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ABSTRACT

The purpose of this study was to investigate the Language Communication Skills Task (LCST), a technique developed to study the characteristics of effective language communication behavior of young children. The 112 subjects included in the study were randomly selected from three grade levels in an inner-city public elementary school located in Pittsburgh, Pennsylvania. Tasks were administered to one pair of children at a time. The children were randomly paired within each classroom of a given grade level, and each pair of children worked on both sets of tasks in two separate sessions, so that each child had a turn to play the receiver and presenter role. Results indicated that: the LCST is a reliable and valid technique for assessing particular characteristics of language communication skills of young children; an increase in the communication proficiency and the linguistic proficiencies was observed with age; outcomes of the criterion scores obtained from children of similar age range and social background depend on the quality of verbal messages transmitted by the presenter; subscores that contributed to the success of the criterion task were related to the position and location of the object and to the receiver's ability to ask questions and the presenter's ability to answer those questions. (RB)

THE DEVELOPMENT OF THE LANGUAGE COMMUNICATION SKILLS TASK

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THE DEVELOPMENT OF THE LANGUAGE COMMUNICATION SKILLS TASK

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It is generally agreed by child development theorists and early childhood educators that the language development of young children is influenced by a multiplicity of factors. The results from a great number of past research studies coupled with field experiences suggest that the differences found in young children's verbal communication skills are attributed to more than just differences in such linguistic qualities as syntactic structure, vocabulary, and intelligibility. The differences in communication skills are strongly influenced by such factors as the child's ability to take the listener's role, his ability to order and classify relevant information, the nature and amount of feedback information supplied by the listener, and the appropriateness of the responses of the speaker to the feedback (Bernstein, 1961; Flavell, 1968; Piaget, 1926; Vygotsky, 1962). The purpose of this study was to investigate a technique developed to assess the characteristics of effective language communication behavior of young children.

The Language Communication Skills Task (LCST; see Appendix) was developed as a technique to study the nature of language communication among young children, and to assess their language communication competencies. Language communication skill for our purposes is defined as the competencies required in interindividual communications.

The LCST was designed to assess the young child's ability to: (1) get meaning and ideas from his socio-linguistic situations, (2) transmit these meanings and ideas to others, (3) respond to language behaviors of others, and (4) adapt his communicative input to achieve effective language communication.

The Language Communication Skills Task includes two parallel sets of tasks. The tasks were developed to measure the child's communication skills as both the speaker and the listener. The stimulus materials used in each communication task included two identical colored drawings of a familiar setting (a classroom scene for one set of tasks and a kitchen scene for the other set) mounted on 18x24 magnetic chalkboards, and drawings of objects mounted on cardboard cutouts with magnetic backing. The scenes were selected on the basis of familiarity to the subjects. For each scene, two identical sets of objects were included. The objects were things one might logically find in the settings depicted on the picture board. The objects included in a given task (kitchen or classroom) were treated as "items" for that task.

The LCST was designed for administration to one pair of children at a time, with one playing the "message presenter" role and the other playing the "message receiver" role. The presenter's job was to tell the receiver WHAT object to pick up, and WHERE on the scene of the receiver's picture board the object was to be placed. The receiver's job was to pick up each object as described by the presenter, and place it at the specified space on his picture board.

In performing the task, the pair of children was seated opposite each other with the identical picture boards set up in front of them. The boards were placed in such a way that neither child could view the other's board (see Figure 1). The presenter's board contained all of the objects

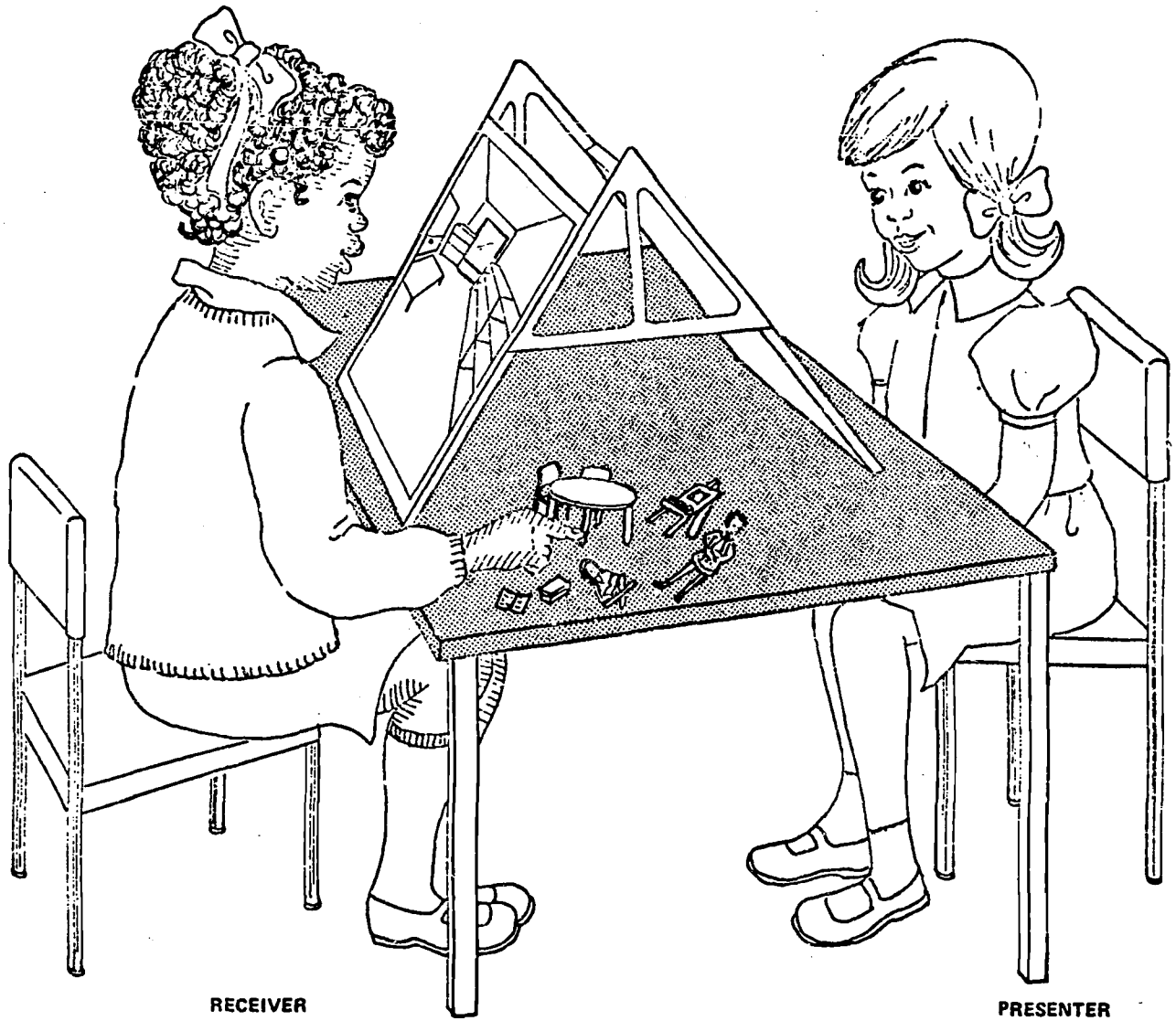

Figure 1. Illustration Depicting the Testing Situation.

appropriately placed on the predetermined space, while the objects for the receiver's picture board were displayed in an array on the table in front of the receiver. The players were not permitted to look at each other's picture board nor use hand gestures. They could use language to intercommunicate as much as they needed prior to the placement of the object by the receiver on the appropriate location of his picture board. The receiver was permitted to ask for a more precise and more discriminating message, and the presenter was permitted to answer the questions verbally.

The LCST was designed to assess language communication competencies of both the receiver and the presenter. To evaluate the quality of the presenter's communication competencies, the LCST proposed to measure: (1) the encoding skills of the message presenter, which included naming or explicitly describing the item the message receiver was to select, as well as the place and position in which the item was to be placed; (2) the ability of the message presenter to put all the relevant information together to communicate to the receiver (through the use of language alone) the message that would enable the receiver to complete the task; (3) the ability of the message presenter to remember, while encoding, "what communicative message he had already transmitted and what he still needed to transmit in order to provide all the pertinent information to the receiver"; and (4) the ability of the message presenter to make use of the receiver's feedback information to recode his message during or prior to his presentation, to improve the communication quality--his ability to adapt his message to the communicative input needs of the receiver, as indicated by the receiver's responses.

The LCST, in turn, assessed the message receiver's communication competencies: (1) decoding the presenter's message by identifying

the item specified, and placing the object in the correct location transmitted in the message; (2) communicating to the presenter any questions he may have for further clarification of the verbal message transmitted to him, and requests for additional information; (3) making use of his past experiences, his perception of the socio-linguistic situation, and his ability to assess precisely what additional information is needed to him; and (4) decoding the revised message sent by the presenter, performing the task, and sending a verbal message to inform the presenter that the task was completed.

Sample

The subjects included in the study were randomly selected from three grade levels in an inner-city public elementary school located in Pittsburgh, Pennsylvania. The total sample was 112. They were: 38 kindergarteners, 32 first-graders, and 42 second-graders. The mean IQ score as measured by the Slosson Intelligence Test (Slosson, 1963) for the kindergarten group was 102.47, with a standard deviation of 13.44. The mean IQ for first grade was 102.33, with a standard deviation of 16.44. The mean IQ for the second grade was 93.86, with a standard deviation of 11.06.

Method

The tasks were administered to one pair of children at a time, in a special area set up outside of the regular classrooms. Children were randomly paired within each classroom of a given grade level, and

each pair of children worked on both sets of tasks in two separate sessions so that each child had a turn to play the presenter role with one set of tasks, and the receiver role with the other set. No time limit was set for the sessions. Each pair was given as much time as they needed to complete the tasks. Both children were instructed and encouraged to ask questions and request further explanation from each other whenever they felt it was necessary. However, they were not permitted to look at each other's picture nor use hand gestures; they could only "talk" to each other. The mean time per session was 25 minutes, with a range from 18 to 45 minutes. A tape recorder was used to tape the verbal protocols during each session. Transcription of the protocols for each pair's intercommunication on both sets of tasks and the record of where each item (object) was placed on the receiver's picture board served as the basic set of data for analysis.

Measures

Two sets of measures were derived from our analyses. The first set of measures dealt with communication qualities, and the second set of measures dealt with the linguistic qualities. Measures for evaluating the communication qualities were related to the performance of the task. That is, the successful completion of the items included in each LCST task and the measures for evaluating the linguistic qualities were related to the use of language and linguistic styles the child exhibited in the communication process.

The communication measures included four subscores: the Presenter Score, the Receiver Score, the Mean Score, and the Criterion

Score. The PRESENTER SCORE represents the quality of the presenter's verbal command in giving directions to the receiver, and it measures three component skills: (1) the correct labeling and/or description of the item to be placed--WHAT OBJECT SCORE, (2) the exact position of that object--POSITION SCORE, and (3) the correct labeling of the object on which it is to be placed--WHAT PLACE SCORE. An example of a presenter's message which contains all criterion information would be "Put the turkey on the left side of the sink." The RECEIVER SCORE indicates the quality of the receiver's ability to comprehend the direction given by the presenter. The component skills measured by the Receiver Score are: (1) selection of the correct item--OBJECT SELECTED SCORE, (2) where to put it from the message transmitted by the presenter--OBJECT PLACEMENT (PAIR) SCORE, and (3) the ability to question the presenter when sufficient information was not given--QUESTION SCORE.

To assess the quality of the intercommunication between the pair of children, a MEAN SCORE was calculated for each task, based on the average of the six subscores earned by both the receiver and the presenter for that item. In addition, a related measure, the receiver's Object Placement Score, was also treated as a measure of the intercommunication skills between the pair. Since this particular subscore, derived from the correct placement of the object by the receiver, is scored on the basis of the actual message transmitted by the presenter, regardless of whether the presenter has made any errors in decoding the task, the score seems to provide information about another aspect of the quality of the intercommunication between the pair. Therefore, the receiver's Object Placement Score is also used as a measure of the intercommunication between the pair, and it is labeled as the PAIR SCORE when used for this purpose.

The CRITERION SCORE measures the criterion behavior of the LCST, that is, the correct placement of the object by the receiver, based on the predetermined location on which the object is to be placed on the receiver's picture board. The difference between the Pair Score and the Criterion Score is in the scoring procedure. The accuracy of the presenter's message, according to the specification of the LCST task, is considered in the scoring of the Criterion Score. Therefore, it is conceivable for a given pair of children to receive a correct Pair Score and an incorrect Criterion Score. However, the reverse is very unlikely to happen. The pair who receives a correct Criterion Score usually also receives a correct Pair Score. (For detailed scoring instructions, see the Appendix.) Interrater reliability was estimated from the percent of interrater agreement. The average percent of agreement was 94 percent with a range from 85 to 99 percent.

Several measures were developed to evaluate the linguistic quality of the verbal protocols. The linguistic measures used included: (1) TOKENS, total number of words used; (2) TYPE, total number of different words used; (3) TOKEN LENGTH, mean number of letters included per word for the total words used; (4) TYPE LENGTH, mean number of letters per every different word used; (5) TYPE/TOKEN RATIO, total number of different words used divided by the total number of words used--a measure of variability; (6) YULES K, a measure of repeativeness (Herdan, 1960); and (7) UTTERANCE LENGTH, number of words included in a meaningful unit of verbalization preceded and followed by a pause (it may or may not be a grammatical sentence). The linguistic measures were derived directly from computer analyses of the protocols (Maxwell, 1973).

Results

The reliability of the LCST was investigated using several methods. A pilot study to estimate the test-retest reliability was conducted. Twelve first-grade children (not included in the sample for the present study) served as subjects for the study. The classroom task was administered to the twelve children twice, a week apart. The children were randomly paired and randomly assigned to play the same role for both sessions. The percentage of agreement of the subscores and the Criterion Score was calculated for each item. The mean percentage of agreement for the task was 89.3, with a range from 78.5 percent to 100 percent.

In addition to the small pilot test-retest reliability study, a series of statistical analyses was performed to investigate the reliability of the LCST. The split-half correlation method was used to obtain reliability correlation coefficients for both the kitchen (K) and the classroom tasks (C). The items (objects) included in each task were divided into equal halves, and the correlation coefficients between the scores obtained from the two halves were calculated. The split-half correlation coefficient was .725 for K and .758 for C. Both correlation coefficients were statistically significant beyond the .01 level.

To obtain further information about the consistency of the child's performance in the two different roles the LCST was designed to measure, we also looked into the question of whether the order of presentation made any difference in the Presenter Scores and the Receiver Scores. Correlation analyses between the order of presentation and the various LCST subscores were performed, and none of the correlation coefficients were statistically significant. This result indicated that the order of presentation did not seem to have a significant effect on the scores. In other

words, the overall LCST scores of the pairs between the two sessions were found to be consistent; no significant fluctuation in the scores between the two sessions was observed. The performance of the pair was not affected by the order in which the particular roles (presenter or receiver) were assigned to them.

The overall results from the series of statistical analyses performed to investigate the reliability of the LCST seemed to indicate that the LCST is a reliable instrument for measuring the communication skills of young children, at least for measuring the aspects of communication competencies the pilot version of the LCST proposed to measure.

To investigate the validity of the LCST, several "validity-related" questions were asked in examining the results obtained from measures of both the communication and linguistic components of the LCST. We first asked the question, "Are the communication subscores obtained from the verbal protocols of a given task (K or C) related to the Criterion Score (the proper placement of the objects on the receiver's picture board)?" To answer this question, multiple correlation analyses between the Criterion Score and measures of the verbal protocols (the communication subscores) were performed. A separate multiple correlation analysis was performed for each set of the communication subscores, the presenter's subscores and the receiver's subscores for K and C. The results are summarized in Table 1. All the Mult. R's for this series of analyses were found to be significant beyond the .01 level, suggesting that what the children said, as measured by the communication subscores, was related to their performance on the criterion task.

Structure R's obtained from the multiple correlation analyses were examined to investigate the relative contribution of each subscore to the Criterion Score. The structure R's are indicators of the strength of

Table 1

Multiple Correlation Analyses Between the Criterion Scores and the Subscores

Criterion Score	Predictor (Subscore)	Mult. R	Structure R	Test of Significance	N
Presenter - K	What object	.886	.789	< .01	53
	Position		.976		
	What place		.884		
Receiver - K	Object selected	.917	.912	< .01	53
	Object placement (pair)		.975		
	Questioning		.818		
Presenter - C	What object	.982	.981	< .01	57
	Position		.860		
	What place		.963		
Receiver - C	Object selected	.791	.854	< .01	57
	Object placement (pair)		.889		
	Questioning		.913		

Note: K = Kitchen scene
C = Classroom scene

correlations between the original predictors and the derived linear composite of the predictors (Cooley & Lohnes, 1962). The contribution of predictors, as shown in column 4 of Table 1, seemed quite substantial in this case. The Criterion Score was related significantly to all the subscores included in each analysis. Thus, the results of the multiple correlation analyses provided some empirical evidence from which the validity of the LCST can be inferred. The fact that the subscores obtained from the verbal protocols were found to be significantly related to the criterion behavior (the behavior the test designed to measure) indicated that what the children said to each other was significantly related to the joint outcomes being measured by the LCST--correct placement of the objects on the receiver's picture board.

Another question related to the construct validity of the LCST is, "Are the criterion scores of the LCST related to measures of a selected number of student characteristics that have been known to be related to the children's ability to communicate through the use of language?" The intercorrelation analyses performed to obtain the answer to this question are reported in Table 2. The results indicated that grade (age) and academic achievement scores were significantly related to the Criterion Score, while IQ and sex were not significantly correlated with the Criterion Score. These results are in general agreement with findings from other studies (Flavell, 1968; Glucksberg & Krauss, 1969; Krauss & Rotter, 1968).

To further investigate the discrimination power of the LCST with age, an ANOVA of the mean of the Criterion Score for each of the three age groups (kindergarten, grade 1, and grade 2) was performed ($F = 10.34$, $p < .01$). Scheffé's test for multiple comparisons was used to test the statistical significance of the differences between specific contrasts

Table 2

Intercorrelations Between the Criterion Scores and Selected Measures of Student Characteristics (N=110)

	Variables	1 Grade (Age)	2 Sex	3 IQ	4 WRAT (Arithmetic)	5 WRAT (Reading)	6 Criterion Score
1	Grade (Age)	1.00					
2	Sex		1.00				
3	IQ	-.26		1.00			
4	WRAT (Arithmetic)	.57		.21	1.00		
5	WRAT (Reading)	.44		.44	.76	1.00	
6	Criterion Score	.32			.43	.37	1.00

Note: Correlation coefficients significant at and beyond the .05 level are included in the table.

among the means. Among the five different comparisons made (K vs. grade 1, K vs. grade 2, grade 1 vs. grade 2, K vs. grades 1 and 2, and K and grade 1 vs. grade 2), all but the difference between the means of the first-grade and the second-grade groups were found to be statistically significant.

The specific characteristics of the differences in the communication skills of different age groups are reflected in the means and standard deviations of the subscores, as well as the Criterion Scores. As shown in Table 3, no significant differences were observed among different age groups in the subscores "What object." However, great differences were found in the "Position" scores between kindergarten and second grade. This result seemed to suggest that children, regardless of their age level, were able to label and select the appropriate object included in the LCST. Nevertheless, it is important to point out that this result is confounded with our attempt to include familiar objects in the LCST.

The key determiners of effective communications seemed to be the children's competencies in communicating location referents and in their ability to ask questions to improve intercommunication. The greatest group differences in communication skills were found between the kindergarteners and the first- and second-graders. Although differences in some of the subscores were observed between the first-grade and the second-grade children, the differences were very small. The results seemed to suggest that there are some ceiling effects, either in the LCST's ability to assess second-graders' communication skills, or second-graders' ability to perform the intercommunication tasks the LCST was designed to measure.

An interesting trend is noted in the differences between the Pair Scores (Object Placement Scores) and the Criterion Scores across all

Table 3

Summary of Test Results

Variables	Age Groups					
	Kindergarten		First Grade		Second Grade	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
What Object	9.61	3.86	10.90	3.98	10.79	5.18
Position	3.87	2.56	6.87	3.47	6.83	4.16
What Place	6.87	3.96	8.47	4.56	8.86	5.18
Object Selected	10.29	4.05	11.73	4.05	11.29	5.43
Object Placement (Pair)	8.13	3.95	10.23	3.70	9.36	5.08
Questioning	6.79	3.39	8.50	3.96	7.81	5.68
Mean Score	7.58	2.93	9.65	3.41	8.93	4.52
Criterion Score	4.40	2.81	6.20	3.08	7.14	4.02

age groups. Children had consistently higher Pair Scores than Criterion Scores. In other words, children received higher scores when performance was evaluated on the basis of the actual message transmitted by the presenter, rather than the criterion behavior as specified by the task.

The mean and standard deviation of the linguistic measures for each set of data (presenter and receiver for K and C) were examined, and the results are summarized in Table 4. In contrasting the linguistic measures of the two sets (the presenter set and the receiver set) for both the K and the C tasks, some interesting phenomena were observed. The receivers consistently spoke fewer words (type) than the presenters, the words used were shorter (token), the words included in each utterance were fewer (utterance length), and they used more different words than the presenters (type/token ratio). Because of the known statistical bias one finds using type/token statistics in small samples, log type/log token was calculated to reduce the possibility of upward bias often found in small samples (Herdan, 1960). However, the log type/log token ratio was also found to be higher in receiver protocols.

Our data indicated that, in general, the presenter tended to give longer messages (he described in detail what he wanted the receiver to do), while the receiver, on the other hand, generally gave such short messages as, "I am ready," "I found it," or "O.K.," if the message transmitted by the presenter was adequate, and asked specific questions when the presenter's message was not adequate. However, when the receiver asked questions, he was likely to use different words that were unique, varying according to the particular needs of the receiver and that particular intercommunication situation. These results seemed to support the hypothesis we have made about the differences in the nature of the verbal message required of the two roles, hence providing further

Table 4
Linguistic Measures of the Protocols

Linguistic Measures	Protocols							
	Presenter				Receiver			
	Kitchen		Classroom		Kitchen		Classroom	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Type	65.60	20.15	64.00	19.18	32.65	17.67	38.27	21.92
Token	241.04	89.11	247.57	100.06	84.35	60.05	96.21	72.19
Type/Token Ratio	.28	.04	.28	.06	.43	.13	.45	.14
Token Length	3.61	.14	3.72	.15	3.57	.38	3.04	.73
Type Length	4.33	.17	4.32	.21	3.75	.38	3.56	.37
Yules K	.08	.03	.06	.02	.10	.15	.08	.08
Utterance Length	5.56	1.26	6.94	1.49	2.41	.74	.28	.80

empirical evidence from which some aspects of the validity of the LCST can be inferred.

To obtain further empirical evidence on the construct validity of the LCST, correlation analyses for the linguistic measures, the Criterion Score of the LCST, and age were performed. The correlation coefficients are reported in Table 5. The results indicated that only word-count measures such as sentence length and type length were related to the Criterion Scores and age, and linguistic style measures such as type/token ratio and Yules K did not seem to relate to the LCST criterion behavior, nor to age. These results also substantiated conclusions made by Glucksberg and Krauss (1969). The young child's ability to use verbal skills (language) in a functional setting is not significantly affected by his linguistic styles.

Summary and Discussion

The present study was designed as a pilot study to investigate the reliability and validity of a technique, the LCST, developed to assess the communication competencies of young children, and the usefulness of the evaluative information yielded by the LCST. The LCST was designed for two children, playing two different roles of a communication task, to jointly solve an intercommunication problem--successful placement of an object on the receiver's picture board based on the verbal message transmitted by the presenter. The tasks provided measures for the criterion behavior, the Criterion Score and the Mean Score, and measures of component behaviors hypothesized to be related to the criterion behavior (subscores). In addition, the tasks also provided measures for studying the linguistic component of the receiver's and the presenter's verbal protocols.

Table 5

Intercorrelations Between Linguistic Measures and the Criterion Measure of the LCST (N=100)

Variables	1 Grade (Age)	2 Type	3 Token	4 Type/Token Ratio	5 Yules K	6 Token Length	7 Type Length	8 Utterance Length	9 Criterion Score
1 Grade (Age)	1.00								
2 Type		1.00							
3 Token		.86	1.00						
4 Type/Token Ratio				1.00					
5 Yules K					1.00				
6 Token Length	.23					1.00			
7 Type Length	.28					.55	1.00		
8 Utterance Length	.36	.28			.20	.28	.24	1.00	
9 Criterion Score	.51						.21	.41	1.00

Note: Correlation coefficients significant at and beyond the .05 level are included in the table.

Our pilot testing results indicated that the LCST seems to be a reliable and valid technique for assessing the particular component of communication skills the LCST aimed to measure. The results of this study indicated that the outcomes of the Criterion Scores obtained from children of similar age range and social background depend on the quality of verbal messages transmitted by the presenter, the result of the combined function of both the presenter's and the receiver's verbal communication adequacy, and their ability to assess their intercommunication needs under the socio-linguistic situation in which the criterion task is performed.

Results from the multiple correlation analysis performed between the Criterion Score and the six subscores provided empirical data to demonstrate the close relationships hypothesized between the verbal behaviors of the pair and their performance on the criterion task. Our investigation of the relationship between the linguistic measures and the Criterion Score of the LCST indicated that the Criterion Score was related to the word-count measures used to analyze the verbal protocols, but not the linguistic style measures. An increase with age in the communication proficiency and the linguistic proficiencies as measured by the LCST was observed. However, because of the limited age range of the subjects included in our study, and the ceiling effect we have observed in our data with regard to the upper range of the age group, we must consider this finding tentative. In order to further examine the developmental trend in young children's communication skills, we must include subjects of a wider age span.

The subscores that contributed most to the success of the criterion task were subscores related to the position and location of the object, as well as the receiver's ability to ask questions and the presenter's

ability to answer the receiver's questions appropriately. This result supports findings from other studies (Baldwin & Garvey, 1973; Flavell, 1968; Glucksberg & Krauss, 1969) which suggested that poor intercommunication outcomes may be attributed to the role-taking ability of the pair, or their inability to orient to another person's points of view. For example, a poor presenter may not recognize the fact that the table he has on his board is not on the receiver's picture board yet, and the receiver cannot put the bag of groceries on the table unless he tells him to put the table on first. Therefore, even if the presenter has correctly transmitted the message, "Put the big brown bag with food in it on the table," the receiver could not have placed the object on the location designated unless he informed the presenter that the table was not on his board. If the receiver is a poor communicator, he may very well pick up the object, i.e., "the brown bag," and put it on the sink counter or wherever seems to be appropriate.

One of the most exciting findings of this study is in the type of information the LCST scores can yield for studying differences in the nature and quality of intercommunication processes used by young children. From the data we obtained from the LCST, we were able to examine and identify intercommunication characteristics of young children. We found, for example, that the poor presenter tended to give nonprecise or incomplete messages and that the information he provided was usually inadequate for the receiver to use for identification purposes. The poor receiver, in turn, generally failed to seek further explanation from the presenter when the messages were not clear. The poor receiver attempted, instead, to identify the object or location on which the objects were to be placed on the basis of inadequate information obtained from the presenter's message, or on the basis of what he perceived the presenter's message should

be. On rare occasions, when a question was addressed to the presenter, the presenter would simply repeat the message he originally transmitted.

In view of the pilot nature of the study and limitations in the research design and the scope of our attempt to validate the LCST, the conclusions and interpretations of the results must be considered tentative and suggestive. Further empirical validation of the LCST is needed before any definite statements about the validity and reliability of the LCST can be made. However, preliminary analysis of the data seemed to suggest that the LCST is not only a potentially useful technique to evaluate the communication competencies of young children, but more importantly, it can serve as a diagnostic technique to investigate and identify those student characteristics that can lead to adequate and effective communication, and to provide diagnostic information on student learning needs that is critical in designing learning environments and learning experiences that are conducive to effective communication competencies of the individual child. The development of the LCST can also serve as a prototype for developing other measures to assess young children's communication skills. Since the LCST only included one component of communication skills--the descriptive skills, the LCST will serve as a model for our future work in the development of assessment measures for a wide range of skills that are related to the communication competencies of the young child.

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APPENDIX

Test Manual

for the

Language Communication Skills Task

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Spring 1971

Tester's Instructions to the Presenter and Receiver

Tester says: "You are going to play a game together. Let me tell you how to play this game."

To student A - XA (presenter)

1. This is a picture of the inside of a classroom (or a kitchen).

2. There are all kinds of things in this room. There are people, furniture, and many other things in it--all things are moveable in your picture (demonstrate and point to the things. Let the student pick up the items and put them back on the picture). You can touch the items if you want to. See if you can get them off the picture.

3. XB (student B, name) has a picture of a classroom (or a kitchen) just like yours (show the presenter the empty drawing), except the things that are in the room are not in their places yet. They are in front of XB (student B, name). You can walk over and take a look at XB's (student B, name) picture. Is it the same as yours?

4. What you have to do is to tell XB (student B) to put the things in his classroom (or kitchen) picture in the same place as yours, to make his picture look exactly like yours. You tell what to put in the room and exactly where to put each thing.

5. You can explain it to him any way you like, but you cannot look at his picture and he cannot look at yours.

6. Make sure that you tell him where to put all the things that you have in your picture that are moveable. Tell him one at a time.

To student B - XB (receiver)

1. XA (student A) has a picture of a classroom (or a kitchen) just like yours, except in his picture all the things you have in front of you are already in it.

2. XA (student A) will tell you what to put in the picture and where to put it.

Tester's Instructions to the Presenter and Receiver (continued)

3. If you do not understand what XA (student A) tells you to do, you can ask him any questions you want, but you cannot look at his picture.

To both students

1. To student A: For example, you would tell (the receiver) to put the typewriter on the bottom shelf of the yellow bookcase, exactly under the flowers (for kitchen--clock on the wall on top of the cabinets).

2. To student B: And you are to put the typewriter on the bottom shelf of the yellow bookcase (pointing to the place where the typewriter belongs) because that is where XA (student A) told you to put it.

3. You may start now. Remember, you can talk to each other, ask questions, give answers, but you cannot look at each other's picture.

4. Do you understand what to do?

5. If you have any questions, you can ask me now.

6. Are you ready? To student A: XA (presenter), you can start to tell XB (receiver) what to do. Be sure you tell him where and what to put on each time. Remember, all the things are not in their places in XB's (receiver) picture yet.

7. To student B: After you have put the things where XA (presenter) told you to put them, you let him know you are ready for the next one.

8. All set? XA (student A), you may start now.

9. If the pair is having problems in getting started, suggest to the presenter to start with the typewriter (the demonstration item).

Instructions to the Tester

1. Make sure you have the task set up according to specifications:
   a. Place the two identical picture scenes in the middle of a table with backs placed against one another.
   b. Place the set of items that go with the particular picture scene on the presenter's picture board, according to the specifications. (See Figure A for the predetermined position for the object placements on the classroom scene.)
   c. Place the identical set of items on the table in front of the receiver's picture board.
2. Make sure the cassette recorder is working.
3. Label the empty cassette (name of the students) and place in the tape for the cassette to start recording.
4. Bring the students into the testing area, making sure that each student is set at the appropriate seat (presenter should sit in front of the presenter board, receiver should sit in front of the receiver board).
5. Make sure to set up the task in a way that the receiver does not have a chance to see the presenter's board on his way to his seat.
6. Fill in the names of the pair of students on the appropriate blank (presenter, receiver), grade level, and room number.
7. Use the recording sheet for the appropriate scene to show: (a) where the presenter has asked the receiver to place the item (if he has instructed the receiver to put the item in a space other than the one specified on his board), and (b) where the receiver has put the item.
   a. Write the name of the item on the exact position in which the item is placed by the receiver.
   b. Make a circle around the name if the receiver has placed the item correctly according to the presenter's message, and the presenter's message was different from the test specification. (For example, the typewriter was supposed to be placed on one of the shelves in the classroom scene, according to the test

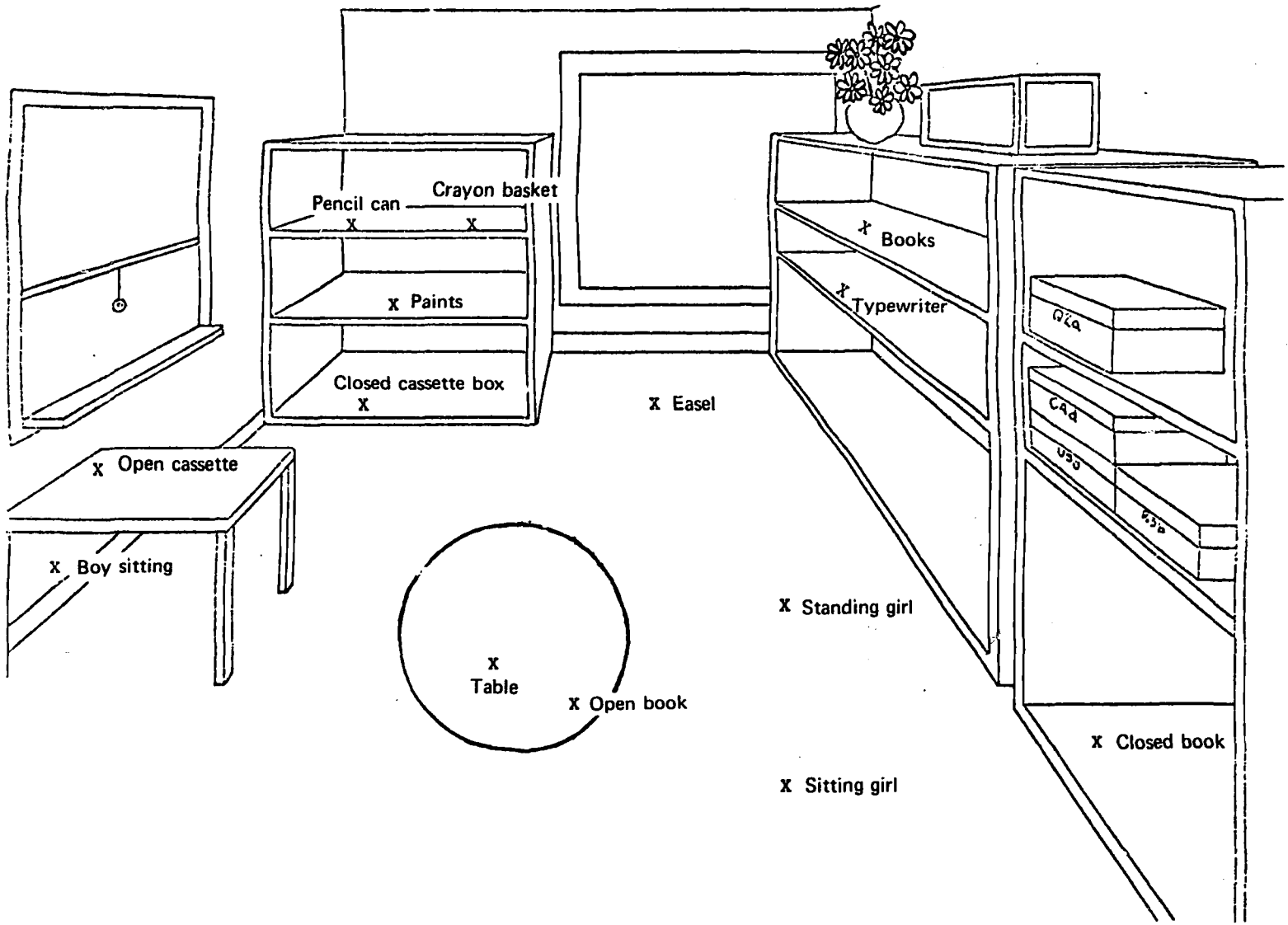

Figure A. Specification of Object Placement on the Presenter's Board for the Classroom Scene.

specification. The presenter told the receiver to put it on the round table, and the receiver put it on the table according to the presenter's instruction; in this case, when scoring, a circle should be made around the word typewriter on the recording sheet to indicate this fact.)

Scoring Instructions

Definitions			Points
1.	Presenter Subscores:		
	a. What object:	Labels or names the object correctly. Describes the object in terms of its attributes (e.g., the blue box that's rectangle in shape and has a handle on it).	1
	b. Position:	Describes the exact position the object is to be placed using prepositions such as on, in, next to, below, etc.	1
	c. What place:	Describes or names the place (object) on which the item should be placed.	1
2.	Receiver Subscores:		
	a. Object selected:	Selection of the correct object as named or described by the presenter.	1
	b. Placement (pair):	Correct placement of the object according to the message transmitted by the presenter, regardless of whether the presenter has made any decoding errors.	1
	c. Questions:	Asking of question(s) to request further explanation from the presenter. One point is given regardless of the quality of the question or the number of questions asked.	1

Scoring Instructions (continued)

Definitions			Points
3.	Mean Score:	The average of all six subscores--a measure of the quality of the inter-communication between the pair.	The sum of the subscores earned ÷ 6
4.	Criterion Score:	Correct placement of the object (as specified by the test) on the receiver's board--the placement of the object on the receiver's board matches exactly the placement of that same object on the presenter's board.	1

Instructions

1. The scorer should score one item at a time.

2. An entry (1 = correct, zero = incorrect or omission) should be given to each subcategory for each item.

3. When scoring, it is helpful to read the entire protocol for a given item first before scoring the subscores.

Scoring Sheet

Presenter: _____

Receiver: _____ Grade: _____

Item	Presenter			Receiver			Criterion Score
	What Object	Where		Object Selected	Object Placement (Pair)	Questioning	
		Position	What Place				
1. table							
2. open book							
3. boy sitting							
4. open cassette							
5. crayon basket							
6. paints							
7. closed cassette box							
8. poncil can							
9. easel							
10. typewriter							
11. books							
12. standing girl							
13. sitting girl							
14. closed book							
Total							
Mean							

Mean Score _____