, Clahsen, & Pienemann, 1981; Tarone, 1982; Littlewood, 1981). Researchers have acknowledged that fluctuations in learner speech are not random and that principled ways of accounting for such fluctuations must be established. Accordingly, descriptions have included a variety of

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linguistic, sociolinguistic, and pedagogical factors that contribute to the explanation of the observed variance.

There are essentially two kinds of variability in learner speech. The first is the variability which reflects a change in the learner's knowledge of the language over time. The learner's speech changes, that is, because the learner's competence with the target language improves. The detection of such variability requires observations over long periods of time and can essentially be explained in terms of quantitative linear models of language learning - the language system changes as the learner internalizes more of the system. In addition, such changes are presumably in the direction of native speaker speech. Consequently, descriptions of learners at any point in time may be stated in terms of criterion-referenced standards. This is the type of variance documented by Brown (1973) in his description of morpheme acquisition by first language learners.

A second kind of variability is that a learner's speech shows variability at a particular point in time. Certain linguistic forms, for example, may be used correctly in some contexts but not in others, although the developmental stage of the learner has not changed. The explanation for this type of variability requires qualitative models which reflect not the amount of knowledge the learner has but the conditions under which that knowledge may be demonstrated. Bloom (1981), for example, has proposed that some of the variability reported in first language acquisition may be rendered systematic by considering aspects of linguistic complexity previously ignored in developmental descriptions.

This latter type of variability complicates descriptions of learner speech

since native speaker speech exhibits similar variability (Labov, 1972; Tarone, 1982a). Accordingly, this variability is particularly elusive in that it becomes confounded with the quantitative variability attributable to increasing competence with the system. Yet this variability, too, is developmental, and linguistic assessments must be norm-referenced and stated in terms of the usages demonstrated by native speakers under similar conditions. Thus, the explanation of such variability for language learners must minimally include all the factors required to explain such performance by native speakers plus the factors which reflect the linguistic restrictions of language learners.

Tarone approaches the problem of variability in learner speech from the perspective of linguistic description and proposes a system of variable and categorical rules based on particular contexts of use. The contexts are charted along a continuum of styles ranging from formal to vernacular. Thus, a given linguistic feature could be described by a variable rule which is 'supply 50% in context X' and a categorical rule which is 'supply 100% in Context Y'. In any given context, then, the list of rules, both variable and categorical, which describe the language under those conditions provide a description of the learner's grammar at one point in the style continuum.

Certainly such sets of rules provide an accurate description of the language variability. Moreover, the sociolinguistic style appropriate to the context is introduced as an important factor in the description of language performance. But the description seems to be more adequate for native speaker than for language learner performance.

The problem with the application of the scheme to second language learners is that the explanatory basis of the description is rooted almost

entirely in externally-given situational constraints. That is, the determinant for the set of variable and categorical rules used is primarily given by the point along the style continuum in which the elicitation situation is placed. Formal, or careful styles elicit certain patterns of use and informal or vernacular styles elicit others. Rightly, then, Tarone points out that the judgment of 'correctness' of use of target forms must reflect the particular variable rule associated with the relevant point along the style continuum. And while the factors affecting native speaker performance may be virtually exhausted by external forces for conversational uses of language, the cognitive demands of using an imperfectly acquired language system impose an internally-given set of constraints on language learners. The difference primarily applies to conversational uses of language since the cognitive demands are minimal: for more sophisticated uses of language involving literacy or meta-linguistic skill, native speakers, too, would be influenced by psychological factors (Bialystok & Ryan, in press).

The result of this dual influence of forces on the speech of language learners is that variability appears not only across styles but also within styles. Development of language proficiency proceeds in two ways - elaborating the range of styles and consolidating particular styles to conform to native speaker norms. But during that development, the continuum of styles and the rules required to describe them are not the same for native speakers and for language learners. Tarone has elegantly systematized the variability attributable to the larger sociolinguistic issues involved with the style continuum; what is necessary is an attempt to systematize the variability attributable to the psycholinguistic issues underlying the learner's developing linguistic complexity across this continuum.

One solution would be to invoke a Chomskian notion of competence in which learners are attributed with the rule in its native-like form, but various elicitation and task conditions prevent the demonstration of that rule under all circumstances. In these terms, the learner's mastery with the language would be judged by the most native-like performance observed under whatever testing conditions happen to elicit it. Deviations from this achievement would be attributed to performance factors. Again, we would not need a qualitative model - the learner's knowledge of the language is indicated by the best performance. The most native-like performance, further, has been reported to occur when the most attention is paid to speech (Tarone, 1982b; Beebe, in press). Thus, when the learner is distracted from attending to speech, errors intrude and performance underestimates competence.

There are two problems with the competence explanation. First, since native speakers also fluctuate along this continuum, there is the problem of selecting what might be the appropriate native speaker norm. Second is the systematicity of the 'deviant' learner performance. The learner's speech under a variety of sociolinguistic and task-related constraints is not only different from native speakers but also it is highly systematic and internally consistent. Tarone further argues that the systematicity of speech is even more apparent for the less formal, than it is for the more superordinate, careful styles. A competence explanation in which variability is treated as deviation from competence cannot account for such systematicity.

What is needed, then, is a description of the mental processes that might be responsible for generating such linguistic patterns. What is the cognitive basis of a variable rule? What does the learner know about the rule so that it is supplied 50% of the time in some contexts but 100% of the time in

others? The linguistic description in terms of style or context presupposes an orderliness to these occurrences. Questions about the nature of that orderliness require inferences about mental processes underlying language learning and use.

The hypothesis is that variation in correct use of target forms varies as a function of the demands placed on the learner to produce those forms. Since we know that variation occurs even for a single sociolinguistic style, aspects of language use within that style must impose systematic demands on the use of particular forms. Thus it may be that variation in formal accuracy occurs as a result of conversational or contextual demands. The study of this hypothesis requires the examination of variability within a given point on the style continuum.

Method

Three groups of subjects participated in the study. The subjects were all adults enrolled in various programs at community colleges in Toronto. The three groups were comprised of (a) 26 intermediate ESL students, (b) 21 advanced ESL students, and (c) 16 native speakers of English enrolled in non-language programs at the same colleges.

Subjects were assembled in groups of three and given a short pseudo-newspaper clipping to read. The article was about a young woman who had unsuccessfully attempted to obtain an abortion. Following this, the three learners were left with a cassette taperecorder and asked to discuss the article among themselves. The transcripts of those discussions provide the data for the present analysis. The analysis examines the use of the WH-Question system and the verb system.

Formation and Use of Wh-Questions

For a number of reasons, the examination of the Wh-questions system in terms of the hypotheses seemed interesting. First, ESL Courses typically acknowledge the difficulty and importance of this structure and include it early in the program. In all of the ESL syllabuses examined, the formation of Wh-questions held a prominent place in the early stages of instruction. An empirical advantage of this curricular fact is that all of the students in our sample would have received formal instruction in the formation of this structure.

Linguistically the structure is interesting because it contains a rather complex set of transformations. Both children learning English as a first language and adults and children learning English as a second language frequently have difficulty in the correct formation of these questions. The pilot testing of materials and informal observation of learners in preparation for this study indicated that learners had a great deal of difficulty with these structures in the context of our test items. The linguistic complexity of questions is certainly a contributing factor to this difficulty.

Finally, some of the functions of Wh-questions in discourse are central to conversations, particularly for non-native speakers. Specifically, the information-getting function is a frequently occurring feature of non-native speech. Since the primary expression of this speech act is through Wh-questions, their construction is crucial to the repertoire of language learners. Additionally, however, Wh-questions serve a variety of other functions which are more loosely related to that structure. Lightbown (1978) for example, has documented the acquisition of both the form and function of questions in the speech of children learning French as a second language. The separability of form and function in these terms makes the structure particularly relevant to the experimental hypotheses.

Accordingly, the first set of analyses examined the control over the Wh-question system by the learners in the study. To what extent, has the student learned the correct or native-like rules for forming and applying the structure to communicative situations?

The analysis of application or function was based on a decision about the role of the question in its context. Four functions were identified - to elicit opinion, to elicit repetition or clarification, to elicit information, and to express opinion rhetorically.

The first function, elicit opinion, was represented by such questions as: 'What do you think about that?', 'What should she do in that situation?', 'Why do you think that?'. The general characteristic is that these questions call for the listener to provide judgmental information, that the speaker knows will be subjective.

The elicitation of information, by contrast, calls for the listener to provide factual information or to restate information from the passage. These questions take the form: 'What did he do then?', 'What happened to her after that?'. 'What else happened?' as well as management functions such as 'Who's turn is it?'.

Questions were also used to elicit repetition or clarification, as in: 'What was the word you used?', 'What does that mean?'. These questions were not related to the substance of the conversation but to the dynamics of it. Learners used these questions when breakdowns either occurred or were threatening to occur.

Finally, questions were used rhetorically as a vehicle for expressing the speaker's opinion. Again, the information offered is judgmental and sub-

jective, as opposed to factual, but the direction in this case is from the speaker to the listener. Examples of such questions are: 'What kind of a life is that?', 'Why should she have an abortion?', and 'What's the meaning of freedom anyway?'.

The distribution of use of these question types is presented in Figure 1. The relative use of the two major categories, opinion and rhetorical, is completely reversed for the learner groups as opposed to the native speakers. In addition, the categories of repetition/clarification and information are used exclusively by the two learner groups. Thus, irrespective of accuracy, interrogative structures play a different role in the conversation of the native speakers and ESL learners.

Insert Figure 1 about here

The final step in the analysis is to consider the accuracy with which the learners formulated the questions as a function of question type. Figure 1 indicates the proportion of incorrectly formed questions for the two learner groups by the white portion of the bar. The distribution of these proportions across question types for the two learner groups is reported in Table 1.

Insert Table 1 about here

These results not only order the four questions types in terms of formal difficulty but indicate clear differences between the two learner groups in their ability to structure these questions according to their function. The target structure in all cases is identical, but the application of that structure to express different pragmatic functions affects the ability of the learner to formulate that structure.

The intermediate learners had difficulty with question formation in all of its appearances. Errors were consistent and prevalent in all four functions examined. By the advanced level, however, two of the functions were used in (virtually) error-free performance. One function, opinion, contained errors about one-quarter of the time, while the fourth function, rhetorical, showed virtually no improvement from the intermediate performance.

The ordering of these four functions in terms of errors parallels their use in learner or native speaker speech. The functions that were used exclusively by learners, that is, clarifying and establishing factual information, were mastered before the function that was used to establish judgmental information. The least-used function by the learners and the most frequent for the native speakers presented the learners with the most formal difficulty. The number of errors by learners for repetition, information, opinion, is inversely related to their frequency in learner speech and directly related to their frequency in native speaker speech. Thus, if input frequency is a factor in language learning, the calculation of that frequency might better be based on the learner's own use of the language than on native speaker use. It may also be that a reduction in the number of rhetorical questions is one of the speech adjustments characteristic of 'foreigner talk' (Snow & Ferguson, 1977; Freed, 1980).

Use of the Verb System

The second set of analyses was conducted on the accuracy and use of the verb system. Again there has been a tradition of studying learners' use of verbs both because they are frequently incorrect and because they are often used inappropriately, even if they are structurally accurate (Harley & Swain, 1978). All of the verbs supplied in the transcripts, therefore, were examined

in terms of the accuracy of their formation and the range of tenses used by the various groups. The appropriacy of the tense was difficult to assess without more elaborate contextual information - no obligatory contexts had been established by the experimenters and so the learners were free to express any intention they wished. A comparison among the groups, however, could reveal overall differences in the extent to which particular tenses were used.

Considering formation errors only in the main verb, the two learner groups showed different levels of mastery of the system. Of all the main verbs supplied in the transcripts, intermediate learners committed errors in 64% of the verbs while advanced learners committed errors in only 40%. Thus there is an improvement in the accuracy with which verbs are constructed in conversations across the two levels studied.

The distribution of verbs by tense for the three groups in the study appears in Figure 2. These cannot be presented in terms of errors as was the case for Wh-question since it is often too difficult to decide what the intended tense was when an error in formation occurs. Thus these distributions represent correctly formed verb structures only.

Insert Figure 2 about here

Since the two learner groups were using the tenses in virtually identical proportions, these two groups have been combined and contrasted with the native speaker data. Although the two learner groups differ from each other with respect to accuracy in the verb system, they are indistinguishable with respect to functional use of that system. The pattern of functional use for the learner groups, however, is significantly different from that of native speakers.

Specifically, native speakers make significantly less use of the present tense and incorporate a number of other tenses in their speech which do not occur in learner speech.

To summarize, within a particular sociolinguistic and task condition we have evidence of variability that in its own way seems systematic. How, then, can we describe that variability in terms of its underlying causes. Moreover, what does the explanation of that variability suggest for the process of language learning?

Dimensions of Language Proficiency

First, it is necessary to ask different questions. Instead of asking What does the learner know, we need to ask How it is that learner knows it. The assumption is that there are differences in ways of knowing and that these differences relate to the uses that can be made of that knowledge. For example, if a linguistic feature is known more deeply, or more objectively, then that feature could be used in more creative or more calculated ways. If a linguistic feature is known only vaguely, or intuitively, then the learner would have less control over the deliberate use of that feature. In addition, the description of the 'ways of knowing' must itself be systematic, principled, and developmental. That is, the means by which and the direction in which learners advance to different or more sophisticated ways of knowing must be explained.

The description of knowing in the present analysis is based on two underlying psycholinguistic dimensions which describe aspects of the learner's knowledge of the language. These are (a) the extent to which the knowledge of the language is analysed, and (b) the extent to which the knowledge is automatically, or fluently accessible. The former refers to the form of

representation, especially as it relates to the explicitness of form-meaning relationships and the latter to the nature of the retrieval procedures that have been developed to operate on that information.

It is important to notice that the description in these terms refers not to the substance of knowledge, but to its structure. That is, at higher values for these dimensions, we do not assume that the learner has more information about the language, but that the learner's information about the language is known differently. Thus the same feature can be shown to advance along these two dimensions for a given learner at various stages of language mastery. And while increased quantities of linguistic knowledge remain a necessary condition for improving competence, it is only the combination of the amount of knowledge with adequate levels of the qualitative aspects of knowledge in terms of these two dimensions that provide both the necessary and sufficient conditions for proficiency.

The two dimensions, which provide an epistemological description of the learner's knowledge, have the following features which make them relevant for a theory of second language learning. First, they are scaled so that higher values along each dimension reflect higher levels of achievement both for children learning a first language and adults and children learning a second language. Second, both dimensions can be used to describe the demands placed on the learner by various language use situations which call for particular values of one or the other of these dimensions. Third, both reflect principles known to participate in the general language and cognitive development of children and so are developmentally viable. Finally, there is an interaction between the two dimensions such that improvement on one will typically promote the development of the other.

The dimension of analysed linguistic knowledge is the extent to which knowledge of the language is more or less structured, or objective. In objective representations of the language code, the relationships between the forms and meanings are explicit, and thus can be examined separately and manipulated for various purposes. At many points along the dimension, the information may be the same, but as the learner moves toward an analysed representation of that information, the features themselves and their relationship to meaning become more explicit. An important consequence of this analysis of language knowledge is a concomitant increase in the awareness of that knowledge.

The application of the dimension of analysed knowledge to descriptions of language proficiency is functional, that is, certain uses are possible only for certain levels of analysed knowledge. For example, if a structural regularity of a language is known, then the learner may use that structure in new contexts, decipher language, especially written forms which make use of that structure, and modify or transform that structure for other literacy or rhetorical purposes. If an aspect of the language is non-analysed, then it is understood more as a routine or pattern and has limited application to new contexts or new purposes. Only a very minimal degree of analysis is necessary to use language creatively in the generation of novel grammatical utterances. At the same time, however, young children who overgeneralize the inflectional morphemes of English, as in the overextension of "-ed" to irregular verbs, demonstrate more analysed knowledge of the language than do children in the previous stage who correctly imitate the irregular forms.

Development occurs along this analysed knowledge dimension with general cognitive maturity. In Piagetian terms, the ability to analyse a domain of

knowledge into explicitly structured categories and to draw inferences from that structure is a feature of concrete operational thought (Inhelder & Piaget, 1964). Specific language experiences, too, are relevant to growth along this dimension. Since languages share aspects of structure, at least to the degree that there are language universals, those structures will be applicable to the analysis of the code for any language. Hence, knowledge of the structure of one language confers an important advantage in the analysis of a subsequent language. Even for the construction of language specific principles, the experience gained from the activity in the context of another language should facilitate the construction of analysed linguistic knowledge.

Finally, the structured representation of the code for a language can be promoted through instruction. If the learner is at a sufficient point of cognitive maturity and analysed knowledge to accept the statement of language structure, then explicit information about the structure of the code can result in a more analysed representation of that code for the learner.

The automatic dimension represents an executive function which is responsible for fluently selecting and coordinating the information appropriate to the solution of any task. This function is central to conversational uses of language: conversations must be meaningful, and fluent interaction between the participants must be achieved.

The necessity to achieve automatic control of knowledge is particularly evident for second language learners. In the early stages of using a new language, the effort to retrieve existing knowledge of the language is great; responses require time to formulate, words are not always available on demand, structures do not emerge naturally. Practice using the language improves the learner's

access to knowledge, and this improvement is reflected in greater fluency. The important distinction here is that fluency need not require any new or different information; rather, it requires more automaticity in the retrieval of existing information. Thus a conversation is a particularly demanding task for an early second language learner partly because of these demands for automatic retrieval.

Application to Variability

The framework generated by these two dimensions describes the learner's knowledge of the language. If we consider that the use of language in different situations inherently demands greater or lesser levels of analysed knowledge and automatic control, then the learner will be able to function in a situation only when those situational demands are met by the learner's state of knowledge about the language. In these terms, it is no longer sufficient to know whether or not the learner has been taught negation if we are interested in the ability to express negative intention - it is necessary to know the nature of the learner's knowledge of negation in terms of its objectivity and automaticity as well as the conditions under which we expect to see evidence of negation.

This analysis serves to separate the learner's formal knowledge of aspects of the language from the learner's ability to apply those aspects to various purposes. The learner's knowledge of negation, for example, may be adequate to support grammatical conversation but not sufficient to solve formal test items. We would say, then, that the learner's knowledge of negation is relatively unanalysed. Second language learning, in these terms, involves the gradual analysis of linguistic information and the automatization of the retrieval procedures for that information.

Two implications follow from this analysis. First, the formal mastery of linguistic features and the applicability of those features to communicative functions should be empirically distinct. Structural accuracy, that is, should not predict the correct or native-like use of those structures in communicative situations. Second, irrespective of structural accuracy, the appropriate use of structure for particular functions should develop systematically. In terms of tasks, the use of given features should be easier for some types of problems than for others; in terms of functions, the use of given features to express some intentions should be easier than the use of the same features to express other intentions.

Both implications were observed in the data reported above. Not only were formal and communicative mastery of forms relatively distinct, but also were they systematically ordered. Let us, then, examine the systematicity inherent in these orderings.

Suppose the learner is entertaining an intention, for example, to elicit information. If the relationship between this intention and a known structure is clear, as in a direct speech act, then the learner can succeed in formulating the correct and appropriate utterance. But suppose the intention is not clearly related to a known structure, as for example in the rhetorical use of questions to express opinion. The formulation of the utterance requires an extra step in which Wh-questions must first be retrieved as the appropriate vehicle for expressing the intention. The learner knows the structure, as we have seen in its direct application to certain conversational functions; it is the retrieval and formulation of that same structure under a different set of conversational demands that is problematic. Thus the analysis of the Wh-system in terms of the

relationships between forms and meanings needs to be greater when the structure is used for rhetorical as opposed to more direct conversational purposes. Notice, again, however, that in formal terms the target structure in both cases is the same.

The expectation is that as the learner's control over the Wh-question system increases in analysis and automaticity, then these questions will be correctly applied to a greater variety of conversational functions. Compare the following two questions taken from the transcripts of the advanced group:

(1) What's the meaning of scheduled? (Clarification)

(2) What's that the freedom means? (Rhetorical)

Although formally equivalent, the functional difference between these two questions leads to structural errors in the formation of one but not the other. But this question is from the advanced group. Less advanced learners may not even realize that the structure is appropriate for that function, irrespective of their ability to produce it correctly. Thus we expect that structural accuracy improves in the same order as increasing functional differentiation, but somewhat behind it.

Similarly, the verb system shows a decline in errors from the intermediate to the advanced learners. While the two groups are presently selecting the same tenses, the expectation is that the advanced learners will begin to expand their repertoire and include new tenses in their conversations, although initially these will likely contain structural errors.

In the present analysis, a particular linguistic feature has been used as the basis of theoretical speculation about the process of second language learning. The data are not presented as evidence for the theory, but merely as an illustration

of it. The model proposed at this time is that the process of language learning involves the gradual analysis of the structure of language and the development of more fluent retrieval procedures.

Variability in learner speech arises from the dual influence of the two underlying dimensions on the process of formulating linguistic utterances under specific sociolinguistic conditions. Assessment and instruction, therefore, need to be sensitive to these factors - different types of language skill emerge when the development of one or the other of the dimensions is encouraged. Mastery of formal uses of language may require the promotion of the analysed knowledge dimension while mastery of informal uses may require the promotion of the automatic dimension. These uses make different assumptions about the learner's knowledge. But within a style, too, variability in performance is attributed to the level of skill associated with each dimension. Continuing study of this and similar paradigms will not only clarify our understanding of the language learning process but also contribute to issues in the development of language proficiency through instruction and other means.

Notes

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Table 1

Proportion Incorrect for Two Learner Groups

	Opinion	Rep/Clar	Infor	Rhetorical
Intermediate	.45	.85	.67	.63
Advanced	.25	0	.01	.62

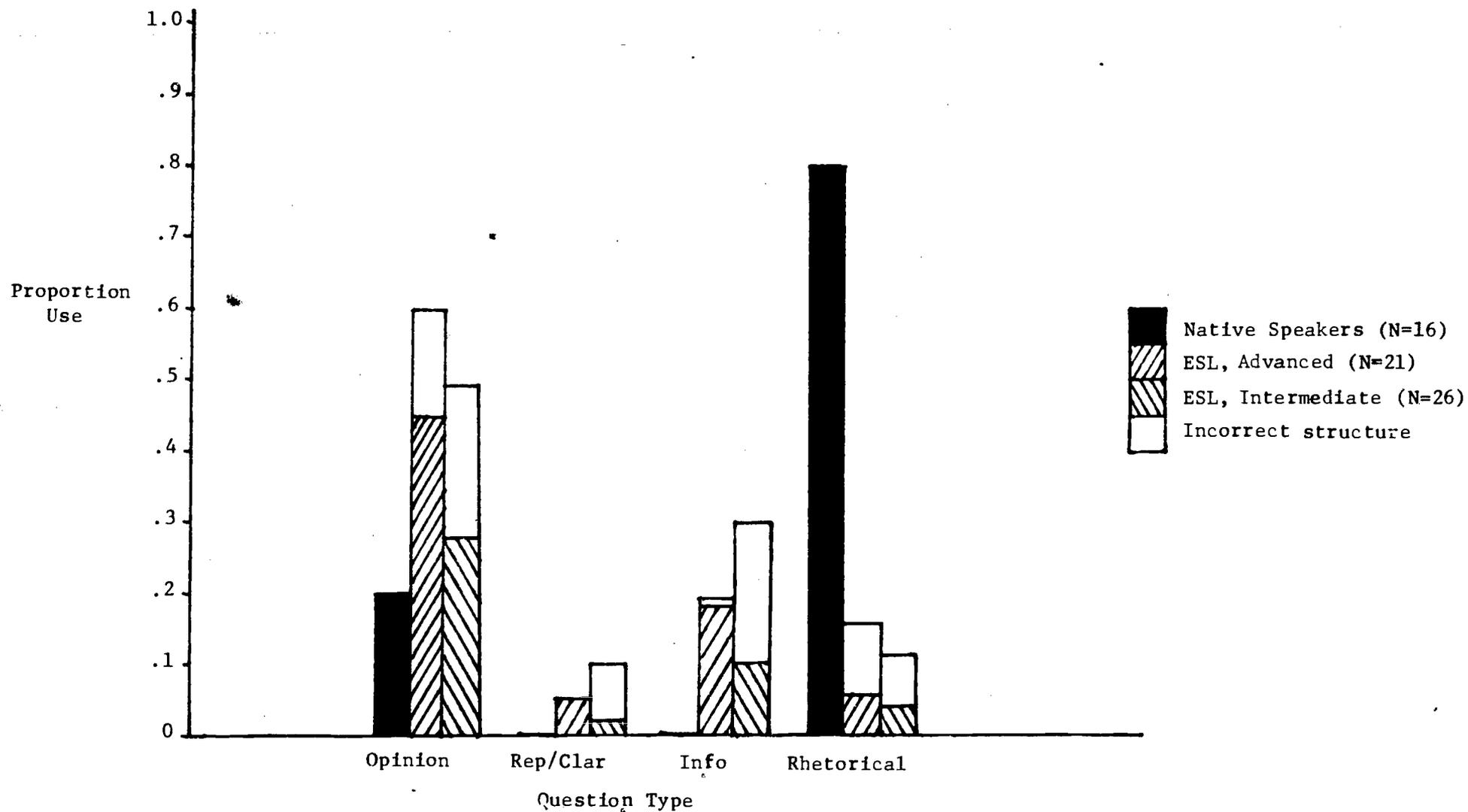


Figure 1. Distribution of Wh-Questions by function for Native Speakers and learners

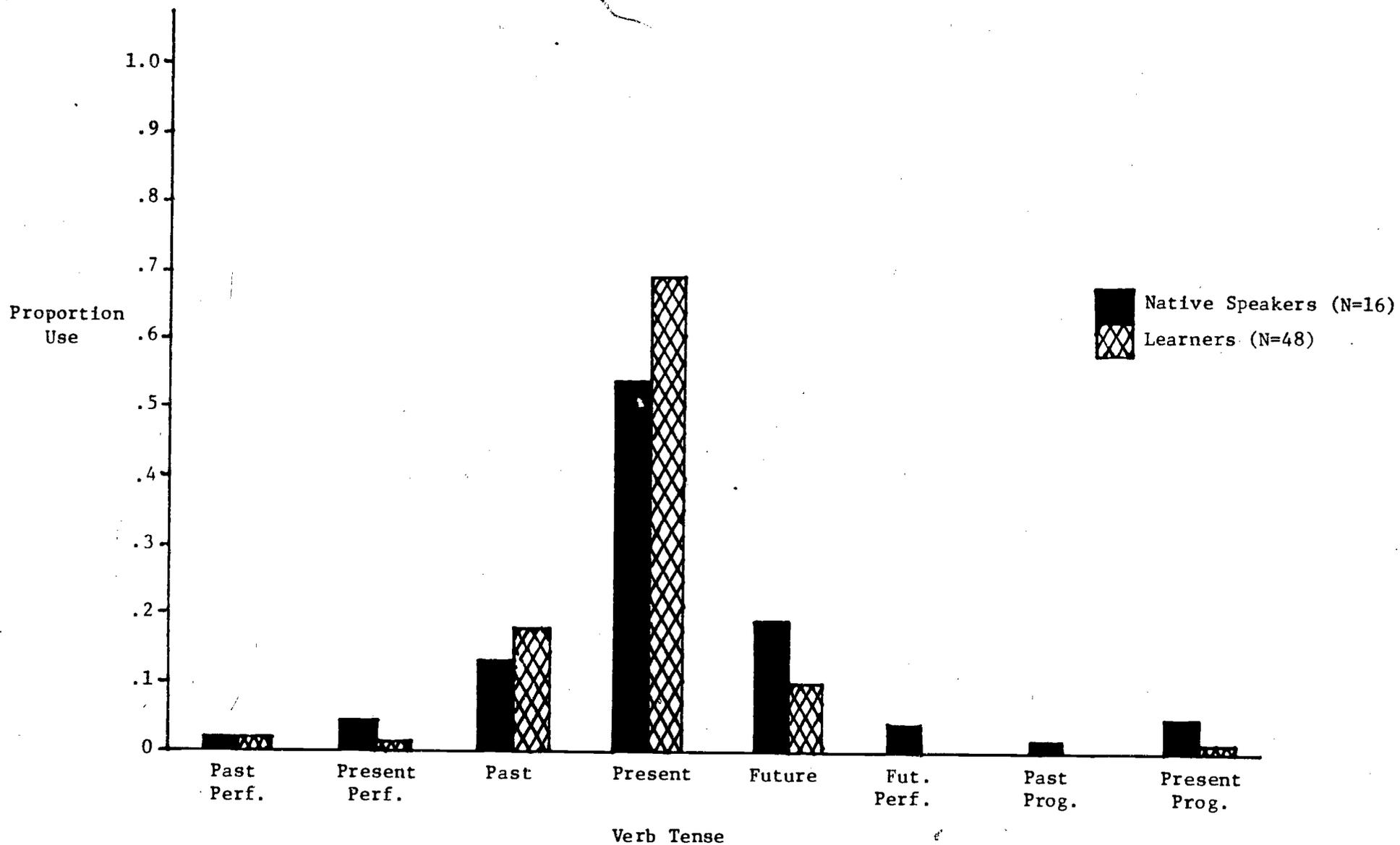


Figure 2. Distribution of verbs by tense for Native speakers and learners