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ABSTRACT

The language of 29 Canadian children was sampled during the first two years of schooling in free conversations and in more formal school-like tasks as part of a three-year longitudinal study of the properties of oral language and their relation to other measures of cognitive, linguistic, and reading performance. The language samples were subjected to various speech act, grammatical, pronominal, propositional, and cohesion analyses. Preliminary findings suggested ways in which oral language competence related to the development of reading. To summarize, the interrelationships between the structural and conversational variables measured suggest that the more sophisticated maintenance of a topic and the tendency to initiate a remote or abstract topic may be related to (1) the child's facility with the more complex structures of language, namely subordination and coordination, and (2) the occurrence of a range of psychological verbs, such as the linguistic verbs "say" and "talk," the affective verbs "love" and "hate," the cognitive verbs "think" and "mean," and the perceptual verbs "see" and "listen." In general, one side of oral competence, that which relates to the complexity of linguistic structure, appeared to be related to the acquisition of reading skills, while a second aspect of oral competence, pertaining to the initiation and maintenance of discourse topics in conversations, was not related to reading skill. (RL)

Oral Language Competence and the Acquisition of Literacy

Nancy Torrance and David R. Olson

A central problem for educational theory is the differential effects of schooling on children, why it is that some children are better able to master the forms of competence taught in the schools than others. The preferred explanation, and the one examined here, is the relationship that holds between the child's competence with the "mother tongue"--the ordinary oral language of the home--and the more formal, decontextualized and explicit language that makes up a large part of the language of school.

Two descriptions of the relation between the language of the home and the language of the school have been advanced. Bernstein (1971) attempted to explain school failure by "code" differences between social classes. Because the language of the school was essentially identical to "middle class" language, middle class children have less difficulty in school than do lower class children. A second explanation is that the relation between the language of the home is essentially continuous with the language of the school and children who are more sophisticated in their uses of that language are better prepared to deal with the language of the school. Wells (1981) for example has found sizable and reliable relations between oral language competence and progress in learning to read.

Our concerns in this project fall between these alternatives. We have attempted to determine children's competence with a variety of aspects of language including both clausal and discourse properties in the attempt to determine which aspects of oral competence are relevant to the acquisition of the literate skills of reading and writing. Hence we have attempted to identify the major dimensions of oral language use, to construct scales for

measuring these dimensions and then to relate these dimensions to the children's progress in learning to read and write. We have examined these issues by sampling children's language during the first three years of schooling as the child is prepared for and eased into early reading (Kindergarten to Grade 2). By examining the relationship between measures of oral performance in these years and some other measures of cognitive, linguistic and finally reading performance, we intend to uncover the ways in which oral language competence or skill with "the mother tongue" are related to the development of literacy skills.

Method

We have collected two years of data from our sample of 29 English speaking children drawn from two Toronto schools, one in a primarily working class neighbourhood, the other in a primarily professional neighbourhood. The battery of tasks include:

1). WPPSI vocabulary subtest (Year 1) and WISC vocabulary subtest (Year 2)-- taped

2) WPPSI block design subtest (Year 1) and WISC block design subtest (Year 2)

3) Durrell Analysis of Reading Difficulty

4) A block description task in which subjects were asked to describe the location of a star relative to a series of blocks in such a way that their ability to formulate propositionally complex statements could be sampled. The complexity of the minimally adequate descriptive statement depended on the alternatives presented along with the target block.

5) Free speech: Children were paired and left alone in a room for five minutes prior to the beginning of the Lego task, ostensibly while waiting for

materials to be brought to the test room. They were encouraged by the Experimenter to talk to each other. Sessions were tape-recorded, videotaped and later transcribed.

6) Lego task: Children were paired and asked to build a toy together out of Lego blocks. They were instructed that they were free to discuss what they would build and encouraged by the Experimenter to talk. Sessions lasting about 15 minutes were tape-recorded, videotaped, transcribed and analyzed.

7) Story-retelling task: Subjects were told stories in such a way that they could put a series of pictures in the appropriate order. They were than asked to retell the story--first to the Experimenter (to assure that the children in fact understood the story) and secondly to another child, who on the basis of the story, was to arrange the same pictures in the appropriate order.

8) Samples of writing have also been collected in the final two years of the data collection phase.

Reading, block design and vocabulary tasks were scored for each child. Language samples were transcribed and analyzed. Several of these analyses are still underway.

Analyses

In our analyses of speech samples, we have attempted to find indices of the quality of various aspects of the language and also indications of the ways in which oral language may be specialized to serve the logical and social demands of conversations. Several different analytic devices have been developed for use with speech samples: first, analyses performed on the structure of the utterances themselves and secondly, analyses in terms of the conversational functions of the successive utterances which make up the discourse.

Structural features included the semantic and syntactic properties of clauses that make up an utterance following methods employed by Wells (1980) and Quirk (1972). Transcriptions of children's language obtained from the vocabulary, block description and Lego tasks were analyzed for grammatical well-formedness, clause embedding, length and complexity, use of modifiers and qualifiers, verb inflection and complexity, the management of pronouns, the source of grammatical errors, propositional complexity and lexical choices in some semantic domains, particularly psychological verbs.

The pronominal analysis has been devised to examine how the effective use of pronouns depends on such variables as the task engaged in, the presence or absence of available referents, and the linguistic competence of the speaker.

The propositional analysis of language attempts to capture the underlying meaning of sentences through the application of predicate calculus to our subjects' utterances. Rules and procedures for propositional analysis, such as rules for transforming a linguistic surface structure into a propositional representation and vice versa, vary between investigators. Although generally accepted and invariant rules have not yet been established in the field, important steps have been made by Kintsch (1974) and Miller and Johnson-Laird (1976). Our procedures draw on their analyses and it is our contention that a propositional analysis gives a better indication of the semantic complexity of children's utterances than the simple count of MLU (mean length of utterance). Preliminary analyses of the data gathered so far support this view.

Discourse features included various aspects of conversational skill, such as how utterances contribute to the building and maintenance of topics

throughout the discourse and to turn-taking in the discourse; we have also looked at some of the devices used in the maintenance of topics and devices used in turn-taking. To obtain some validity for these measures as aspects of conversational skill, we have also obtained independent judgements from raters on the conversational skill of our subjects in the free speech and Lego-building tasks in our sample.

Some analyses have been completed and will be described in detail as our preliminary findings are presented.

Results

To date we have carried out extensive structural and discourse analyses of the speech samples of the 29 children for two of the oral language tasks from the second year data. These two samples are free speech with a peer and cooperative play with a peer. Structural and discourse measures have so far been combined across the two tasks, yielding one sample of conversation for each pair. We have related these structural and discourse measures to the children's Vocabulary and Block Design scores and to the results of the standarized reading test (Durrell) administered in March of the second year of the project.

The statistical analyses to date have been mainly correlational. Results of the analyses are subject to more complex statistical procedures, since handling the data we have obtained requires taking into account the lack of independence between partners in our conversational samples. We are currently exploring ways of avoiding this problem. Correlational analyses are thus considered exploratory on data of this kind and are therefore reported as preliminary.

1) Structural analyses. Each utterance that each child in the sample generated while participating in the conversational and cooperative play session was analyzed. To date we have counted several structural features of those utterances including the MLU of independent clauses, the ratio of dependent to independent clauses, the number of modifiers and qualifiers in independent and dependent clauses, the number of errors in verbs and verb phrases and errors in the use of auxiliary verbs, and the use of psychological verbs (think, say, care etc.) and cognitive verbs (know, decide, doubt, etc.), subordinating and coordinating conjunctions, modal verbs such as might, could and should, and complex verbs which take an infinitival complement. Relative to the reliabilities of these scales and to the remarkable diversity and variability of the children's utterances in a free play situation, several interesting patterns have emerged. The relations between these structural features and particularly their relationships to reading scores are shown in the upper left quadrant of Table 1.

Insert Table 1 about here

In an earlier paper we analyzed the data for 18 subjects (Torrance and Olson, 1981). That data revealed that the number of psychological verbs used by the child was the factor most closely related to children's reading ability. These are verbs such as know, think, say, mean, decide, care, like, etc. The best readers used a lot of these and the poorest readers very few of them.

Because these psychological verbs were so promising and because our experimental studies had also found that they develop in the first years of schooling, we have carried out further analyses on the use of psychological verbs by the 29 children in our sample. Their psychological

verbs fall roughly into four categories; linguistic (say, talk, call, etc.); affective (care, love, hate, etc.); cognitive (know, think, mean, understand, etc.); and perceptual (see, look, listen, etc.). One of these categories, cognitive verbs, relates to reading skills in several ways. First, the strongest overall correlation with reading appeared with the number of different cognitive verbs used by the child ($r = .45$) and the number of instances where the verb is completed by a complex infinitive, gerund or clause structure ($r = .33$). Further, because two of these verbs know and think, are used by virtually every child in a variety of structural contexts, we eliminated instances of these from our sample and further analyzed the remaining set. The obtained correlations for reading with number of different cogntive verbs (RTYPE) and with complex completions (RCOMP) increased substantially. However, there is a high relationship between the number of verb types children used and the number of cases in which that verb was followed by a complex clause structure. That is, the more of these verbs children used, the more opportunities they had for making different complex structural endings. For this reason, multiple regressions were run to predict reading. For 29 children, the number of different cognitive verbs (excepting know and think) that appeared in their utterances predicts 29% of the variance in reading scores ($F_{1,27}$ due to regression = 10.90, $p < .01$). Adding in the second highest correlate, the factor of complex endings did not significantly increase the prediction.

The third factor to significantly correlate with reading scores was, as expected, the mean length of utterance for independent clauses. The mean length of independent clauses was longer for good readers. Adding this factor of types of cognitive verbs in the regression equation predicting reading

scores did significantly increase prediction ($F_{1,26}$ due to regression = 9.67, $p < .01$). These two factors together account for 43% of the variance in our reading scores.

While the number of modifiers and qualifiers used by the good readers was not different from the number used by poor readers, the poorer readers tended to put more of their modifiers and qualifiers into dependent clauses, and good readers tended to put them into independent clauses. The ratio of modifiers and qualifiers in independent clauses was the fourth correlate of reading skill. The greater number of modifiers and qualifiers found in independent clauses must in part account for the greater MLU of those clauses. The final significant correlate of reading performance was the ratio of subordinate clauses to independent clauses in the children's utterances. Good readers then used more dependent clauses, but these clauses tended to be shorter; poor readers used fewer of them but when they did they tended to carry more modifiers and qualifiers. To simplify, good readers packed more modifiers and qualifiers in the main clause of their sentences; and good readers had a higher ratio of subordinate to independent clauses. Indeed, the two poorest readers used only two dependent clauses in their entire 15-minute conversation. Adding in those factors, ratio of modifiers of qualifiers independent clauses and ratio of subordinate to independent clauses, however, did not increase prediction in the regression equation predicting reading skill.

These are some indications that a child's oral language competence relates to his learning to read. As mentioned, the child's use of cognitive verbs, those verbs that indicate how the propositional content of the sentence is to be taken, is the highest correlate of reading scores. We analyzed them

primarily because we were interested in the possibility that literacy, that is learning to read and write, encouraged the differentiation of form from meaning, and hence accentuated the difference between what was said and what was meant. We will attempt to analyze how our children might use these verbs differentially to mark literal from intended meaning. We have known for instance that children from homes in which the distinction between said and meant is lexically marked, do tend to differentiate between production errors and comprehension errors; that is, as listeners they know when the speaker did not say what he meant (Olson, 1977b; Robinson, Goelman and Olson, in press). But we are surprised that their use is more closely related to reading than any other measure of structural complexity.

While these relations between reading, cognitive verbs and complex linguistic structures are interesting it remains unclear just why the relationship occurs. The early reading tests which discriminate better from poorer readers tend to be simple paragraphs--these paragraphs do not contain any complex verbs, they contain no complex clause complements, and yet the children who handle these devices orally tend to be the better readers. We can offer three hypotheses for this relationship, hypotheses that we are in the process of empirically examining.

The first is that good readers use more cognitive verbs because these verbs can occur in complex syntactic environments and it is that complex syntax as a general indication of a high level of structural competence, which predicts reading. It may be recalled as well that good readers tend overall to use more subordinate constructions than poor readers. These cognitive verbs then, may play directly into those subordinate constructions to permit the expression of complex ideas. Hence, a child with this complex syntax

and these cognitive verbs could express his or her stance to a proposition (John expects that x, John wonders if x, John decided that x, and so on). or interrogate his listener's stance towards propositions and further can do so in a single utterance. The poor readers in our study were less likely to do so--and perhaps were less able to do so. Instead of saying "Did you know that x." the poor reader typically says "You know what? X." For example, consider the following utterances. Two children discuss with their partners the task they are involved in:

Good reader: What game do you think we're gonna play.

Poor reader: What are we gonna do?

Similarly, two children interrogate their listerner's memories in different ways:

Good reader: Remember when we brang things to the teacher and I fell down.

Poor reader: We done this last year too in the same time. Didn't we? Remember?

While these are important differences in oral language competence, they do not directly explain why children who use these devices can read simple paragraphs better than children who do not.

A second possible explanation for the high correlation between reading and the use of these cognitive verbs is that cognitive verbs reflect the child's knowledge of vocabulary generally. It is well known that vocabulary development is highly correlated with reading skill. In fact, our cognitive verbs including decide, remember, doubt and expect, tend to be used by our good readers but not our poor readers. Again, while these are important differences in oral language competence, they do not directly explain why children who use such verbs can read simple paragraphs better than children who do not.

The third hypothesis and the one we favor, is that these psychological verbs, particularly the cognitive verbs are part of a system of concepts for decontextualizing language and thought. Basic to this system are the verbs which mark an understanding of the relation between speaker's meaning and sentence meaning (Olson, 1977b), that is between what a word or sentence means rather than what one means by it. It is this differentiation, we believe, that a child must master in learning that not only do people "mean" things by what they say but that the words and sentences, per se, mean something. This is a basic move in coming to recognize "words" as constituents of utterances, and it is a move that may be prerequisite to "reading" any words at all.

Why the other cognitive verbs also relate to reading is not so clear but it is possible that it is only when a speaker can clearly recognize that what was said was not equivalent to what was meant, and that some sayings are better representations of what was meant than others, that he or she is in a position to choose correctly between the psychological committment to what is said in terms of such verbs as know, think, believe, guess, doubt, deny and so on.

We have designed a series of tasks to help us choose among the hypotheses as to why these psychological verbs should relate to the acquisition of literacy. These tasks are currently being administered as part of the third year battery. Pilot testing of these tasks confirm that they will serve to differentiate our good from our poor readers. Hence these tests will not only permit us to make a thorough assessment of children's comprehension and use of these verbs but also, as mentioned, help to determine just why they are relevant.

In regard to the relationships within structural variables, the data in the upper left quadrant of Table 1 reveal that many of these structural variables, as expected, are strongly correlated. Specifically, the range of psychological and cognitive verbs are highly interrelated and correlate positively with the interrelated measures of subordination. Children who use more psychological and cognitive verbs then also use more subordination. Indeed, many utterances combine the two. For example:

a) C: I wonder what Haley did

b) J: I told you there's the Lego bag

On the other hand, the ratio of modifiers and qualifiers found in independent clauses correlates negatively with the ratio of subordinate clauses and the use of psychological verbs. The explanation is relatively straightforward. Psychological verbs often take the more complex structure of a clause complement and the psychological stance is simply stated, that is, without modification or qualification. For example:

a) J: do you think we will go to bed at school

b) K: look what it says

c) D: I told ya I had it right

Further, the number of coordinate conjunctions (per independent clause) used to link clauses within a turn is positively related to the number of subordinate clauses (per independent clause) and to the range of subordinate conjunctions used. That is, children who use subordination to link clauses within a turn also use coordination to link clauses within a turn.

In summary then, these very preliminary data indicate that at least some aspects of grammatical and lexical structure in a child's oral language are important to his learning to read. To at least some extent then, reading capitalizes on the child's knowledge of the structure of his oral language. Hence, the positive relationships shown in the upper left quadrant of Table 1. Furthermore, we expect that our current studies will disentangle just why these oral competencies relate to reading. But not all of this oral competence is relevant to the acquisition of literacy skills; conversational discourse properties of oral language appear to be quite independent of these structural properties. This is shown in the second form of analysis.

2) Discourse analyses. Each utterance of the corpus for each child was subjected to a second type of analysis, concerned this time not with the grammatical and semantic properties of children's utterances but with their conversational properties, their pragmatic functions and their illocutionary force. The speech act analysis was based not on the calculation of the ratio of various speech acts in various contexts (Dore, 1977), but rather on the cohesive ties between adjacent turns in the discourse. We have not yet completed the analysis of the use of cohesive devices within a turn. The ones analyzed thus far are between turns. The primary consideration in this analysis was the extent to which utterances:

1. picked up the expectancies established by the preceeding turn, and,

2. added expectancies which were to be met by the succeeding speaker.

The analysis was based largely on Kaye and Charney's (1980) and on Brown's (1980) analysis of mother-child conversational interaction. Both Kaye and Charney and Brown point out that a primary difference between the conversational contributions of a young child and those of the parent is that the latter both pick up the thread of the previous speaker and advance the topic by setting up related expectancies in turn. By the age of six we find that our children are beginning to use these adult-like discourse structures. Here is an example:

a) Experimenter: You will help each other build one thing

Child: Right, if we have enough Lego after we build the thing could we build something else?

This child's conversational turn looks both backward and forward, and is called a "turnabout". Turnabouts contrast with less discourse cohesive devices such as simple acknowledgements or responses (without setting up new expectancies for the listener) and simple comments and commands (Mand) which while they set up expectancies or requirements for the listener, make no acknowledgement of the preceeding turn. Here are some examples:

b) E: What are you going to build?

J: We'll decide in private. (Response)

c) A: There's another man

I: Oh we might as well put shutters here. (Mand)

In addition, we counted the number of topics each speaker introduced, the number of topics that were introduced by turnabouts, the number of remote or abstract topics a speaker introduced, the number of conjunctions that a child used to tie his contributions to those of his conversational

partner and simply the number of turns taken by each child. To establish at least some tentative validity for these particular measures, we asked two independent judges to make a simple, global overall judgment of their estimate of a child's conversational skill on the basis of a single viewing of the videotapes. As can be seen from the correlations shown in the lower right quadrant of Table 1, these measures of discourse cohesion tend to be intercorrelated and they tend as well to correlate with the global judgment of conversational competence.

The conversational rating reported in Table 1 was carried out by having raters view videotapes of the free speech and Lego interactions. The correlation between ratings for the 2 independent raters is .76. As Table 1 shows all our measures of conversational skill are significantly correlated with raters' rankings. The strongest correlate of global skill for these raters is the use of coordinate conjunctions to link a speaker's utterance with the preceding turn. The order of correlation for the remaining variables is the number of topics openned by turns which are turnabouts (that is, both respond to the listener and make demands on the listener), the number of remote topics openned, the proportion of turns which are turnabouts, the number of topics raised by each speaker and the number of turns each speaker contributes. Given the high expected intercorrelations amongst these conversational measures, a multiple regression was carried out to determine the best predictors of conversational ratings. Results of this analysis yielded two predictors of conversational skill, coordinate conjunction links to previous turns and the number of turns each speaker contributes ($F_{2,26}$ due to regression = 8.55; $p < .01$). These two factors accounted for 40% of the variance in conversational ratings and no further factor contributed signi-

ficantly to the prediction. We conclude then that our measures of conversational skill do tap at least some of the ways in which good conversationalists manage discourse. Further, this pair of conversational raters, then, appears on the basis of videotape viewing to judge conversational skill in terms of the smoothness of turn-taking and the productive fluency of the speakers.

A second pair of conversational raters, however, rated a subsample of our children in slightly different ways (Torrance and Olson, 1981). In judging the skills of 18 of our 29 children, these raters did not view videotapes but rather read through transcripts of the conversational samples. Their ratings were correlated .70. Interestingly, the conversational measures that correlated most strongly with their ratings were the proportion of utterances which were turnabouts, the number of turnabouts used to open topics and the number of remote topics openned. Again, because of the high expected intercorrelations, a multiple regression analysis was performed. For this set of ratings, the best predictors of conversational skill were the proportion of utterances that were turnabouts and the number of remote topices raised ($F_{1,16}$ due to regression = 5.03, $p < .05$). While the previous raters' judgments appear to be based on smoothness and fluency, these raters appear to be judging more on the basis of the maintenance of topics and the quality of topics raised. The reason for this difference, may in fact be the different procedures used in obtaining the ratings. In viewing a videotape, the conversation passes rapidly by the viewer; the substance of particular topic sequences may not be easily remembered. In reading through a transcript, however, it may be more difficult to judge the smoothness of turn-taking and so more attention may be paid to the quality of the discourse topics. Also,

in reading transcripts the rater has recourse to re-reading passages and verifying his hypotheses about speakers' contribution. The reader may in fact be biased in this case to judge the quality of each speaker's utterances, rather than the overall flow of conversation.

Gordon Wells (personal communication) has recently made a suggestion to us about the nature of conversational skill that bears interestingly on this point. He suggests that conversational skill may in fact have two dimensions, the one more interpersonal and the other more logical or ideational. In judging fluency and smoothness of turn-taking transfer, we believe our first raters were more concerned with the interpersonal aspect of conversational skill; whereas in judging maintenance and quality of topic, our second raters were more concerned with the logical or ideational aspect. We plan to examine this hypothesis more carefully in future analyses in which we will attempt to shape which aspects of conversation skill our raters are judging, to see if, in fact, we can obtain distinct ratings along these two dimensions. Further, in regard to this issue, we find a slight tendency for our first set of raters, those who viewed videotapes, to judge members of each pair as more alike than did the raters who read transcripts. This suggests to us that smoothness and fluency of a speaker in conversation, the interpersonal aspect, may be more dependent on conversational partner than are the abilities to build and maintain a sophisticated topic. We shall be able to examine this hypothesis after we have analyzed this year's conversational interactions as we have designed our conversational tasks this year so that each child in the sample is

paired with a child of similar conversational skill and with a child of dissimilar skill, according to last year's ratings. We will thus be able to compare the child's skill at the more interpersonal aspects of conversation and the more ideational or logical aspects across conversational partners to see which if any skills are more variable.

If our hypothesis regarding the interpersonal and logical aspects of conversational skill are correct, we could expect to see some reflection of this in the interrelationships between the structural features of oral language and the conversational features. Specifically, we could expect that the raising of remote topics and the proportion of turnabouts in the maintenance of topics would interrelate with those structural features that in part predict reading skill. The lower left quadrant of Table 1 reveals that this is the case. We find that the raising of remote topics is significantly related to the measures of subordination, particularly the range of subordinate conjunctions and to some extent the ratio of subordinate clauses to independent clauses. Our good conversationalists then, not only tend to raise more remote topics, they also tend to use more subordinate clause structures and to use a greater variety of subordinate conjunctions. Unlike the good readers, though, they tend to pack more modifiers and qualifiers into those subordinate constructions, hence the negative correlation with MQ ratio per independent clause. Further, with regard to the interrelationships between structural and conversational measures, the good conversationalists tend to use a greater variety of psychological verbs and the tendency to do so is correlated with most of our conversational measures, most strongly with the proportion of turnabouts, conjunctions as links to previous speakers' utterances and the raising of remote topics. The use of psychological verbs

then, not only relates to our structural measures of language complexity, but also to the raising of remote topics and to the maintenance of topics, hypothetically, the more logical aspects of conversational skill. These relationships do not hold however for the restricted set of cognitive verbs we looked at. So while the good conversationalists include more linguistic, affective and perceptual expressions in their utterances then do poor conversationalists, they do not include more cognitive expressions. Good readers on the other hand use more cognitive expressions but not more linguistic, affective and perceptual expressions. Finally, these linguistic, affective and perceptual expressions appear to be useful for discussion of remote topics and the maintenance of topics through turnabout utterances.

Interestingly, the one correlation of a conversational measure with reading is a negative one between the number of topics introduced by the speaker and reading skill. Our good readers then, do not generally exercise conversational control by introducing topics but tend merely to contribute to the topics established by their conversational partner.

Finally, with respect to coordinate conjunction links to previous speakers' turns, we see that this conversational device is related to two of our structural measures, the use of coordinate conjunctions within turns and the range of psychological verbs used. We note from our samples that only our best conversationalists both use these conjunctions as turn links and as clause links in a single turn. Here are examples from our best three conversationalists:

a) P: but we need people in it or else it will look ugly.

b) J: but imagine if you said that and she switched the microphone on so it can tape us and she said "Who did this?" and then you said "me. I said 'Hello folks'".

c) S: and we're not going to put granny..like that's one house but no granny.

The point to notice is that these conjunctions play both a structural role and a conversational role, they are used both for relating a speaker's clauses to each other and for relating a speaker's clauses to those of the previous speaker. The number of coordinate conjunctions within a turn is positively related to coordinate conjunctions between turns and to the same set of conversational measures as the coordinate conjunctions between turns. These include global rating of conversational skill, the proportion of utterances that are turnabouts and the number of turnabouts used to raise topics. Hence the pattern of relationships with conversational variables is the same whether one considers the use of coordinate conjunctions within turns (that is, between clauses) or between turns. Good conversationalists then, not only link their turns to previous speaker's turns with coordinate conjunctions, they also use more coordinate conjunctions within turns. The structural device of using coordinate conjunctions is thus important not only for stating the logical relationships between clauses in a turn but also for stating the logical relationship between clauses across turns.

To summarize, the interrelationships between the structural and conversational variables we have measured suggest that the more sophisticated maintenance of a topic and the tendency to initiate a topic which is remote or abstract may be related to facility with the more complex structures of language, namely subordination and coordination, and to the occurrence of a range of psychological verbs.

To conclude, the data suggest some interesting relationships between oral language skill and early reading. Specifically, conversational skill may have at least two aspects, the interpersonal, dealing with production, fluency and coordination of utterances across turns, and the logical, dealing with the quality of topics raised and the quality of topic maintenance. While the interpersonal aspects tend not to be related to the structural complexity of language, the features that differentiate good and poor readers, the logical do tend to relate to some structural features. Generally these structural features do not predict reading skill but are nevertheless correlated with the structural features that do. Our good readers, then, do not in fact raise more remote topics or maintain topics with more sophisticated turnabout utterances while our good conversationalists do. Our good conversationalists, however, use some structural devices typical of complex linguistic forms in maintaining and initiating conversations, particularly those conversations dealing with remote or abstract topics.

We have found, then, that while one side of oral competence, that relating to the complexity of linguistic structure, appears to be related to the acquisition of reading skills, a second side of oral competence, that pertaining to the initiation and maintenance of discourse topics in conversation, is not related to reading skill. Finally, we see a relationship between the former and the latter when looking at the quality of topics introduced and the quality of topic maintenance.

However, these findings are based on the data of a small sample of children on a narrow range of oral tasks. Before these findings are of general theoretical value or any practical use in making educational decisions, they must be both deepened and generalized. Over the next year

and a half, we will continue to explore the ways in which oral language competence is related to the acquisition of those skills associated with the literate enterprise.

Table 1. The correlations among Vocabulary, Block Design, Reading, Structural Complexity and Conversational Skill for 29 Six-Year Old Children ($p < .05$)

		STRUCTURAL COMPLEXITY								CONVERSATIONAL					
		VOCAB	BLDES	READ	MLU	MQRAT	SCRAT	SUBTY	CCJ/C	PTYPE	RTYPE	RCOMP	CONV	TURNS	PRO-T	N-TOP	T-OP	RTO
STRUCTURAL	BLDES	.53																
	READ	.33	.57															
	MLU			.33														
	MQRAT			.30														
	SCRAT			.30		-.35												
	SUBTY						.50											
	CCJ/C						.36	.46										
	PTYPE					-.42	.42	.43										
	RTYPE	.31	.42	.54			.44	.33		.68								
	RCOMP			.53			.60	.51		.58	.65							
CONVERSATIONAL	CONV	.40			.41			.32	.58	.33								
	TURNS												.33					
	PRO-T								.31	.49			.41	.48				
	N-TOP			-.31									.35					
	T-OP								.39				.43	.33	.41	.46		
	RTO							.41		.42			.43			.65	.42	
	CLD/T	.33							.58	.35			.53		.50		.37	

Variable Codes

VOCAB	Vocabulary score -- WISC-R subtest	RTYPE	Range of restricted cognitive verbs
BLDES	Block Design score -- WISC-R subtest	RTYPE	Range of psychological verbs
READ	Reading Score on Durrell	CONV	Conversational rating
MLU	Mean length of independent clause	TURNS	Number of turns
RCOMP	Restricted cognitive verbs with complex endings	PRO-T	Proportion of turnabout turns
MQRAT	Ratio of modifiers and clauses in independent clause	N-TOP	Number of topics initiated
SCRAT	Ratio of subordinate clauses per independent clause	T-OP	Number of turnabout openningas
SUBTY	Range of subordinate conjunctions	RTO	Remote or abstract topics openned
CCJ/C	Coordinate conjunctions within turns/clause	CLD/T	Coordinate conjunctions linking devices per turn

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